
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

Form F-3

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

TC BIOPHARM (HOLDINGS) PLC
(Exact name of registrant as specified in its charter)

Not Applicable
(Translation of registrant's name into English)

Scotland
(State or other jurisdiction of
incorporation or organization)

Not Applicable
(I.R.S. Employer
Identification Number)

Maxim 1, 2 Parklands Way
Holytown, Motherwell, ML1 4WR
Scotland, United Kingdom
+44 (0) 141 433 7557
(Address and telephone number of registrant's principal executive offices)

TC BioPharm (North America) Inc.
c/o Business Filings, Inc.
108 West 13th Street
Wilmington, Delaware 19801
(800) 981-7183
(Name, address, and telephone number of agent for service)

Copies to:
Richard A. Friedman, Esq.
Stephen Cohen, Esq.
Sheppard, Mullin, Richter & Hampton LLP
30 Rockefeller Plaza
New York, NY 10112
Telephone: (212) 653-8700
Facsimile: (212) 653-8701

APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. ☐

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. ☒

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a registration statement pursuant to General Instruction I.C. or a post-effective amendment thereto that shall become effective on filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☐

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.C. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933.

Emerging growth company ☒

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards[†] provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

† The term “new or revised financial accounting standard” refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED NOVEMBER 27, 2024

PRELIMINARY PROSPECTUS

\$100,000,000



**American Depositary Shares representing Ordinary Shares
Debt Securities
Warrants
Rights
Units**

This prospectus will allow us to issue, from time to time at prices and on terms to be determined at or prior to the time of the offering, up to \$100,000,000 of any combination of the securities described in this prospectus, either individually or in units. We may also offer: American Depositary Shares, or ADSs, representing ordinary shares upon conversion of or exchange for the debt securities or upon the exercise of the warrants or rights.

This prospectus describes the general terms of these securities and the general manner in which these securities will be offered. We will provide you with the specific terms of any offering in one or more supplements to this prospectus. The prospectus supplements will also describe the specific manner in which these securities will be offered and may also supplement, update or amend information contained in this document. You should read this prospectus and any prospectus supplement, as well as any documents incorporated by reference into this prospectus or any prospectus supplement, carefully before you invest.

Our securities may be sold directly by us to you, through agents designated from time to time or to or through underwriters or dealers. For additional information on the methods of sale, you should refer to the section titled “Plan of Distribution” in this prospectus and in the applicable prospectus supplement. If any underwriters or agents are involved in the sale of our securities with respect to which this prospectus is being delivered, the names of such underwriters or agents and any applicable fees, commissions or discounts and over-allotment options will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds that we expect to receive from such sale will also be set forth in a prospectus supplement.

Our ADSs are listed on The Nasdaq Capital Market under the symbol “TCBP” and our warrants are listed on The Nasdaq Capital Market under the symbol “TCBPW”. On November 25, 2024, the last reported sale price of our ADSs on The Nasdaq Capital Market was \$0.656 per ADS and the last reported sale price of our warrants on The Nasdaq Capital Market was \$0.016 per warrant. The applicable prospectus supplement will contain information, where applicable, as to any other listing, if any, on The Nasdaq Capital Market or any securities market or other securities exchange of the securities covered by the prospectus supplement. Prospective purchasers of our securities are urged to obtain current information as to the market prices of our securities, where applicable.

On November 25, 2024, the aggregate market value worldwide of our outstanding voting and non-voting common equity held by non-affiliates was approximately US\$5.4 million, based on 1,641,097,085 ordinary shares outstanding (which would be represented by 8,205,485 ADSs assuming all holders held ADSs) held by non-affiliates as of November 25, 2024, and a per ADS price of US\$0.656 based on the closing sale price of the ADSs on The Nasdaq Capital Market on November 25, 2024. Pursuant to General Instruction I.B.5 of Form F-3, in no event will we sell securities registered on this registration statement of which any prospectus supplement forms a part in a public primary offering with a value exceeding one-third of our outstanding voting and non-voting common equity held by non-affiliates (the “public float”) in any 12-month period so long as our public float remains below US\$75.0 million. During the 12 calendar months prior to and including the date of this prospectus, we have not offered or sold any securities pursuant to General Instruction I.B.5. of Form F-3.

Investing in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks that we have described on page 28 of this prospectus under the caption “[Risk Factors](#)” We may also include specific risk factors in supplements to this prospectus under the caption “Risk Related to This Offering.” This prospectus may not be used to sell our securities unless accompanied by a prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is , 2024.

ABOUT THIS PROSPECTUS	4
PROSPECTUS SUMMARY	6
RISK FACTORS	28
SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS	28
CAPITALIZATION	29
USE OF PROCEEDS	29
PLAN OF DISTRIBUTION	29
DESCRIPTION OF SHARE CAPITAL	31
DESCRIPTION OF DEBT SECURITIES	45
DESCRIPTION OF WARRANTS	51
DESCRIPTION OF RIGHTS	52
DESCRIPTION OF UNITS	53
DESCRIPTION OF AMERICAN DEPOSITARY SHARES	54
EXPENSES	62
LEGAL MATTERS	62
EXPERTS	62
ENFORCEMENT OF JUDGMENTS	62
WHERE YOU CAN FIND MORE INFORMATION	63

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, utilizing a “shelf” registration process. Under this shelf registration process, we may offer ADSs representing our ordinary shares, various series of debt securities or warrants, and rights to purchase any of such securities, either individually or in units, in one or more offerings, with a total value of up to \$100,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will contain specific information about the terms of that offering.

This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the securities, you should refer to the registration statement, including its exhibits. The prospectus supplement may also add, update or change information contained or incorporated by reference in this prospectus. However, no prospectus supplement will offer a security that is not registered and described in this prospectus at the time of its effectiveness. This prospectus, together with the applicable prospectus supplements and the documents incorporated by reference into this prospectus, includes all material information relating to the offering of securities under this prospectus. You should carefully read this prospectus, the applicable prospectus supplement, the information and documents incorporated herein by reference and the additional information under the headings “Where You Can Find More Information” and “Incorporation of Documents by Reference” before making an investment decision.

You should rely only on the information we have provided or incorporated by reference in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained or incorporated by reference in this prospectus. You must not rely on any unauthorized information or representation. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus or any prospectus supplement is accurate only as of the date on the front of the document and that any information we have incorporated herein by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of a security.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

This prospectus may not be used to consummate sales of our securities unless it is accompanied by a prospectus supplement. To the extent there are inconsistencies between any prospectus supplement, this prospectus and any documents incorporated by reference, the document with the most recent date will control.

Unless the context requires otherwise, in this prospectus TC BioPharm (Holdings) plc (formerly TC BioPharm (Holdings) Limited, which was re-registered as a public limited company on January 10, 2022) and its subsidiaries (“Subsidiar(y/ies)”), and TC BioPharm Limited (our principal trading subsidiary) shall collectively be referred to as “TCB,” “the Company,” “the Group,” “we,” “us,” and “our” unless otherwise noted.

On December 17, 2021, prior to our initial public offering, the Company undertook a corporate reorganization pursuant to which TC BioPharm (Holdings) plc became the group holding company. The Company in turn effected a forward split of its ordinary shares on a 10 for 1 basis. On November 18, 2022 the Company undertook a reverse share split such that fifty issued ordinary share were exchanged for one new ordinary share. On December 15, 2023, we effected a change to the ratio of our ADSs to our ordinary shares from one ADS representing one (1) ordinary share to one ADS representing twenty (20) ordinary shares. On August 5, 2024, we effected a change to the ratio of our ADSs to our ordinary shares from one ADS representing twenty (20) ordinary shares to one ADS representing two hundred (200) ordinary shares. Except as otherwise indicated, all information in this prospectus gives retroactive effect to the above mentioned ADS ratio changes.

As a result of the share splits and ratio changes, all references included in this document to units of ordinary shares or per share amounts are reflective of the forward and reverse share splits for all periods presented. In addition, the exercise prices and the numbers of ordinary shares issuable upon the exercise of any outstanding options to purchase ordinary shares were proportionally adjusted pursuant to the respective anti-dilution terms of the share-based payment plans.

This prospectus includes statistical, market and industry data and forecasts which we obtained from publicly available information and independent industry publications and reports that we believe to be reliable sources. These publicly available industry publications and reports generally state that they obtain their information from sources that they believe to be reliable, but they do not guarantee the accuracy or completeness of the information. Although we believe that these sources are reliable, we have not independently verified the information contained in such publications. In addition, assumptions and estimates of our and our industry’s future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the “Risk Factor Summary”. These and other factors could cause our future performance to differ materially from our assumptions and estimates.

Some of our trademarks and trade names are used in this prospectus, which are intellectual property owned by the Company. This prospectus also includes trademarks, trade names, and service marks that are the property of other organizations. Solely for convenience, our trademarks and trade names referred to in this prospectus appear without the TM symbol, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights, or the right of the applicable licensor to these trademarks and trade names.

PROSPECTUS SUMMARY

The following is a summary of what we believe to be the most important aspects of our business and the offering of our securities under this prospectus. We urge you to read this entire prospectus, including the more detailed consolidated financial statements, notes to the consolidated financial statements and other information incorporated by reference from our other filings with the SEC or included in any applicable prospectus supplement. Investing in our securities involves risks. Therefore, carefully consider the risk factors set forth in any prospectus supplements and in our most recent filings with the SEC including our Annual Reports on Form 10-K, reports on Form 10-Q and reports on Form 6-K, as well as other information in this prospectus and any prospectus supplements and the documents incorporated by reference herein or therein, before purchasing our securities. Each of the risk factors could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our securities.

Corporate Overview

TCB is based in Scotland and is a clinical-stage biopharmaceutical company focused on developing novel immunotherapy products based on our proprietary allogeneic gamma delta T (GD-T) cell platform. Harnessing the innate ability of GD-Ts has enabled us to develop a range of clinical-stage cell therapies designed to combat cancer and viral infection.

In-house clinical studies have demonstrated that our unmodified allogeneic GD-T products are (i) well tolerated and (ii) show preliminary evidence of disease modification in patients with the late-stage blood cancer, known as acute myeloid leukemia (AML). Based on clinical data generated by us believe that unmodified GD-Ts have the potential to treat all blood cancers.

TCB now is embarking on phase 2b-into-pivotal (phase 3) clinical studies with a view to launching its first oncology product for the treatment of AML. Clinical results generated thus far have enabled us to obtain FDA orphan drug status for treatment of AML.

In addition to unmodified allogeneic GD-Ts for treatment of blood cancers, we are also developing an innovative range of genetically-modified CAR-T products for treatment of solid cancers. We believe that solid cancers are more difficult to treat than blood cancers and may require the addition of a CAR “chimeric antigen receptor” (i) to help therapeutic cells to “navigate” into diseased cancerous tissue and (ii) to retain therapeutic cells in-situ at the lesion for maximal efficacy (increased persistence).

In order to manufacture our portfolio of allogeneic products, TCB selects the highest quality GD-T cells from healthy donors, activate the cells and grow them in large numbers at our in-house GMP-compliant manufacturing facility before administration to a patient in order to target and then destroy malignant or virally-infected tissues. TCB believes that we have introduced a step-change to our manufacturing platform by implementing a freeze-thaw process that will allow product to be shipped from cleanroom to patient without any shelf-life issue. Resulting products, TCB believes, will be more cost-effective and straightforward to ship from cleanroom to clinic.

At this stage, TCB does not have any approved products. Accordingly, TCB has not generated any revenue from the sale of products, and TCB does not expect to generate any such revenue unless and until it obtains regulatory approvals for, and commercialize any of, our product candidates. In the future, TCB will seek to generate revenue primarily from product sales and, potentially, regional or global collaborations with strategic partners, which may produce license fee income.

See “Business - Overview” in 2023 Form 10-K incorporated by reference in this prospectus.

Intellectual Property

We have a strong portfolio of patents covering manufacture and commercialization of GD-T cell products and their modification via CAR-T (summarized below). Our technology platform and clinical programs have enabled us to raise over \$100 million in grant, equity and collaboration funding since becoming operational in 2017. This financing has allowed us to enhance and expand our clinical and preclinical programs as well as build our team of world-class scientists.

The following table provides an overview of our core technology platforms, technology assets and competencies across the business. Additional details of our intellectual property portfolio are provided below.

ASSET SUMMARY	ATTRIBUTES
GD-T Vehicle	<ul style="list-style-type: none"> • Readily available and expanded to high numbers. • Not MHC-restricted, therefore no graft vs host disease – an allogeneic platform. • Pre-programmed tropism for infiltration of diseased tissue. • Multiple modes of innate cytotoxicity and coordinating a wider immune response. • Clinical tolerability of the allogeneic vehicle demonstrated at high dose level. • Naturally arising in different subtypes offering a menu of vehicles with unique properties.
Allogeneic Cell Banks	<ul style="list-style-type: none"> • Donor GD-Ts selection based on highest therapeutic quality. • Reproducible product with low cost-of-goods compared with autologous (patient-bespoke) therapies, can be frozen-shipped, thawed at clinic. • Well understood clinical and regulatory pathway to commercialization.
Co-stimulatory CAR-T	<ul style="list-style-type: none"> • Elimination of off-tumor toxicity. • Reduction of cytokine release from killing healthy cells. • Reliance on natural T cell activation and no tonic signaling • Antigen expression on healthy tissue tolerated – greatly expanded range. • Ability to use multiple co-stimulatory receptors to add functionality.
Integrated Business Model	<ul style="list-style-type: none"> • Full control of critical stages of development projects, which increases speed and reliability of development and production, optimizes operations to our specialized products and materially reduces our cost base • No pass-through or transaction costs from external service providers, which increases efficiency and speed of development and manufacturing and materially reduces our cost base • In-house clinical management ensures best chance of clinical success and avoids use of very expensive clinical management in early-stage trials, materially reducing our cost base.

The strength of our patents involves complex legal and scientific questions and can be uncertain.

We actively seek to protect the intellectual property and proprietary technology that we believe is important to our business, including seeking, maintaining, enforcing

and defending patent rights for our therapeutics and processes, whether developed internally or licensed from third parties. Our success will depend on our ability to obtain and maintain patent and other protection including data/market exclusivity for our therapeutic products and platform technology, preserve the confidentiality of our know-how and operate without infringing the valid and enforceable patents and proprietary rights of third parties.

Our policy is to seek to protect our proprietary position generally by filing an initial priority filing at the U.K. Intellectual Property Office, or UKIPO. This is followed by the filing of a patent application under the Patent Co-operation Treaty claiming priority from the initial application(s) and then progressing to national applications in, for example, the United States, Europe, Japan, Australia, New Zealand, China and Canada. In each case, we determine the strategy and territories required after discussion with our patent professionals to ensure that we obtain relevant coverage in territories that are commercially important to us and our GD-T therapeutic candidates. We will additionally rely on data exclusivity, market exclusivity and patent term extensions when available, including as relevant exclusivity through orphan or pediatric drug designations. We also rely on trade secrets and know-how relating to our underlying platform technology and therapeutic products. Prior to making any decision on filing any patent application, we consider, with our patent professionals, whether patent protection is the most sensible strategy for protecting the invention concerned or whether the invention should be maintained as confidential.

-7-

As of June 5, 2024, we own 16 granted patents and 11 patent applications in 3 families, and have an exclusive license to an additional 1 family of 14 granted patents and 8 patent applications. Consistent with the filing strategy outlined above, all of our applications are either UK applications, PCT applications or national phase applications derived from a corresponding PCT application. These patents and patent applications include claims directed to our therapeutic products and platform technology or other manufacturing and process technology to further enable our therapeutic products and manufacturing methods.

See “Business - Intellectual Property” in our 2023 Form 10-K incorporated by reference in this prospectus.

Our Business Strategy

We have taken a step-wise approach to clinical development and commercialization. To achieve this, we have made the clinical transition from autologous GD-Ts to allogeneic GD-Ts, improving our process for optimization of our product based on data and new technologies. The Company plans to maximize the value of TCB-008 and future iterations by expanding the use case for the product, effectively believing TCB-008 (and future such iterations) to be a “platform therapeutic” based upon its safety profile and the in-house knowledge of GD-Ts and TCB-008. Additionally, the Company plans to opportunistically add to the asset base of the Company around other cell therapy approaches and such technologies where we can leverage our expertise and facilities. Our commercialization strategy is to introduce products firstly in blood cancers (AML initially), and pending data, in other disease indications and in solid tumors as a combination therapeutic.

Our strategic objective is to build a global therapeutic business with an extensive portfolio of GD-T cell-based products with the potential to significantly improve the outcomes of patients with cancer and infectious disease. In order to achieve our objective, we are focused on delivering success in the following areas:

Progress unmodified GD-T2s into Phase 2/3 clinical trials for the treatment of blood cancers

Having generated meaningful clinical data showing our product is well-tolerated in late-stage AML patients with no remaining treatment options, we commenced phase 2b-into pivotal (phase 3) clinical studies under the trial name ‘ACHIEVE’, with OmniImmune® during 2022 in AML patients who have failed to respond adequately to induction therapy. The aim is to provide a form of salvage therapy which will either stabilize the patient, thereby preventing disease progression, or delay the requirement for human stem cell transplant. Our initial trial centers are in the UK and we are currently dosing patients in this trial. Working on the premise that other blood cancers should respond to GD-Ts in a similar manner to AML, TCB plans to conduct clinical studies for OmniImmune® in other hematological malignancies in future.

Unmodified GD-T2s for use in the treatment of fungal infections

Gamma-delta T cells are dysfunctional in patients with many severe viral diseases and TCB anticipates that its unmodified gamma delta T cell therapy platform will be used in due course to treat viral infections as well as cancers under the name ImmuniStim®. For example, during 2022 TCB developed a clinical trial protocol to treat patients with COVID 19. Because of the progress of the disease and absence of appropriate trial patients this trial is not currently being progressed, although we expect to continue our infectious disease program in future.

Grow our business operations to support the increasing number of clinical-phase products in development

We believe that our existing cell and gene manufacturing facility in the UK has the capacity to support our committed clinical development plans. We plan to continue to build upon this to support expansion of our product pipelines to new assets and to grow our clinical team. We also will work closely with vendors to embrace emerging technologies in our manufacturing operations that are appropriate and optimized for our products to continually improve the quality and efficiency of our manufacturing systems. We believe that maintaining in-house control of these activities is critical to effective and efficient progression and we will continue to seek to build integrated business functions where possible.

-8-

Apply our discovery engine to target further diseases and add additional functionality to our products

As a platform technology, our co-stimulatory CAR-T GD-T cell system has a wealth of potential options to build added functionality into our cell-based platform. We plan to continue to innovate and partner in the field to augment our drug products and introduce next generation attributes. We also plan to continue to innovate our manufacturing and supply chains to efficiently scale our processes and simplify the interface with patients and healthcare professionals, whilst continually seeking to reduce manufacturing costs to improve patient access.

Expand our intellectual property portfolio and acquire additional technologies to augment our strong IP position

We intend to continue building on our technology platform, comprised of intellectual property, proprietary methods and know-how in the field of GD-T cells. These assets form the foundation for our ability, not only to strengthen our product pipeline, but also to successfully defend and expand our position as a leader in the field of GD-T based immune-oncology.

See “Business - Business Strategy” in our 2023 Form 10-K incorporated by reference in this prospectus.

TCB’s Strengths

Our clinical trials have provided very strong evidence of drug-tolerant and some preliminary evidence of clinical benefit.

Our clinical trial of TCB001 involved treatment of patients with autologous unmodified GD-Ts. In a phase 1b/2a dose-ranging safety study (maximum total dose 30x10⁹ cells) we saw no evidence of drug-related severe adverse events. A total of eight patients were treated with escalating doses of TCB001, and no treatment-related toxicities were reported during the full six-week therapeutic course. Data from OmniImmune® (TCB002) suggests an excellent tolerability, with no observed Host versus Graft

Disease (HvGD) and some preliminary indication of clinical benefit. OmnImmune® (TCB002) has been granted Orphan Drug Designation by the FDA.

Our CAR-T platform is centered on development of safer and more widely applicable therapeutic candidates and associated process and manufacturing capabilities.

Our proprietary co-stimulatory CAR-T technology platform covers identification of target cancer antigens, successful design and engineering of target sequences, preclinical safety testing and optimized manufacturing processes suitable for producing therapeutic candidates for use in clinical trials and commercialization. We believe the platform will enable development of additional GD-T cell therapeutic candidates targeting cancers that have previously been difficult to treat. We believe the products will be demonstrably safer than the current generation of AB T cell CAR-T products because they will not attack healthy non-cancerous cells and augment the natural biological process rather than bypassing it.

We have identified a large and growing pool of cancer targets for which we can develop additional therapeutic candidates.

We have identified over 20 antigens that are preferentially expressed in cancer cells and have established ongoing research programs to develop several of these into our GD-T platform. Within the terms of our agreement, bluebird bio, we have first right of refusal on a further three oncology targets. Each antigen target presents an opportunity to target many cancer types and therefore presents multiple potential represents a development, collaboration and/or an out-licensing opportunity as each target could be used to target specific cancer types. Growing the pipeline of products built on our co-stimulatory CAR-T and reaching patients is our priority.

-9-

We have historically entered collaborative arrangements with partners (bluebird bio, Inc (now 2seventybio). (USA) and Nipro Corporation (Japan), which involve funded or partly funded preclinical collaboration. It is uncertain at this time whether TCB will receive any significant revenues from these collaborations.

We retain control of key business elements, such as product manufacture and clinical research.

Whilst many companies contract out product manufacture, quality systems and clinical trial management, we have elected to build these skills in-house. TC BioPharm has a GMP (Good Manufacturing Practice) cleanroom facility where our products are manufactured. We also retain all the quality support systems such as product testing and release of final product to the clinic. Keeping these systems in-house allows the Company to control all aspects of the manufacturing process whilst significantly reducing costs of goods (CoGs). Further saving on costs are accrued by in-house manufacture, as contract manufacturing organizations (CMOs) will typically charge several times more than the actual costs to maintain their profit margins. Rather than fully outsource our clinical trial management, data management and pharmacovigilance, we maintain an inhouse clinical team that partners with a contract clinical research organization (CRO) for data management and pharmacovigilance services. The inhouse clinical team conducts and manages our own clinical trials in-house. In addition to significant cost savings, this allows us to build a strong working relationship with physicians who are treating the cancer patients; we believe this is key to successful product development as the physicians participating in our clinical studies will also be our future customers. We believe that retaining control of key elements of our business such as GMP manufacture and clinical operations, has allowed TC BioPharm to move quickly and efficiently since incorporation.

We continue to file new patent applications from new in-house product development, and have a strong growing intellectual property portfolio to protect our products and proprietary platform.

We have a strong intellectual property portfolio covering the key aspects of our manufacturing processes and product platforms. Our in-house product development team are dedicated to developing new therapeutic candidates and optimizing current manufacturing processes. All of our patent families are currently in various stages of the patent approval process, and as leaders in the path towards the commercialization of GD-Ts we hold significant first-mover advantage captured by trade secrets and know-how.

Our policy of developing strategic alliances has and will provide additional support for product development and commercialization.

We believe that strategic alliances, both historic and potential future alliances, have and will provide extensive experience in scale-up and automation, culture media manufacture and post-authorization sales and marketing with regional expertise. Additionally, we expect to use knowledge gained from our collaborations to improve development pathways for our unpartnered CAR-T therapeutic candidate programs.

We have a highly knowledgeable and experienced management team with extensive industry experience and expertise in the United States and in Europe.

Mr. Kobel joined us as our Chief Executive Officer at the time of our IPO. Bryan brings a US presence to our executive team and over 15 years' experience in Healthcare and Life Sciences capital markets. Martin Thorp, our Chief Financial Officer has over 40 years' experience in implementing capital strategies globally from seed investment to IPO. He was global CEO of Arthur Andersen Corporate Finance based in New York.

Ability to treat patients under the 'Specials' regulatory framework.

European regulations (Regulation 167 of the Human Medicines Regulations 2012) set out the exemption from the requirement for a medicinal product, placed on the market in the UK to hold a marketing authorization. This exemption flows from Article 5(1) of EU Directive 2001/83/EC, which states that a member of the EU may, in accordance with legislation in force and to fulfil special needs, excludes from the provisions of this Directive medicinal products supplied in response to a bona fide unsolicited order, formulated in accordance with the specifications of an authorized healthcare professional and for use by an individual patient under his or her direct personal responsibility. Such an unlicensed medicinal product may only be supplied in order to meet the special needs of an individual patient. An unlicensed medicinal product should not be supplied where an equivalent licensed medicinal product can meet the special needs of the patient. Responsibility for deciding whether an individual patient has "special needs" which a licensed product cannot meet should be a matter for the doctor, dentist, nurse independent prescriber, pharmacist independent prescriber or supplementary prescriber responsible for the patient's care.

-10-

In terms of time and cost, the 'Specials' scheme is an attractive strategy. We believe that accumulating evidence by this route could lead to rapid and wider product uptake through 'off-label' use.

TCB believes it has certain identified strengths. These include:

- Clinical trials that have provided strong evidence of safety and some preliminary indications of clinical benefit;
- A proprietary co-stimulatory CAR-T technology platform which we believe allows solid cancers to be treated without toxic side-effects;
- Identification of a large pool of cancer targets for which we believe we can develop therapeutic candidates;
- Retention of key business elements, especially in-house ability to manufacture cell-based product and conduct our own clinical research;
- Robust, and growing intellectual property portfolio protecting our products and proprietary platform;
- Our policy is to develop strategic collaborations with leading, international companies to work together with us to develop certain GD-T CAR-T products into clinic. We believe that existing and future collaborations will provide us with experience in scale-up and automation, and post-authorization sales and marketing;
- A highly knowledgeable and experienced management team with extensive industry experience and expertise in the United States and in Europe; and
- Ability to treat patients under the 'Specials' regulatory framework in Europe.

Our Pipeline

What are gamma delta T cells?

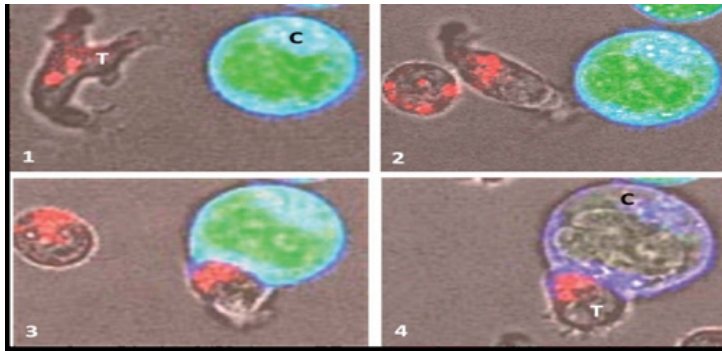
The immune system plays an important role in targeting and destroying cancer cells. One component has evolved to scan the body for diseased cells and eradicate them. In humans, GD-Ts arise as a number of different subtypes, defined by the sequence of the gamma and delta chains of the T-cell receptor (TCR) on the cell surface. The gammadelta2 (GD-T2) subtype typically is the most abundant of these cells in healthy humans, and its TCR- of anti-cancer immunity is GD-T cells – a type of white blood cell that express a variety of innate receptors, which mediated signaling has been fully characterized by researchers.

Virally-infected or cancerous cells become stressed and accumulate cell surface phosphoantigens (isopentenyl pyrophosphate – IPP's) which are recognized by GD-T2 cells. Our proprietary technology platform includes the manufacturing of unmodified and genetically modified (CAR-T) GD-T cells as therapeutic candidates for use in clinical trials and commercialization. Almost all aspects of the value-chain from product manufacture, quality systems, clinical and regulatory are operated in-house by TC BioPharm. We believe this is one of our core competitive advantages, which we believe will contribute materially to our ability to overcome the challenging nature of developing new products.

Human lymphocytes comprise two groups of cells, B cells that generate antibodies for humoral immunity, and T cells that are responsible for cellular immune responses. In healthy individuals, GD-T cells generally represent between 1% and 10% of peripheral blood T lymphocytes and present one of the first lines of defense against a wide range of bacterial and viral pathogens, as well as surveillance for cancerous cells. GD-T cells have the ability to regulate the initial immune response in several ways, including recruitment of other immune cells such as neutrophils, dendritic cells and macrophages through production of various chemokines (Kirby *et al.*, 2007). Depletion of GD-T cells leads to impaired host defense to lung infections, for example (Moore *et al.*, 2000; Lockhart *et al.*, 2006). The predominant subset of GD-T cells in the blood is the GD-T2, which mediates a variety of immune responses by direct cytotoxicity of cancer cells and infected cells, development of memory phenotypes and modulation of other immune cells. The gammadelta1 (GD-T1) is a functionally distinct subset of GD-T cells, which are a predominantly tissue resident population. GD-T1s are less well characterized, but their cytotoxic function also has been described in different liquid and solid tumors (Siegers & Lamb, 2014).

-11-

Both subsets of GD-T cells are thought to play a role in autoimmune disorders such as celiac disease, rheumatoid arthritis, autoimmune polyglandular syndrome and sarcoidosis where such lymphocytes are seen to accumulate in high numbers.



GD-T cell killing a cancer cell.

(1) A human GD-T (labelled 'T') identifies and scans (2) the surface of a cancer cell (labelled 'C'). On contact with the cancer cell (3) the GD-T releases perforin granules (stained red) into the cancer cell, rupturing its membrane (4) destroying the cancer cell (adapted from – Enc Life Sci, Jul-2007).

How can GD-Ts be used to treat disease?

Cellular immunotherapy is a form of treatment that harnesses the cells of the immune system to combat disease and is one of the most actively pursued areas of research by biotechnology and pharmaceutical companies today. Interest in immunotherapy is largely driven by recent compelling efficacy data in cancers and by the potential to achieve a cure or functional cure for some patients. While the field of immunotherapy in cancer, in general, has achieved proof of concept and yielded significant durable responses in multiple tumor types, there remain major tumor types such as colon, breast, and prostate cancers as well as patient groups within responsive tumors, that do not respond to current immunotherapy treatments. One theory to explain this non-responsiveness is that certain tumors require direct immune stimulation. T cell-based technologies seek to deliver activated T cells towards malignancies to initiate an immune response. The primary challenges in the field have been to couple an acceptable efficacy and safety profile to successfully target solid tumors.

Adoptive T cell transfer typically involves administration of autologous, allogeneic, or genetically-modified T cells (see footer below) into a recipient host with the specific goal of boosting or transferring enhanced immunologic functionality. One of the most advanced cell-based approaches – chimeric antigen receptor modified T cells (CAR-T) – has gained momentum. In a recent study, patients with refractory B cell acute lymphoblastic leukemia were treated with autologous genetically-modified T cells, with almost 90% of patients showing a marked improvement (Pan *et al.*, 2017). Although the treatment is showing promise for specific tumor types, the safety profile remains a concern, as serious adverse events have previously been reported following CAR-T therapy (Grigor *et al.*, 2017). As a consequence of safety issues related to this approach, regulatory approval may be more complex for this genetically modified T cell therapy which effectively has two 'starting materials' – (i) the cellular component, and (ii) a lentiviral vector. The therapeutic premise is well-established – T cells are transduced with a viral vector encoding a chimeric antigen receptor capable of recognizing cancer-specific antigens, for example, CD19 which is commonly expressed on several tumors such as myeloma and B cell lymphomas. Transduction is the process by which DNA is transferred from one cell to another by a virus; in this specific case DNA is introduced via a viral vector (a tool commonly used by molecular biologists to deliver genetic material).

Following transduction, the T cells are genetically primed to recognize and kill specific tumor cells expressing the target antigen. The process involves extracting a patient's T cells (or growing an allogeneic T cell bank), transfecting the cells with a gene for a chimeric-antigen-receptor (CAR), and re-infusing transfected T cells into the patients. The use of cancer-specific cell therapies has gained momentum as several companies demonstrated that genetically modified CAR-T cells are efficacious when directed against blood tumors. These breakthrough findings have moved cell-based immunotherapy into the forefront of clinical oncology with two drugs now in the market.

-12-

T lymphocytes have long been known to play an important role in cancer suppression and modulation of tumor growth and numerous experimental studies have demonstrated the anti-cancer potential of GD-T lymphocytes. Indeed, GD-T cells can recognize a number of specific tumor-associated molecules including non-peptidic antigens (IPP's – isopentenyl pyrophosphate) and immune surveillance stress signals (such as HSP60/70, MICA, MICB, and ULBP) present on the surface of transformed cells. The GD-T cell overexpresses IL-2 receptors and this cytokine is necessary to activate them (Kjeldsen-Kragh, 1993). On recognizing a tumor cell, GD-T cells exert their anti-cancer properties *via* release of both perforin and of granzyme, a serine protease which enters the target cell to trigger cell death (apoptosis). Our research efforts are focused entirely on targeting tumors in ways that may result in an improved therapeutic index and that have potential applications in solid tumors as well as hematological malignancies. In contrast to conventional AB CAR-T cells, our GD-T cell technology provides greater specificity in targeting tumors through recognition of IPP-expressing cells, whilst avoiding on-target, off-tumor effects on healthy tissue lacking in IPPs.

Liquid cancers

For cell therapies to be effective several parameters need to be addressed. These include (i) viability, (ii) homing to the tumor, (iii) persistence at the tumor, and (iv) target-specificity.

Use of unmodified GD-Ts to treat blood cancers addresses all the above factors. We believe that (i) we have demonstrated therapeutic cells remain viable when injected into the bloodstream of cancer patients; (ii) our research shows GD-Ts injected into the bloodstream remain in-situ; and (iii) they persist for up to 100 days after administration. Moreover, we believe we have demonstrated that certain late-stage blood cancer patients treated with multiple GD-T doses have shown significantly positive responses. These findings lead TCB to believe that all patients with similar blood cancers may respond to GD-T cell therapy in a positive manner.

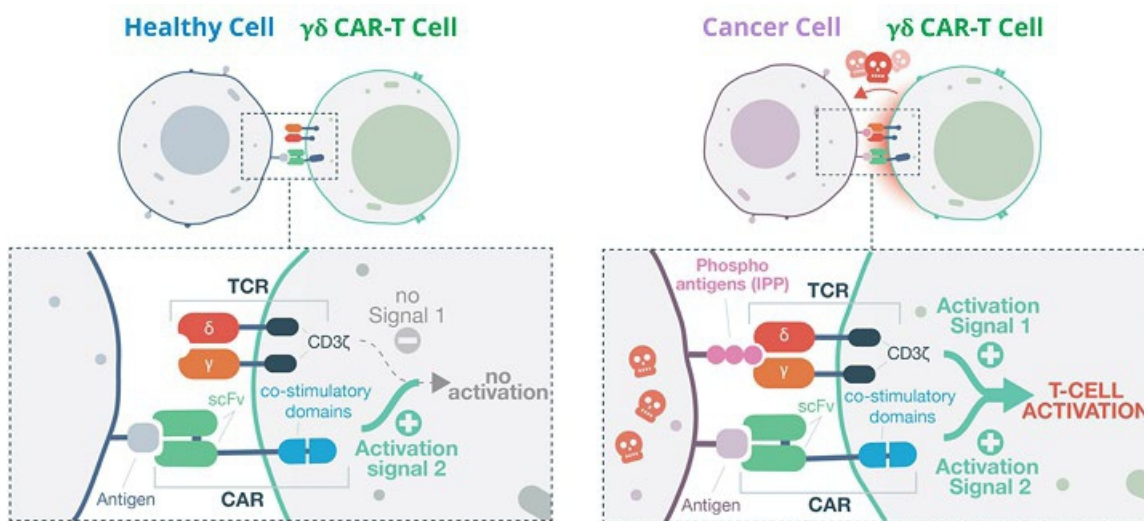
Solid cancers

We believe that it may be necessary to use CAR-T technology (i) to maximize therapeutic cell homing into the solid tumor site, and (ii) to increase GD-T cell persistence by 'tethering' the cell to antigens present on the cancer cell surface.

In order to overcome toxicities seen with conventional CAR-T approaches, we believe that we have developed a 'co-stimulatory' GD-T CAR which will only attack and kill cancerous cells whilst leaving healthy cells unharmed. This is important as many of the current conventional CAR-T therapies cannot distinguish target antigens expressed on healthy cells from those on cancerous cells, which results in various pathologies, including cytokine release syndrome, that in some cases had led to patient death. Such targeting of health cells with conventional CAR-T makes their use in solid cancers difficult, as too much healthy tissue is likely to be destroyed as 'collateral' damage in the treatment process.

-13-

The diagram below illustrates how TCB's approach works, using the innate receptors on the GD-T cell surface to act as a 'safety switch' – such receptors are generally not triggered by healthy cells, only by disease markers (IPP's) on the surface of cancerous or virally infected cells.



Co-stimulatory CAR-T: A) No GD-T cell activation in healthy cell. B) GD-T activation and cell-killing in cancer cell.

Autologous cells are derived from 'self', using patients own cells to treat their specific disease

Allogeneic cells are derived from donor material, giving rise to cell banks able to treat numerous patients

Genetically-modified cells are typically engineered with a 'chimeric' receptor to target specific cancer antigens

Commercialization of conventional CAR-T cell therapy has taken decades of high-quality research in academia and industry, and it has provided transformational results for a number of patients with B cell malignancies. However, as noted, there are numerous barriers to widespread adoption, including:

- **Severe Toxicities.** The significant risk of severe toxicities, especially cytokine release syndrome (CRS) and neurotoxicity occurring up to 3 weeks from treatment. These toxicities have resulted in the need for implementing specific clinical pathways to certify staff and facilities in the administration of the drugs and the management of the toxicities.
- **On-target, off tumor toxicities.** Conventional CAR-T products have no mechanism for discriminating between diseased and healthy cells. Activation is governed solely by the expression of the target antigen, which can lead to toxicity when the target antigen is expressed on healthy cells. In marketed products targeting CD19 (present in the vast majority of B cells), this can be tolerated as B-cell aplasia, albeit with the need for regular long-term immunoglobulin replacement therapy. However, in experimental CAR-T products targeting other antigens this has been shown to cause serious side-effects, up to and including fatality.
- **Complex supply chains associated with autologous treatments.** By definition, autologous treatments require the source cells to have been collected from the patient. It therefore requires a personalized supply chain with multiple touch points and the manufacturing process can only ever be performed on a single-patient batch size. This adds complexity to each treatment and has required the introduction of completely new processes and infrastructure in able to commercialize the products.
- **Inherent variability of the drug product.** Each patient has a different cell population and so the starting material of each manufacturing batch is always variable, leading to variable final product. This can be minimized during pre-screening, which eliminates some patients from treatment, but there are still significant challenges in manufacturing to provide consistent batches of drug products and in understanding which variables are critical to product quality.

-14-

- High list price of the products. The need for personalized manufacturing, new supply chain processes and management of acute and chronic toxicities have all contributed to the high prices associated with the first CAR-T products reaching the market. In the USA, Kymriah® has a list price of \$475,000 for pediatric ALL, and Yescarta® lists at \$373,000 for DLBCL patients. The associated treatment costs and ongoing management can increase this price significantly

The combination of the co-stimulatory CAR, with GD-T cells, provides TCB with a proprietary platform which we believe addresses the problems with existing CAR-T products in the following ways:

- Using the natural T cell signaling of the GD-T cell will, we believe, result in less risk of hyperactivation and tonic signaling with an overall reduction in the risk of CRS and less exhaustion of the cells.
- The requirement on cell activation remains on the endogenous GD-T cell TCR signal, which detects stress signals associated with cancerous cells, so healthy cells are not targeted for destruction even if the target antigen is expressed and the CAR binds, thus off-tumor toxicity is avoided.
- Manufacturing in batches of high dose numbers, without the complex patient collection of personalized supply chain steps, we believe will result in a dramatic reduction in cost of goods. This will be reflected in a list price which is in line with current biologicals. With the reduced likelihood of associated toxicities, the treatment and management costs should also be significantly lower, and the products can be made available to many more patients as a result.
- The combination of a well-tolerated product and simplified supply chain (by virtue of our proprietary CryoTC freeze-thaw process), we believe, will make the therapy suitable for administration in local oncology centers without patients having to locate in centralized specialist centers of excellence, further reducing financial and logistic barriers to treatment.
- The tolerance of “off tumor” antigen binding without associated toxicity allows for a complete change in the current target identification paradigm. Instead of identifying targets that are exclusively expressed on tumor cells, we believe our co-stimulatory CAR-T approach confers an advantage to select targets that can be highly expressed on tumors and at low levels on healthy tissue. We select targets based on their relative therapeutic index increase in expression, their homogeneity in tumors and the antigen density. This allows us to target significantly more tumor associated antigens and to significantly expand the therapeutic index into higher doses or repeat administration.
- GD-T cells have multiple roles in humans, possessing both innate and adaptive functions. One role is a sentinel surveillance cell, and they are biologically primed to travel through tissue searching for sites of cellular stress. This ability to penetrate tissue makes them advantageous agents for treating solid tumors. We can add additional function to the GD-T cells by using one or more co-stimulatory CAR-T constructs to add targeting to appropriate antigen(s) and to provide armor or strategies to overcome environmental and immune suppression in the tumor microenvironment. Therefore, we believe that the platform offers a promising approach to target the full spectrum of cancer diseases.

Viral infections

GD-Ts are natural killers of virally infected cells, as well as cancerous cells. We believe that our unmodified GD-T therapy offers substantial potential as a first line of attack against future viral pandemics. During the COVID-19 pandemic, we took the opportunity to develop a trial protocol to treat patients with COVID-19, which was approved by the MHRA. We are currently not progressing this trial because of the absence of available patients given the progression of the disease; however we would consider conducting a phase 1b/2a trial if more severe/pathogenic variants emerge and we believe that there is considerable opportunity to deploy our GD-T therapy in the treatment of viral infections, including rapid response treatment of future epidemics and pandemics and selected acute viral infections. Whilst our current focus is to prioritize cancer treatment we will seek opportunities to develop viral treatments either on our own or in partnership in future. Numerous peer-reviewed publications have demonstrated that GD-T cells innate killers of cells which have become virally infected. Using Epstein-Barr virus infected cells as an exemplar, TCB has conducted pre-clinical studies to demonstrate that our GMP-compliant manufacturing process results in GD-T with potent anti-viral cytotoxicity

-15-

Autologous versus allogeneic

Commercially available cell therapies typically are either autologous or allogeneic. Autologous products are taken from one donor (the patient) and used to treat that same donor (self-to-self), whilst allogeneic products are usually taken from a single donor (not a patient) and used as the starting material to treat a large number of different individuals (patients). GD-T lymphocytes are known to exert their biological effect in a non-MHC restricted manner. This means the potential for graft-versus-host mediated rejection is significantly reduced if allogeneic (non-self) cells are used as a treatment compared with many other immune cell therapies. As many patients with late-stage cancer or severe viral infections are also immunosuppressed, potential for host-mediated rejection of allogeneic cells is also reduced. When compared with autologous variants, commercial benefits of allogeneic treatment include the following:

- significant reduction in cost of goods;
- product can be campaign manufactured and stockpiled frozen;
- increased capacity to treat more patients;
- logistics of shipping product are simplified;
- higher doses of (reproducible) product are possible; and
- product is immediately available for acute disorders

Our strategy for developing an allogeneic solution for CAR-T is to select a pathway which will allow us to bring our products to patients as quickly as possible. These concepts build upon decades of previous development in allogeneic cell therapies and have clear understanding of development requirements in terms of manufacturing, clinical and regulatory execution.

Although manufacture of allogeneic cell therapies allows product to be “pharmaceuticalized” by virtue of campaign manufacture and storage, the approach is however not without technical and logistic challenges. To manufacture allogeneic banks, donor cells need to be screened for numerous adventitious agents, including for example, HIV, hepatitis, CMV and syphilis. Additional tumorigenicity testing is required, and assays conducted to ensure the cell bank is free from karyotypic aberrations. In order to overcome any potential for rejection, TCB has developed allogeneic GD-T cell banks that are unlikely to elicit a graft-versus-host (GvH) or host-versus-graft (HvG) immune response.

Donors are screened and selected based on clinically-relevant history and then based on the proliferative capacity and phenotypic character of their GD-Ts, based on a small volume blood draw and in-house assays. In this way, only good quality GD-T cells are selected for repeat apheresis and banking. The banks are HLA-typed and become the starting material for all of the allogeneic CAR-T products. These banks are cryopreserved in our facilities and can later be thawed, genetically engineered with the CAR, activated and expanded into final product, before being frozen again as multiple individual doses of drug product.

Generation of Gamma Delta T cells from iPSC cells

Identification of appropriate donors whilst possible is challenging as only a limited number of batches can be created from a single donation. GD-T cells can be routinely expanded from peripheral blood over 14 days. This provides a short window of opportunity for cell modification/engineering.

Induced pluripotent stem cells (iPSCs) have the potential to overcome these issues because they are capable of unlimited proliferation and multidirectional differentiation. In 2013, several research groups from Japan reported the successful reprogramming of $\alpha\beta$ T-cells, followed by re-differentiation back to $\alpha\beta$ T cells (Vizcardo *et al.*, 2013; Nishimura *et al.*, 2013; Themeli *et al.*, 2013). While re-differentiated $\alpha\beta$ T cells-maintained antigen specificity, they were also characterized by higher proliferation ability than an original T-cell clone.

-16-

We hypothesized that GD-T derived iPSCs cells that carry the rearrangements at the TCRG and TCRD gene locus will be able to generate GD-T but not $\alpha\beta$ T cells. Furthermore, iPSC cells will provide a vast opportunity for the gene-editing without any time constraints of terminally differentiated cells.

Reprogramming GD-T cells has proven to be a challenge, as these cells are not tolerant of cell sorting. Therefore, GD-T cells can be reprogrammed in a bulk culture with the rest of peripheral blood cells or at the end of 14 days expansion, when the purity of GD-T is highest. After several unsuccessful reprogramming attempts, we have optimized the conditions favoring GD-T cells reprogramming. In the last round of reprogramming >50 clones were created. After extensive analysis of DNA rearrangements in δ - and γ -locus of 5 pre-selected clones, it was confirmed that they are derived from GD-T cells with different TCR sequences.

iPSC technology is an attractive approach for the limitless source of GD-T cells as successful progress in reprogramming has been demonstrated. Further work is now required for the establishment of a GMP compatible T-cell differentiation protocol. Generation of GD-T cells from iPSC cells presents TCB with a vast opportunity for scaling without any time constraints of terminally differentiated cells.

Fresh versus frozen product

Commercial and clinical development of cellular therapy products will invariably require cryopreservation and frozen storage of cellular starting materials, intermediates and/or final product.

Optimizing cryopreservation is important to obtaining maximum yield and a consistent end-product. Suboptimal cryopreservation can lead not only to batch-to-batch variation, lowered cellular functionality and reduced cell yield, but also to the potential selection of subpopulations with genetic or epigenetic characteristics divergent from the original cell line.

Regulatory requirements also impact on cryopreservation, requiring a robust and reproducible approach to freezing, storage and thawing of the product. This requires attention to all aspects of the application of low temperatures; from the choice of freezing container and cryoprotectant, the cooling rate employed and its mode of delivery, correct handling of the frozen material during storage and transportation, to eventual thawing of the product by the end-user. Each of these elements influences all of the others to a greater or lesser extent and have been taken into consideration as TCB moves from fresh to cryopreserved cell-based product.

In a submission to UK regulators, we provided batch manufacture and supporting data, and TCB was granted approval to commence treatment of cancer patients using frozen allogeneic product. This represents a significant milestone for TCB, as we pioneer use of cryopreserved-donated cells to treat cancer. Obvious benefits include increased product reproducibility, ability to ship product globally on request and significant economy of scale (through batch manufacture and storage).

Clinical studies – unmodified GD-Ts in blood cancer

Management of acute myeloid leukemia (AML) is based on intensive chemotherapy and/or stem cell transplant, but these therapies lead to high relapse rates amongst treated patients. Particularly for the relapsed/refractory AML population or those who are not eligible for alloHSCT or intensive chemotherapy, the therapy options are limited, and patients are often placed in experimental protocol therapies or palliative care. As a result, there is a need for additional therapies, particularly for these cohorts.

GD-T cells have emerged as a promising therapy due to their ability to specifically target cancer cells. Nonclinical studies performed in AML cell lines suggest that GD-T cells specifically target AML tumor cells and lead to cell lysis in vitro (Kirk *et al.*, 1993). Additionally, in xenotransplantation animal models, GD-T cells obtained from healthy volunteers specifically target AML cells and result in increased survival and diminished tumor burden in NOD mice (Gertner-Dardenne *et al.*, 2012). Similarly, in vitro experiments conducted by TCB further support such findings whilst providing evidence that OmnImmune® (TCB002) specifically targets stress induced cells and effectively kills AML cell lines.

-17-

In the clinic, allogeneic treatment in AML patients in the phase 1b/2a trial OmnImmune® (TCB002) has shown our product is well-tolerated with some preliminary evidence of anticancer activity. Firstly, there were no signs of graft vs. host disease (GvHD) following therapy and secondly, CR (complete response) and MLFS (morphologic leukemia free state) were observed. Earlier results with autologous product demonstrated good tolerability. For the allogeneic product, OmnImmune® (TCB002), additional procedures were included to prevent GvHD (e.g. AB T cell depletion). Literature reports were also supportive of the use of OmnImmune® (TCB002) in cancer patients. The phase 1b/2a trial tested OmnImmune® (TCB002) in active relapsed or refractory AML who were not eligible for or did not consent to high dose salvage chemotherapy and/or allogeneic hematopoietic stem cell transplantation (alloHSCT). The trial was conducted to identify a tolerable dose and better understand the safety of this therapy in the chosen indication as well as generate preliminary information on potential clinical benefit. The primary, secondary and exploratory endpoints were as follows:

Primary endpoints:

- Assessment of adverse events (Aes) graded by Common Terminology Criteria for Adverse Events (CTCAE) v5.0, vital signs and evaluation of laboratory parameters
- Incidence of dose-limiting toxicities (DLTs) during the first 28 days after $\gamma\delta$ T cell administration.
- Establish Maximum Tolerated Dose (MTD) of OmnImmune®

Secondary endpoints:

- Complete Remission (CR) rate
- Overall survival (OS)
- Quality of life determined by EORTC QLQ-C30 questionnaire

Exploratory endpoints:

- Changes in $\gamma\delta$ T cell count and phenotype before and after OmnImmune® infusion

No formal statistical analysis was planned. The incidence of DLTs were to be summarized descriptively by $\gamma\delta$ T cells dose for evaluable patients. The recommended dose would be determined as the greatest with an incidence of DLTs no greater than 1/3. All other data including efficacy results were summarized descriptively by $\gamma\delta$ T cells dose.

The trial enrolled 8 patients and healthy donors aged >18 years.

Clinical outcome

Seven patients were treated with OmnImmune® (TCB002). The eighth patient could not be dosed because the study was terminated as a result of the COVID-19 pandemic, which prevented the importation of investigational product from Scotland to the Czech Republic. No safety concerns were raised during Safety Review Committee (SRC) meetings. No treatment related Serious Adverse Reactions (SARs) were reported in any of the patients who were enrolled in the trial. No grade ≥ 3 OmnImmune® (TCB002) treatment related toxicities were noted in any of the treated patients. No dose-limiting toxicities were observed and no emergency safety measures have occurred for any subjects receiving OmnImmune® (TCB002). Two patients at 28 days post-treatment achieved a CR (one patient) or MLFS (one patient); another patient was classified as attaining stable disease with > 50% reduction in bone marrow blast count; one additional patient exhibited reduction in blast levels at 14 days; and one patient had disease progression (see table below). One patient (PRA1-5003) died 21 days after TCB002 due to bilateral pneumonia, determined unrelated to study medication. One patient (PRA1-5010) was withdrawn because of the COVID-19 pandemic before bone marrow aspiration on day 28 post-treatment. These preliminary indications of anticancer activity were not expected given the refractory profile of the enrolled patients.

-18-

The EORTC QLQ-C30 questionnaire resulted in scoring from six of the seven patients dosed with OmnImmune® (TCB002) for varying periods of time depending on their study duration. At 7 days post dosing, the average QoL score from six patients had decreased from 55.7 to 47.2 out of a possible maximum of 100. This negative impact on QoL reflects the well characterized side effects of preconditioning therapy with cyclophosphamide and fludarabine given between 6 and 2 days prior to OmnImmune® (TCB002) administration. The score remained lower in the four patients assessed at 28 days at a level of 50.0. In the two patients (one CR and one MLFS) who were assessed at the end of the study (week 24), both had recovered to an improved QoL score, each of 67.0.

	PRA1-5002	PRA1-5006	PRA1-5007*	PRA1-5008	PRA1-5009
Initial Dose	1x10 ⁶ cells/kg (total dose 6.1 x 10 ⁷)	1x10 ⁶ cells/kg (total dose 7.0 x 10 ⁷)	1x10 ⁷ cells/kg (total dose 7 x 10 ⁸)	1x10 ⁷ cells/kg (total dose 6.5 x 10 ⁸)	1x10 ⁷ cells/kg (total dose 8.5 x 10 ⁸)
Blast cell reduction:	62.5% on treatment	51% on treatment	9% on treatment	28% on treatment**	66% on treatment
Preliminary Data	28% 14 days post-treat	8% 14 days post-treat	4.5% 14 days post-treat	7% 14 days post-treat**	38% 14 days post-treat
	10% on D28 (COMPLETE RESPONSE)***	2.6% on D28 (COMPLETE RESPONSE)***	3.6% on D28 (COMPLETE RESPONSE)	MET 1 st ENDPOINT (WITHDRAWN SEPSIS)	Study on hold (COVID-19)

* PRA1-5007 was 4th line of treatment, relapsed refractory with low-blast count AML (LBC-AML).
Counts shown in bone marrow - peripheral blood blast count was 2.5% on treatment, 0% at day 14 and D28.
Patient PRA1-5007 achieved complete remission by D28.
** Peripheral blood (not bone marrow).
*** CR, bone marrow response

FDA Orphan Drug Designation

About 60 million people living in the European Union (EU) and USA suffer from a rare disease. The European Medicines Agency (EMA) and FDA play a central role in facilitating the development and authorization of medicines for rare diseases, which are termed 'orphan medicines' in the medical world. Developing medicines intended for small numbers of patients has little commercial incentive under normal market conditions. Therefore, the EU and USA offer a range of incentives to encourage the development of designated orphan medicines.

The general therapeutic strategy for the treatment of AML has not changed substantially over the past 30 years. Excluding APL (which should be treated with trans-retinoic acid), AML management is based primarily on induction, incorporating an anthracycline and cytarabine, and consolidation therapy, and/or allogeneic Hematopoietic Stem Cell Transplantation (alloHSCT). Induction/consolidation therapy leads to high CRs rates in those who are eligible for treatment and present a favorable risk profile.

Several novel agents are in various stages of development for the treatment of AML. Novel approaches include antibody-based immunotherapy and adoptive cell therapy that aim to improve anti-leukemia T cell function, such as the therapies developed by TCB (OmnImmune®).

OmnImmune® (TCB002) was initially studied in patients with active relapsed or refractory AML who are not eligible or do not consent to high dose salvage chemotherapy and/or alloHSCT. In July 2019, OmnImmune® (TCB002) was granted 'orphan medicine' status from the FDA for Acute Myeloid Leukemia (AML). TCB intends to conduct a further clinical phase 2/3 study (OmnImmune® (TCB008-001)) in 2021/2 aimed at treating earlier stage AML patients.

-19-

AML phase 1b/2a synopsis

AML patients were late-stage, non-responders:

- Poor life expectancy (often weeks)
- Prior clinical options had failed in all patients
- Qualifying patients responded positively to treatment
- **Average cancer levels in bone went from 38% to 6%**
- Some patients demonstrated complete response
- No adverse treatment-related safety events
- **Phase 2b into phase 3 planned Q4, 2021 (non-responders to first-line treatment)**



**Compelling clinical data in non-responding patients – some demonstrated complete response.
TCB aims to progress phase III studies to EU/US during 2021.**

Summary of TCB's phase 1b/2a clinical trial in patients with fourth-line-of-treatment acute myeloid leukemia. Subsequent to the completion of this study TCB commenced phase 2b into 3 (pivotal) patient treatment during H1, 2022.

Pipeline and plan

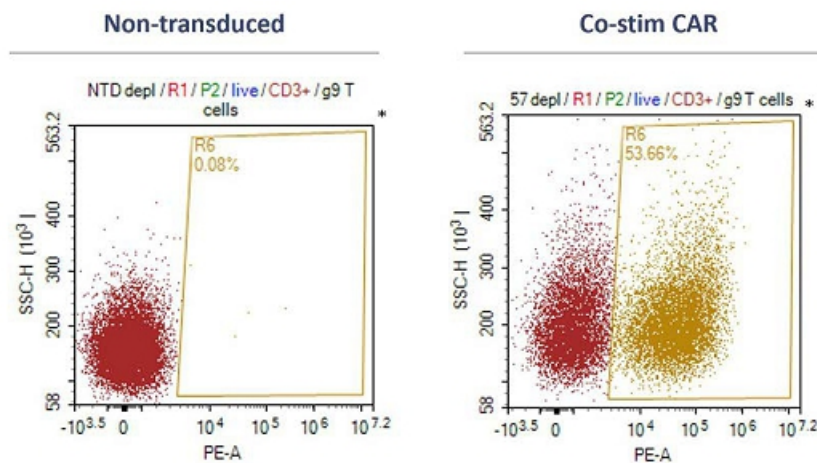
Our future pipeline is focused on treating liquid cancers with our unmodified GD-T therapies and the treatment of solid cancers with next-generation allogeneic GD-T CAR-T therapies.

Our unmodified cell therapy, used in the treatment of Acute Myeloid Leukemia, is supplied under the name OmnImmune.

OmnImmune® is an allogeneic unmodified GD-T (GD-T2) cell product. Donor-derived GD-T cells for proliferative capacity, were activated and expanded in our manufacturing facility before being infused into the patient as part of our OmnImmune® (TCB002) phase 1 trial. This trial was completed in H1 2020 at the Institute of Hematology and Blood Transfusion in Prague, Czech Republic. Having generated meaningful clinical data showing our product is well-tolerated in late-stage AML patients with no remaining treatment options, TCB commenced a phase 2b-into pivotal (phase 3) clinical studies (with OmnImmune®) during 2022 in AML patients who have failed to respond adequately to induction therapy. The aim is to provide a form of salvage therapy which will either stabilize the patient, thereby preventing disease progression, or delay the requirement for human stem cell transplant. Our initial trial centers are in the UK. Working on the premise that other blood cancers should respond to GD-Ts in a similar manner to AML, TCB plans to conduct clinical studies for OmnImmune® in other hematological malignancies in future. The initial phase 1b/2a trials were undertaken using fresh cell-based product under the program number TCB002. For ease of reference, when discussing that specific trial, we refer the program as OmnImmune® (TCB002). The subsequent planned phase 2b-into pivotal (phase 3) clinical studies uses a frozen cell-based product under the program number TCB008-001. When discussing that specific trial, we refer the program as OmnImmune®.

We plan to develop a range of allogeneic co-stimulatory GD-T CAR pre-clinical drug candidates which will target antigens expressed on a number of solid tumor types.

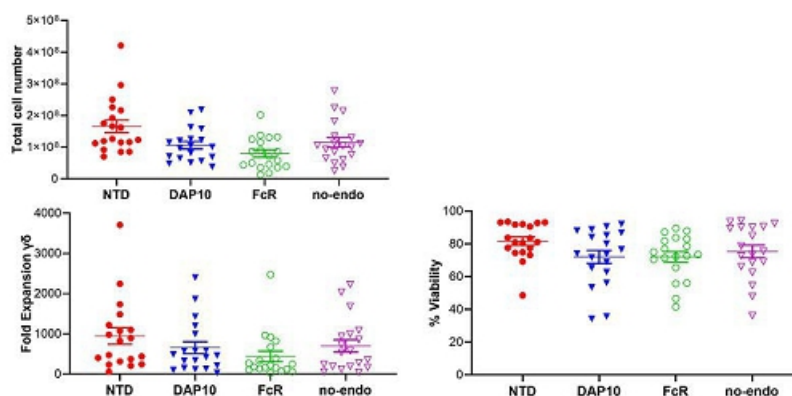
TCB has generated in-vitro preclinical data as part of our CAR-T program which demonstrated that GD-Ts are very high purity and can be CAR-transduced with high efficiency (see diagram below). Gamma delta cell purity and transduction efficiency have been measured using flow cytometry. CAR positive cells were measured by a detection reagent labelled with the fluorophore Phycoerythrin (PE). Flow cytometry analysis used the parameters of side scatter height (SSC-H) and PE area (PE-A) to define the cell populations. This is demonstrated in the figure below comparing non-transduced (NTD) and transduction with a co-stimulatory CAR construct (co-stim CAR).



CAR Expression	0%	54%
$\gamma\delta$ T Cell Purity	99%	99%

We have also demonstrated that following transduction with different CAR constructs, GD-T's can be effectively and reproducibly expanded in-vitro whilst exhibiting increased cytotoxicity in a zoledronate-dependent manner (see diagrams below – zoledronate-dependency reflects TCB's proprietary process for commercial expansion of GD-T's). The CAR constructs contained different endodomains including DNAX-activating protein 10 (DAP-10) and the high affinity IgE receptor (FcR) with no endodomain (no-endo) and non-transduced (NTD) as controls. These data outline the key preclinical parameters investigated in advance of progressing our CAR-T products into clinical trials. TCB has engaged with UK regulators to discuss the design of GD-T CAR phase 1b/2a clinical studies (specifically relating to patient dosing and quality systems).

-21-



PBMCs from multiple donors were initiated into culture and $\gamma\delta$ T cells expansion stimulated by zoledronic acid. On day 2 of expansion, cells were transduced with LVV to deliver the indicated CAR constructs. After routine feeding through the expansion process, cells were harvested on day 14 and the number, purity and viability of $\gamma\delta$ T cells evaluated. Data present a compilation of experiments across multiple individual donors (N=9; n=1-5).

Peripheral blood mononuclear cells (PBMCs) were initiated into culture and GD-T cells expansion stimulated by zoledronic acid. On day 2 of expansion, cells were transduced with lentiviral vectors (LVV) to deliver the indicated CAR constructs. After routine feeding through the expansion process, cells were harvested on day 14 and the total cell number, fold expansion and viability of GD-T cells evaluated. Data present a compilation of experiments across multiple individual donors (N=9; n=1-5).

Corporate Information

Our principal executive offices are located in Scotland, United Kingdom, with a mailing address of Maxim 1, 2 Parklands Way, Holytown, Motherwell, ML1 4WR, United Kingdom and our telephone number at that location is +44 (0) 141 433 7557. Our website address is <https://www.tcbiopharm.com>. The information contained on, or that can be accessed through, our website is not part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Implications of Being an “Emerging Growth Company”

We are an “emerging growth company,” as defined in Section 2(a) of the Securities Act of 1933, as amended, or the Securities Act. As such, we are eligible to, and intend to, take advantage of certain exemptions from various reporting requirements applicable to other public companies that are not “emerging growth companies” such as not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting of Section 404 of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act. We could remain an “emerging growth company” for up to five years, or until the earliest of (a) the last day of the first fiscal year in which our annual gross revenue exceeds \$1.235 billion, (b) the date that we become a “large accelerated filer” as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, which would occur if the market value of all our ordinary shares, including those represented by the ADSs, that are held by non-affiliates exceeds \$700 million as of the last business day of our most recently completed second fiscal quarter, or (c) the date on which we have issued more than \$1 billion in nonconvertible debt during the preceding three-year period.

Implications of being a “Foreign Private Issuer”

As a company incorporated in Scotland that is listed on Nasdaq Capital Market (“Nasdaq”), the Company is subject to Nasdaq corporate governance listing standards. The Company determined it qualified as a foreign private issuer under federal securities laws as of June 28, 2024, the last business day of its most recently completed second

We are subject to the information reporting requirements of the Securities and Exchange Act of 1934, as amended, the Exchange Act, that are applicable to “foreign private issuers,” and under those requirements we file reports with the SEC. As a foreign private issuer, we are not subject to the same requirements of the SEC applicable to U.S. domestic issuers. Under the Exchange Act, we are subject to reporting obligations that, in certain respects, are less detailed and less frequent than those of U.S. domestic reporting companies. For example, we are not required to issue quarterly reports, proxy statements that comply with the requirements applicable to U.S. domestic reporting companies, or individual executive compensation information that is as detailed as that required of U.S. domestic reporting companies. We also have four months after the end of each fiscal year to file our annual report with the SEC and are not required to file current reports as frequently or promptly as U.S. domestic reporting companies. Our officers, directors and principal shareholders are exempt from the requirements to report transactions in our equity securities and from the short-swing profit liability provisions contained in Section 16 of the Exchange Act. As a foreign private issuer, we are not subject to the requirements of Regulation FD (Fair Disclosure) promulgated under the Exchange Act. In addition, as a foreign private issuer, we are permitted to follow certain home country corporate governance practices instead of those otherwise required under the Nasdaq Stock Market rules for domestic U.S. issuers and are not required to be compliant with all Nasdaq Stock Market rules as of the date of our initial listing on Nasdaq as would domestic U.S. issuers. These exemptions and leniencies will reduce the frequency and scope of information and protections available to you in comparison to those applicable to a U.S. domestic reporting company. We intend to take advantage of the exemptions available to us as a foreign private issuer during and after the period we qualify as an “emerging growth company.”

Recent Developments

Exercise of Pre-funded Warrants

During January 2024, pre-funded warrants representing 139,800 ADSs were exercised in three separate tranches.

Issuances of ADSs and grants of options to purchase ADSs

On February 29, 2024, the Remuneration Committee of the Board of Directors approved a grant of options to purchase ADSs to the Company’s executive officers and non-employee directors under the Company’s 2021 Shares Option Scheme (the “Plan”) and agreed to cancel all shares options previously issued to such persons. Each non-employee director received an option to purchase 4,176 ADSs, or ADSs representing 835,200 Ordinary Shares at an exercise price of \$10.90 per ADS, which is equal to the closing price of the Company’s ADSs on the Nasdaq Capital Market on January 31, 2024. Martin Thorp, the Company’s Chief Financial Officer, received an option to purchase 17,712 ADSs, or ADSs representing 3,542,440 Ordinary Shares at an exercise price of \$10.90 per ADS, which is equal to the closing price of the Company’s ADSs on the Nasdaq Capital Market on January 31, 2024. Bryan Kobel, the Company’s Chief Executive Officer received an option to purchase 38,161 ADSs, or ADSs representing 7,632,120 Ordinary Shares at an exercise price of \$10.90 per ADS, which is equal to the closing price of the Company’s ADSs on the Nasdaq Capital Market on January 31, 2024. All share options that were issued vest immediately upon issuance.

On March 8, 2024, Bryan Kobel, the Chief Executive Officer of the Company agreed to (a) defer the payment of accrued but unpaid contractual pension benefits owed to him in the amount of \$66,000 for a period of 9 months and (b) convert an aggregate amount of \$24,760 of accrued but unpaid contractual pension benefits owed to him into 476,153 ordinary shares, par value £0.0001 per share of Company, based on a price per share equal to the closing price of the Company’s ADSs on the Nasdaq Capital Market on March 7, 2024.

In addition, the board of directors approved a grant of options to Mr. Kobel to purchase 15,300 ADSs, or ADSs representing 3,060,000 Ordinary Shares at an exercise price of \$20.00 per ADS. The options granted to Mr. Kobel were issued under the Company’s 2021 Plan. All share options that were issued vested immediately.

Exercise of Series D Warrants

On March 12, 2024, the Company issued 62,375 ADS representing 12,475,000 ordinary shares of the Company upon exercise of outstanding Series D warrants resulting in gross cash proceeds to the Company of £986,398 (approximately \$1,263,000).

April 2024 LOI

On April 1, 2024, we entered into a non-binding letter of intent (the “Asset LOI”) with an unnamed cell therapy company. (the “Asset Seller”), regarding the potential acquisition (the “Proposed Asset Transaction”) by the Company of the following assets of Asset Seller: a Solid Tumor tool kit, a NK Cell Manufacturing tool kit, and two CAR-NK programs (the “Assets”). In exchange for the sale of the Assets to the Company, the Company will pay to the Asset Seller a combination of cash and equity at closing, as well as milestone payments based upon certain clinical achievements.

The Asset LOI only represents a mutual indication of interest regarding the Proposed Asset Transaction and the terms of the Proposed Asset Transaction are subject to a number of contingencies, including the completion of customary due diligence and the negotiation and execution of definitive agreements. Upon execution of the definitive agreements, the completion of the transaction will be subject to, among other matters, satisfaction of the conditions negotiated therein, the Company having secured adequate financing, and receipt of all third party (including governmental) approvals, licenses, consents, and clearances, as and when applicable. There can be no assurance that the Proposed Asset Transaction will be completed on the terms contemplated in the Asset LOI or otherwise. In particular, the timing of closing of any such transaction and the aggregate consideration that we may pay may materially differ from that currently contemplated by the Asset LOI.

May 2024 LOI

On May 1, 2024, we entered into a non-binding letter of intent (the “LOI”) with a private company (the “Seller”), regarding a potential business combination (the “Proposed Transaction”) whereby the Company or a subsidiary of the Company would acquire the Seller. In connection with the Proposed Transaction, the Company will pay to the Seller a cash purchase price equal to \$20 million less any amounts payable on any Seller indebtedness and issue American Depositary Shares (the “ADSs”) representing a number of the Company’s ordinary shares (the “Shares”) where the issue price of such Shares is equal to the average price paid in a fundraising from new and existing shareholders in the Company raising in excess of US\$50 million (the “Issue Price”), such that the total value attributable to the Shares at closing is equal to US\$20 million. In addition, the Seller will be entitled to certain payments upon satisfaction of various development milestones.

The LOI only represents a mutual indication of interest regarding the Proposed Transaction and the terms of the Proposed Transaction are subject to a number of contingencies, including the completion of customary due diligence and the negotiation and execution of definitive agreements. Upon execution of the definitive agreements, the completion of the transaction will be subject to, among other matters, satisfaction of the conditions negotiated therein, the Company having secured adequate financing, and receipt of all third party (including governmental) approvals, licenses, consents, and clearances, as and when applicable. There can be no assurance that the Proposed Transaction will be completed on the terms contemplated in the LOI or otherwise. In particular, the timing of closing of any such transaction and the aggregate consideration that we may pay may materially differ from that currently contemplated by the LOI.

May 2024 Warrant Inducement

On May 6, 2024, the Company, entered into a letter agreement (the “Inducement Letter”) with certain holders (the “Holders”) of existing Series E warrants (the “Existing Warrants”) to purchase ordinary shares represented by American depositary shares (the “ADSs”) of the Company. The Existing Warrants were issued on December 21, 2023 and were exercised at an exercise price of £17.85 per ADS. Each ADS represents twenty (200) ordinary shares of the Company.

Pursuant to the Inducement Letter, the Holders agreed to exercise for cash their Existing Warrants to purchase an aggregate of 175,000 ADSs of the Company for cash and the payment of £0.99625 (US\$1.25) per new warrant in consideration for the Company’s agreement to issue new Series F warrants to purchase ordinary shares represented by ADSs (the “New Warrants”), as described below, to purchase up to 70,000,000 of the Company’s ordinary shares represented by 350,000 ADSs (the “New Warrant ADSs”). The Company received aggregate gross proceeds of approximately £3.1 million from the exercise of the Existing Warrants by the Holders, prior to deducting placement agent fees and estimated offering expenses.

-24-

The Company engaged H.C. Wainwright & Co., LLC (the “Placement Agent”) to act as its exclusive placement agent in connection with the transactions summarized above and paid the Placement Agent a cash fee equal to 7.5% of the gross proceeds received from the Holders’ exercise of their Existing Warrants and a management fee of 1% of the gross proceeds received from the Holders’ exercise of their Existing Warrants. The Company also reimbursed the Placement Agent for its expenses in connection with the exercise of the Existing Warrants and the issuance of the New Warrants, \$50,000 for fees and expenses of legal counsel and other out-of-pocket expenses, and paid the Placement Agent for non-accountable expenses in the amount of \$35,000 and a clearing fee of \$15,950. Upon any exercise for cash of any New Warrants, the Company has agreed to pay the Placement Agent a cash fee of 7.5% of the aggregate gross exercise price paid in cash with respect to the exercise of the New Warrants. In addition, the Company granted warrants (“Placement Agent Warrants”) to the Placement Agent, or its designees, to purchase up to an aggregate of 2,625,020 ordinary shares represented by 13,125 ADSs, which Placement Agent Warrants shall be substantially in the same form as the New Warrants except that the Placement Agent Warrants will have an exercise price of £22.31.

The closing of the transactions contemplated pursuant to the Inducement Letter occurred on May 8, 2024. The Company intends to use the net proceeds from this offering to support its upcoming clinical trial focusing on relapse/refractory Acute Myeloid Leukemia, and for continuing operating expenses and working capital.

The Company also agreed to file a registration statement on Form S-3 (or other appropriate form if the Company is not then Form S-3 eligible) covering the resale of the New Warrant ADSs issued or issuable upon the exercise of the New Warrants (the “Resale Registration Statement”), within 30 days of the Closing Date, and to have such Resale Registration Statement declared effective by the SEC within 90 days following the Closing Date. The registration statement was filed and declared effective on June 24, 2024 to fulfill our obligations under the Letter Agreement.

In the Inducement Letter, the Company agreed not to issue any ADSs, ordinary shares or ordinary share equivalents or to file any other registration statement with the SEC (in each case, subject to certain exceptions) until 30 days after the Closing Date. The Company also agreed not to effect or agree to effect any variable rate transaction (as defined in the Inducement Letter) until one (1) year after the Closing Date (subject to an exception).

ADS Ratio Change

On July 17, 2024, our Board of Directors approved the change in the ratio of ADSs evidencing ordinary shares from one (1) ADS representing twenty (20) ordinary share to one (1) ADS representing two hundred (200) ordinary shares, which will result in a one for 10 reverse split of the issued and outstanding ADSs (the “ADS Ratio Change”). The ADS Ratio Change became effective on August 5, 2024. All ADS and related warrant information presented in this prospectus, including our financial statements and accompanying footnotes, has been retroactively adjusted to reflect the reduced number of ADSs resulting from the ADS ratio change.

August 2024 Public Offering

On August 13, 2024, the Company entered into a Securities Purchase Agreement (the “Purchase Agreement”) with an investor (the “Investor”) pursuant to which the Company agreed to issue and sell to the Investor in a best-efforts public offering 23,950 American Depositary Shares (the “ADSs”) representing 4,790,000 ordinary shares, par value £0.0001 per share (the “Ordinary Shares”), pre-funded warrants to purchase up to 1,976,050 ADS representing 395,210,000 Ordinary Shares (the “Pre-Funded Warrants”), and series G purchase warrants to purchase up to 2,000,000 ADSs representing 400,000,000 Ordinary Shares (the “Warrants” and together with the Pre-Funded Warrants and the ADSs, the “Securities”). The purchase price for each ADS and associated Warrant is \$1.00 and the purchase price per each Pre-Funded Warrant and associated Warrant is \$0.999. The Warrants are immediately exercisable, will expire one (1) year from the date of issuance and have an exercise price of £0.78 (or \$1.00, as translated for illustration to U.S. dollars at the rate of £1.00 to \$1.277 as of August 12, 2024) per ADS, subject to adjustment as set forth therein. The Pre-Funded Warrants may be exercised at any time until all of the Pre-Funded Warrants are exercised in full at an exercise price of \$0.001 per ADS, subject to adjustment therein. The offering (the “Offering”) closed on August 15, 2024.

The Offering resulted in gross proceeds of \$2.0 million before deducting related offering expenses. The Securities were offered by the Company pursuant to a registration statement on Form F-1 (File No. 333-280659), and each amendment thereto, which was declared effective by the Securities and Exchange Commission (the “Commission”) on August 12, 2024.

-25-

On August 28, 2024, the Company entered into a Securities Purchase Agreement (the “Purchase Agreement”) with certain accredited investors (the “Investor”) pursuant to which the Company agreed to issue and sell to the Investor in a best-efforts public offering 53,558 ADSs representing 10,711,600 Ordinary Shares, par value £0.0001 per share, pre-funded warrants to purchase up to 5,946,442 ADS representing 1,189,288,400 Ordinary Shares (the “Pre-Funded Warrants”), and series H purchase warrants to purchase up to 6,000,000 ADSs representing 1,200,000,000 Ordinary Shares (the “Warrants” and together with the Pre-Funded Warrants and the ADSs, the “Securities”). The purchase price for each ADS and associated Warrant is \$1.00 and the purchase price per each Pre-Funded Warrant and associated Warrant is \$0.999. The Warrants are immediately exercisable, will expire one year from the date of issuance and have an exercise price of £0.76 (or \$1.00, as translated for illustration to U.S. dollars at the rate of £1.00 to \$1.3193 as of August 28, 2024) per ADS, subject to adjustment. The Pre-Funded Warrants may be exercised at any time until all of the Pre-Funded Warrants are exercised in full at an exercise price of \$0.001 per ADS, subject to adjustment. The offering closed on August 29, 2024. The offering resulted in gross proceeds of \$6.0 million before deducting related offering expenses.

Series G and H warrants representing a total of 1,142,000 ADSs have been exercised and the Company has received \$1.1 million in cash receipts as of November 25, 2024, in connection with the exercise of warrants issued in August 2024.

Nasdaq Compliance

As previously reported in a Current Report on Form 8-K filed with the Securities and Exchange Commission (the “SEC”) on May 20, 2024 (the “May 20 8-K”), on May 15, 2024, the Company filed its Form 10-Q for the quarter ended March 31, 2024 (the “Form 10-Q”). As noted in the Form 10-Q, the Company was not in compliance with the minimum stockholders’ equity requirement under Nasdaq Listing Rule 5550(b)(1) for continued listing on The Nasdaq Capital Market because its stockholders’ equity was below the required minimum of \$2.5 million (the “Minimum Stockholders’ Equity Requirement”) at March 31, 2024. As previously reported in a Current Report on Form 8-K filed with the SEC on May 8, 2024, on May 6, 2024, the Company entered into a letter agreement (the “Inducement Letter”) with certain holders (the “Holders”) of existing Series E warrants (the “Existing Warrants”) to purchase ordinary shares represented by ADSs of the Company. Pursuant to the Inducement Letter, the Holders agreed to exercise

for cash their Existing Warrants to purchase an aggregate of 175,000 ADSs of the Company for cash and the payment of £0.99625 (US\$1.25) per new warrant in consideration for the Company's agreement to issue new Series F warrants to purchase ordinary shares represented by ADSs (the "New Warrants") to purchase up to 70,000,000 of the Company's ordinary shares represented by 350,000 ADSs (the "New Warrant ADSs"). As noted above, on May 8, 2024, the Company received aggregate gross proceeds of approximately £3.1 million (circa \$3.9 million) from the exercise of the Existing Warrants by the Holders, prior to deducting placement agent fees and estimated offering expenses. As a result, the Company believes that due to additional funding and corresponding increase in equity as a result of the exercise of the Existing Warrants it is now in compliance with the Minimum Stockholders' Equity Requirement as at June 30, 2024.

On May 24, 2024, the Company received written notification from the listing qualifications staff of the Nasdaq Stock Market, LLC ("Nasdaq") indicating that the Company was not in compliance with the Minimum Stockholders' Equity Requirement, as of March 31, 2024. This letter indicated that while Nasdaq estimates the Company is currently in compliance with the Minimum Stockholders' Equity Requirement it notes that based on the historical burn rate, without a significant transaction, the Company will not be in compliance as of the next period ending June 30, 2024.

Since the Company was previously granted an exception to the Minimum Stockholders Equity Requirement by a Nasdaq Hearings Panel and subsequently regained compliance, it is subject to a Panel Monitor in accordance with Nasdaq Listing Rule 5815(d)(4)(A).

The Company requested and was granted a hearing before a hearing panel on July 16, 2024 at which it requested continued listing on The Nasdaq Capital Market since it has returned to compliance and expects to continue to do so. On August 1, 2024, the Company received written notification from Nasdaq that the hearing panel granted the Company's request to continue its listing on Nasdaq subject to compliance with the Minimum Stockholders' Equity Requirement on or before August 15, 2024.

The Company received a written notification from the listing qualifications staff (the "Staff") of the Nasdaq, dated August 1, 2024 indicating that the minimum closing bid price per share for its American Depositary Shares (the "ADSs") was below \$1.00 for a period of 30 consecutive business days and that the Company did not meet the minimum bid price requirement set forth in Nasdaq Listing Rule 5550(a)(2) (the "Bid Price Rule"). Normally, a company would be afforded a 180-calendar day period to demonstrate compliance with the Bid Price Rule. However, pursuant to Listing Rule 5810(c)(3)(A)(iv), the Company is not eligible for any compliance period specified in Rule 5810(c)(3)(A) due to the fact that the Company effected one or more reverse stock splits over the prior two-year period with a cumulative ratio of 250 shares or more to one (the "Excessive Reverse Stock Splits Rule"). Accordingly, this matter serves as an additional basis for delisting the Company's securities from Nasdaq. Nasdaq informed the Company that the hearing panel will consider this matter in their decision regarding the Company's continued listing on Nasdaq. As detailed above, the Company effected a change in the ratio of its ADSs to ordinary shares which had the effect to increase proportionally the ADS trading price, although the Company can give no assurance that the ADS trading price after the ADS ratio change will be proportionally equal to or greater than the previous' ADS trading price prior to the change.

On August 21, 2024, the Company received a notice (the "Notice") from the Staff of the Nasdaq informing the Company that it has regained compliance with the Minimum Stockholders' Equity Requirement and the Bid Price Rule.

Normally, in application of Listing Rule 5815(d)(4)(B), companies that have regained equity and/or bid price compliance, where the company was ineligible for a second compliance period under the Excessive Reverse Stock Splits Rule, are imposed a Mandatory Panel Monitor. However, considering the Company regained compliance with the Bid Price Rule ahead of the panel granting it an exception to cure its bid price deficiency, the Notice stated that, pursuant to Listing Rule 5815(d)(4)(B), the Company will be subject to a Discretionary Panel Monitor for a period of one year from the date of the Notice, to ensure that the Company maintains long-term compliance with the Equity Rule, the Bid Price Rule, and all of the Exchange's continued listing requirements.

-26-

If, within that one-year monitoring period, the Staff finds the Company again out of compliance with any continued listing requirement, notwithstanding Rule 5810(c)(2), the Company will not be permitted to provide the Staff with a plan of compliance with respect to any deficiency and the Staff will not be permitted to grant additional time for the Company to regain compliance with respect to any deficiency, nor will the Company be afforded an applicable cure or compliance period. Instead, the Staff will issue a Delist Determination Letter and the Company will have an opportunity to request a new hearing with the initial Panel or a newly convened Hearings Panel if the initial Panel is unavailable.

Offerings Under This Prospectus

Under this prospectus, we may offer ADSs representing our ordinary shares, various series of debt securities or warrants or rights to purchase any of such securities, either individually or in units, with a total value of up to \$100,000,000, from time to time at prices and on terms to be determined by market conditions at the time of the offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

- designation or classification;
- aggregate principal amount or aggregate offering price;
- maturity, if applicable;
- rates and times of payment of interest or dividends, if any;
- redemption, conversion or sinking fund terms, if any;
- voting or other rights, if any; and
- conversion or exercise prices, if any.
- aggregate principal amount or aggregate offering price;
- maturity, if applicable;
- rates and times of payment of interest or dividends, if any;
- redemption, conversion or sinking fund terms, if any;
- voting or other rights, if any; and
- conversion or exercise prices, if any.

The prospectus supplement also may add, update or change information contained in this prospectus or in documents we have incorporated by reference into this prospectus. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We may sell the securities directly to investors or to or through agents, underwriters or dealers. We, and our agents or underwriters, reserve the right to accept or reject all or part of any proposed purchase of securities. If we offer securities through agents or underwriters, we will include in the applicable prospectus supplement:

- the names of those agents or underwriters;
- applicable fees, discounts and commissions to be paid to them;
- details regarding over-allotment options, if any; and
- the net proceeds to us.

This prospectus may not be used to consummate a sale of any securities unless it is accompanied by a prospectus supplement.

-27-

RISK FACTORS

Investing in our securities involves significant risk. The prospectus supplement applicable to each offering of our securities will contain a discussion of the risks applicable to an investment in the company. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading “Risk Factors” in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under the heading “Risk Factors” included in our most recent Annual Report on Form 10-K and any subsequent Annual Reports on Form 20-F we file after the date of this prospectus, and all other information contained in or incorporated by reference into this prospectus or the registration statement of which this prospectus forms a part, as updated by our subsequent filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and the risk factors and other information contained in any applicable prospectus supplement before acquiring any of our securities. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference in this prospectus include forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Exchange Act that relate to future events or our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to differ materially from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Words such as, but not limited to, “believe,” “expect,” “anticipate,” “estimate,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “targets,” “likely,” “will,” “would,” “could,” “should,” “continue,” and similar expressions or phrases, or the negative of those expressions or phrases, are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Although we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus and incorporated by reference in this prospectus, we caution you that these statements are based on our projections of the future that are subject to known and unknown risks and uncertainties and other factors that may cause our actual results, level of activity, performance or achievements expressed or implied by these forward-looking statements, to differ. The sections in our periodic reports, including our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, titled “Business,” “Risk Factors,” and “Operating and Financial Review and Prospects,” as well as other sections in this prospectus and the documents or reports incorporated by reference in this prospectus, discuss some of the factors that could contribute to these differences.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important cautionary statements in this prospectus or in the documents incorporated by reference in this prospectus, particularly in the “Risk Factors” section, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. For a summary of such factors, please refer to the section titled “Risk Factors” in this prospectus, as updated and supplemented by the discussion of risks and uncertainties under “Risk Factors” contained in any supplements to this prospectus and in our most recent Annual Report on Form 10-K, as revised or supplemented by our subsequent periodic reports filed under the Exchange Act, as well as any amendments thereto, as filed with the SEC and which are incorporated herein by reference. The information contained in this document is believed to be current as of the date of this document. We do not intend to update any of the forward-looking statements after the date of this document to conform these statements to actual results or to changes in our expectations, except as required by law.

In light of these assumptions, risks and uncertainties, the results and events discussed in the forward-looking statements contained in this prospectus or in any document incorporated herein by reference might not occur. Investors are cautioned not to place undue reliance on the forward-looking statements, which speak only as of the date of this prospectus or the date of the document incorporated by reference in this prospectus. We are not under any obligation, and we expressly disclaim any obligation, to update or alter any forward-looking statements, whether as a result of new information, future events or otherwise. All subsequent forward-looking statements attributable to us or to any person acting on our behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section.

-28-

CAPITALIZATION

A prospectus supplement or report on Form 6-K incorporated by reference into the registration statement of which this prospectus forms a part will include information on our consolidated capitalization.

USE OF PROCEEDS

Unless otherwise indicated in the applicable prospectus supplement, we intend to use any net proceeds from the sale of securities under this prospectus to fund activities relating to the advancement of our drug discovery and development programs, and for other general corporate purposes, including, but not limited to, working capital, market awareness, capital expenditures, investments, acquisitions, should we choose to pursue any, and collaborations. We have not determined the amounts we plan to spend on any of the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds, if any, we receive in connection with securities offered pursuant to this prospectus for any purpose. Pending application of the net proceeds as described above, we may initially invest the net proceeds in short-term, investment-grade and interest-bearing securities.

PLAN OF DISTRIBUTION

We may offer securities under this prospectus from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods. We may sell the securities (1) through underwriters or dealers, (2) through agents or (3) directly to one or more purchasers, or through a combination of such methods. We may distribute the securities from time to time in one or more transactions at:

- a fixed price or prices, which may be changed from time to time;

- market prices prevailing at the time of sale;
- prices related to the prevailing market prices; or
- negotiated prices.

We may directly solicit offers to purchase the securities being offered by this prospectus. We may also designate agents to solicit offers to purchase the securities from time to time, and may enter into arrangements for “at-the-market,” equity line or similar transactions. We will name in a prospectus supplement any underwriter or agent involved in the offer or sale of the securities.

If we utilize a dealer in the sale of the securities being offered by this prospectus, we will sell the securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale.

If we utilize an underwriter in the sale of the securities being offered by this prospectus, we will execute an underwriting agreement with the underwriter at the time of sale, and we will provide the name of any underwriter in the prospectus supplement which the underwriter will use to make resales of the securities to the public. In connection with the sale of the securities, we, or the purchasers of the securities for whom the underwriter may act as agent, may compensate the underwriter in the form of underwriting discounts or commissions. The underwriter may sell the securities to or through dealers, and the underwriter may compensate those dealers in the form of discounts, concessions or commissions.

With respect to underwritten public offerings, negotiated transactions and block trades, we will provide in the applicable prospectus supplement information regarding any compensation we pay to underwriters, dealers or agents in connection with the offering of the securities, and any discounts, concessions or commissions allowed by underwriters to participating dealers. Underwriters, dealers and agents participating in the distribution of the securities may be deemed to be underwriters within the meaning of the Securities Act, and any discounts and commissions received by them and any profit realized by them on resale of the securities may be deemed to be underwriting discounts and commissions. We may enter into agreements to indemnify underwriters, dealers and agents against civil liabilities, including liabilities under the Securities Act, or to contribute to payments they may be required to make in respect thereof.

-29-

If so indicated in the applicable prospectus supplement, we will authorize underwriters, dealers or other persons acting as our agents to solicit offers by certain institutions to purchase securities from us pursuant to delayed delivery contracts providing for payment and delivery on the date stated in each applicable prospectus supplement. Each contract will be for an amount not less than, and the aggregate amount of securities sold pursuant to such contracts shall not be less nor more than, the respective amounts stated in each applicable prospectus supplement. Institutions with whom the contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions, but shall in all cases be subject to our approval. Delayed delivery contracts will not be subject to any conditions except that:

- the purchase by an institution of the securities covered under that contract shall not at the time of delivery be prohibited under the laws of the jurisdiction to which that institution is subject; and
- if the securities are also being sold to underwriters acting as principals for their own account, the underwriters shall have purchased such securities not sold for delayed delivery. The underwriters and other persons acting as our agents will not have any responsibility in respect of the validity or performance of delayed delivery contracts.

One or more firms, referred to as “remarketing firms,” may also offer or sell the securities, if a prospectus supplement so indicates, in connection with a remarketing arrangement upon their purchase. Remarketing firms will act as principals for their own accounts or as our agents. These remarketing firms will offer or sell the securities in accordance with the terms of the securities. Each prospectus supplement will identify and describe any remarketing firm and the terms of its agreement, if any, with us and will describe the remarketing firm’s compensation. Remarketing firms may be deemed to be underwriters in connection with the securities they remarket. Remarketing firms may be entitled under agreements that may be entered into with us to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, and may be customers of, engage in transactions with or perform services for us in the ordinary course of business.

Certain underwriters may use this prospectus and any accompanying prospectus supplement for offers and sales related to market-making transactions in the securities. These underwriters may act as principal or agent in these transactions, and the sales will be made at prices related to prevailing market prices at the time of sale. Any underwriters involved in the sale of the securities may qualify as “underwriters” within the meaning of Section 2(a)(11) of the Securities Act. In addition, the underwriters’ commissions, discounts or concessions may qualify as underwriters’ compensation under the Securities Act and the rules of the Financial Industry Regulatory Authority, Inc., or FINRA.

ADSs representing our ordinary shares sold pursuant to the registration statement of which this prospectus is a part will be authorized for listing and trading on The Nasdaq Capital Market. The applicable prospectus supplement will contain information, where applicable, as to any other listing, if any, on The Nasdaq Capital Market or any securities market or other securities exchange of the securities covered by the prospectus supplement. Underwriters may make a market in our ADSs, but will not be obligated to do so and may discontinue any market making at any time without notice. We can make no assurance as to the liquidity of or the existence, development or maintenance of trading markets for any of the securities.

In order to facilitate the offering of the securities, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of the securities. This may include over-allotments or short sales of the securities, which involve the sale by persons participating in the offering of more securities than we sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option. In addition, these persons may stabilize or maintain the price of the securities by bidding for or purchasing the applicable security in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if the securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

-30-

The underwriters, dealers and agents may engage in other transactions with us, or perform other services for us, in the ordinary course of their business.

DESCRIPTION OF SHARE CAPITAL

The following describes our issued share capital, summarizes the material provisions of our articles of association and highlights certain differences in corporate law in the United Kingdom and the United States. Please note that this summary is not intended to be exhaustive. For further information please refer to the full version of our articles of association, which is included as an exhibit to the registration statement of which this prospectus is part.

Issued Share Capital

Our issued share capital as of November 25, 2024 was £164,157 comprised of 1,641,573,241 ordinary shares of £0.0001 each. A summary of increases in, and changes to, our issued share capital for the prior three years is set forth below.

On February 10, 2022, the Company issued 316 ADSs representing 63,280 ordinary shares with nominal value of £31,640 and warrants to buy 628 ADSs on conversion of loan notes totaling \$13.4 million (£9.9 million). On February 10, 2022, the Company completed the IPO, listing on Nasdaq, issuing 411 ADSs representing 82,352 ordinary shares with nominal value of £41,176 and warrants to buy 1,616 ADSs for proceeds before expenses of \$17.5 million (£12.8 million). Funding costs of \$3.0 million (£2.2 million) including underwriter fees were incurred.

Immediately prior to completion of the IPO, the Company re-organized its share capital whereby all of the outstanding series A ordinary shares were re-designated as ordinary shares of TC BioPharm (Holdings) plc on a one for one basis. Immediately prior to the completion of the offering, a further 24,692 ordinary shares (on a post-ratio change basis) were issued, under the terms of the Articles of Association to certain shareholders who, prior to the IPO, owned A ordinary shares which carried the right, to subscribe at nominal value for a certain number of additional shares, calculated by reference to the pre-money valuation of the IPO. The fair value of the shares issued was £3.8 million.

Between June 7, 2022 and June 8, 2022, the Company issued and sold 1,150 ADSs representing 230,000 ordinary shares generating proceeds of \$4.6 million (£3.7 million) before deductions for offering expenses of approximately \$0.8 million (£0.6 million).

On August 9, 2022, the Company issued 18 ADSs representing 3,676 ordinary shares and warrants to buy 36 ADSs on conversion of loan notes totaling \$0.8 million (£0.7 million).

On November 27, 2022, the Company entered into a Securities Purchase Agreement (the “Purchase Agreement”) with certain accredited investors (the “Investors”) as purchasers. Pursuant to the Purchase Agreement, the Company sold, and the Investors purchased in a private placement an aggregate of 775 ADSs, prefunded warrants over 6,575 ADSs Series A warrants over 7,350 ADSs and Series B warrants over 7,350 ADSs for gross proceeds of \$7.4 million (£6.1 million). In addition, the Company also issued placement agent warrants to purchase 551 ADSs.

During January of 2023, the Company issued 6,575 ADSs (on a post-ratio change basis) or 1,315,000 ordinary shares, par value £0.0001 per share of Company, based on a price per share of £0.0001 on exercise of pre-funded warrants that had been issued in prior financing rounds. As the pre-funded warrants contained a nominal exercise price, the exercise of the pre-funded warrants resulted in nominal proceeds to the Company.

On March 27, 2023, the Company, entered into a Securities Purchase Agreement (the “Purchase Agreement”) with Investors, pursuant to which the Company agreed to issue and sell an aggregate of 1,075 ADSs (on a post-ratio change basis), or 215,000 ordinary shares, pre-funded warrants to purchase up to 16,112 ADS (the “Pre-Funded Warrants”), and Series C purchase warrants to purchase up to 17,187 ADSs (the “Ordinary Warrants” and together with the Pre-Funded Warrants and the ADSs, the “Securities”). In addition, the Company also issued placement agent warrants to purchase 1,289 ADSs. The purchase price for each ADS and associated Ordinary Warrants was \$320 (on a post-ratio change basis) and the purchase price per each Pre-Funded Warrant and associated Ordinary Warrants was \$319.80 (on a post-ratio change basis). The Ordinary Warrants were immediately exercisable, expire five (5) years from the date of issuance and the Pre-Funded Warrants may be exercised at any time until all of the Pre-Funded Warrants are exercised in full. The total net proceeds from this offering were approximately £4.0 million (or approximately \$4.9 million), after deducting estimated offering expenses of approximately £0.5 million.

-31-

In the period from January 1, 2023 to August 8, 2023, the holders of Convertible Loan Notes exercised their rights to convert the notes to purchase 7,946 ADSs.

On August 30, 2023, the Company entered into an agreement with its Series A and B warrant holders whereby it induced outstanding warrants over 7,000 ADSs and 7,000 ADSs, respectively. In addition, the Company also entered into an agreement with its Series C warrant holders to induce all of the outstanding warrants (17,187). The inducement resulted in gross proceeds to the Company of approximately \$2.8 million with an adjusted exercise price of £70.00 per ADS. In order to incentivize the inducement, the Company issued Series D warrants over 62,375 ADSs to the Series, A, B and C warrant holders. In addition, the Company also issued placement agent warrants to purchase 2,339 ADSs. The Ordinary Warrants were immediately exercisable and expire five 5.5 years from the date of issuance with an exercise price of £70.00 per ADS. The Company received aggregate gross proceeds of approximately £2.2 million (approximately \$2.8 million) from the exercise of the Existing Warrants by the Holders, before deducting placement agent fees payable by the Company. The Company accounted for the inducement in accordance with modification and exchange guidance in ASC 815-40 (Derivatives and Hedging – Contracts in Entity’s Own Equity) and recognized the fair value of the issued Series D warrants as an equity issuance cost.

On December 18, 2023, the Company entered into a Securities Purchase Agreement with a certain institutional Investors pursuant to which the Company agreed to issue and sell to the Investor in a best-efforts public offering 7,500 ADSs representing 1,500,000 ordinary shares, pre-funded warrants to purchase up to 167,500 ADS representing 33,500,000 Ordinary Shares (the “Pre-Funded Warrants”), and Series E purchase warrants to purchase up to 175,000 ADSs representing 35,000,000 Ordinary Shares (the “Warrants” and together with the Pre-Funded Warrants and the ADSs, the “Securities”). In addition, the Company issued placement agent warrants to purchase 13,125 ADSs representing 2,625,000 ordinary shares. The purchase price for each ADS and associated Warrant was \$20.00 and the purchase price per each Pre-Funded Warrant and associated Warrant was \$19.99. The Warrants are immediately exercisable, will expire five years from the date of issuance and had an exercise price of £15.814. The relative fair value of the warrants upon issuance were approximately \$1.5 million. The Pre-Funded Warrants may be exercised at any time until all of the Pre-Funded Warrants are exercised in full at an exercise price of \$0.01 per ADS. Additionally, the Company agreed that the Series E warrants to purchase up to an aggregate of 62,375 ADSs of the Company that were previously issued on September 5, 2023, at an exercise price of £70.00 per ADS and an expiration date of March 5, 2029, were amended effective upon the closing of the offering so that the amended warrant will have a reduced exercise price of £15.814 (or \$20.00, as translated for illustration to U.S. dollars at the rate of £1.00 to \$1.264 as of December 18, 2023) per ADS.

During January of 2024, the Company issued 139,800 ADSs (on a post-ratio change basis) or 27,960,000 ordinary shares, par value £0.0001 per share of Company, based on a price per share of £0.0001 on exercise of pre-funded warrants that had been issued in prior financing rounds. As the pre-funded warrants contained a nominal exercise price, the exercise of the pre-funded warrants resulted in nominal proceeds to the Company.

On March 11, 2024, the company issued 2,421,400 (12,107 ADSs) ordinary shares (on a post-ratio change basis), par value £0.0001 per share of Company, based on a price per share of £0.0001 on exercise of share options that had been issued to a consultant as part of the consideration for undertaking consulting services.

On March 11, 2024, the Company issued 476,153 (2,381 ADSs) ordinary shares (on a post-ratio change basis), par value £0.0001 per share of Company to Bryan Kobel, the Chief Executive Officer of the Company following an agreement to convert an aggregate amount of approximately £19,765 (or approximately \$24,760) of accrued but unpaid contractual pension benefits owed to him. The issued ADSs were based on a price per ADS equal to the closing price of the Company’s ADSs on the Nasdaq Capital Market on March 7, 2024.

On March 12, 2024, the Company issued 62,375 ADSs representing 12,475,000 ordinary shares (on a post-ratio change basis) of the Company upon exercise of outstanding warrants resulting in gross cash proceeds to the Company of £986,772 (approximately \$1,263,000).

-32-

On May 6, 2024, the Company entered into a letter agreement (the “Inducement Letter”) with certain holders (the “Holders”) of existing Series E warrants (the “Existing

Warrants”) to purchase ordinary shares represented by ADSs of the Company. The Existing Warrants were issued on December 21, 2023 and have an exercise price of £17.85 per ADS. Pursuant to the Inducement Letter, the Holders agreed to exercise for cash their Existing Warrants to purchase an aggregate of 175,000 ADSs of the Company for cash and the payment of £0.99625 (US\$1.25) per new warrant in consideration for the Company’s agreement to issue new Series F warrants to purchase ordinary shares represented by ADSs (the “New Warrants”) to purchase up to 70,000,000 (on a post-ratio change basis) of the Company’s ordinary shares represented by 350,000 ADSs (the “New Warrant ADSs”). The Company received aggregate gross proceeds of approximately £3.1 million from the exercise of the Existing Warrants by the Holders, prior to deducting placement agent fees and estimated offering expenses.

On August 13, 2024, the Company entered into a Securities Purchase Agreement (the “Purchase Agreement”) with an investor (the “Investor”) pursuant to which the Company agreed to issue and sell to the Investor in a best-efforts public offering 23,950 ADSs representing 4,790,000 Ordinary Shares, pre-funded warrants to purchase up to 1,976,050 ADSs representing 395,210,000 Ordinary Shares (the “Pre-Funded Warrants”), and series G purchase warrants to purchase up to 2,000,000 ADSs representing 400,000,000 Ordinary Shares (the “Warrants” and together with the Pre-Funded Warrants and the ADSs, the “Securities”). The purchase price for each ADS and associated Warrant was \$1.00 and the purchase price per each Pre-Funded Warrant and associated Warrant was \$0.999. The Warrants are immediately exercisable, will expire one (1) year from the date of issuance and have an exercise price of £0.78 (or \$1.00, as translated for illustration to U.S. dollars at the rate of £1.00 to \$1.277 as of August 12, 2024) per ADS, subject to adjustment as set forth therein. The Pre-Funded Warrants may be exercised at any time until all of the Pre-Funded Warrants are exercised in full at an exercise price of \$0.001 per ADS, subject to adjustment therein. The offering (the “Offering”) closed on August 15, 2024. The Offering resulted in gross proceeds of \$2.0 million before deducting related offering expenses. The Securities were offered by the Company pursuant to a registration statement on Form F-1 (File No. 333-280659), and each amendment thereto, which was declared effective by the Securities and Exchange Commission (the “Commission”) on August 12, 2024.

On August 28, 2024, the Company entered into a Securities Purchase Agreement (the “Purchase Agreement”) with certain accredited investors (the “Investor”) pursuant to which the Company agreed to issue and sell to the Investor in a best-efforts public offering 53,558 ADSs representing 10,711,600 Ordinary Shares, par value £0.0001 per share, pre-funded warrants to purchase up to 5,946,442 ADSs representing 1,189,288,400 Ordinary Shares (the “Pre-Funded Warrants”), and series H purchase warrants to purchase up to 6,000,000 ADSs representing 1,200,000,000 Ordinary Shares (the “Warrants” and together with the Pre-Funded Warrants and the ADSs, the “Securities”). The purchase price for each ADS and associated Warrant is \$1.00 and the purchase price per each Pre-Funded Warrant and associated Warrant is \$0.999. The Warrants are immediately exercisable, will expire one year from the date of issuance and have an exercise price of £0.76 (or \$1.00, as translated for illustration to U.S. dollars at the rate of £1.00 to \$1.3193 as of August 28, 2024) per ADS, subject to adjustment. The Pre-Funded Warrants may be exercised at any time until all of the Pre-Funded Warrants are exercised in full at an exercise price of \$0.001 per ADS, subject to adjustment. The offering closed on August 29, 2024. The offering resulted in gross proceeds of \$6.0 million before deducting related offering expenses.

Series G and H warrants representing a total of 1,142,000 ADSs have been exercised and the Company has received \$1.1 million in cash receipts as of November 25, 2024, in connection with the exercise of warrants issued in August 2024.

Ordinary Shares

As of November 25, 2024, we had issued and outstanding 1,641,573,241 ordinary shares of £0.0001 each, held by 6 shareholders of record. Each issued ordinary share is fully paid.

Holders of ordinary shares are entitled to one vote for each share held of record on all matters submitted to a vote of shareholders and do not have cumulative voting rights.

Any distribution made as result of winding-up, dissolution or liquidation of our company and any dividend declared will be distributed in proportion to the number of fully paid ordinary shares held.

Options

We have established equity incentive plans pursuant to which we have issued options to purchase ordinary shares to employees, consultants and directors. As of November 25, 2024, there were 24,070,691 ordinary shares issuable upon exercise of outstanding options under our equity incentive plans. The options lapse after ten years from the date of the grant.

Memorandum and Articles of Association

The following is a summary of certain provisions of our memorandum and articles of association. Please note that this is only a summary and is not intended to be exhaustive. For further information please refer to the full version of our articles of association, which is included as an exhibit to our most recent Annual Report on Form 10-K.

Purpose

The Articles of Association contain no specific restrictions on our purpose and therefore, by virtue of section 31(1) of the Companies Act, our purpose is unrestricted.

-33-

Share Capital

Our share capital currently consists of ordinary and deferred shares. We may issue new classes of shares with such rights or restrictions as may be determined by ordinary resolution of the shareholders, including shares which are to be redeemed, or are liable to be redeemed at our option or the option of the holder of such shares.

Voting

The shareholders have the right to receive notice, in accordance with the Companies Act (generally 21 days), of, and to vote at, our general meetings. Each shareholder who is present in person (or, being a corporation, by representative) at a general meeting on a show of hands has one vote and, on a poll, every such holder who is present in person (or, being a corporation, by representative) or by proxy has one vote in respect of every share held by him. Generally, any resolution put to the vote of a general meeting shall be decided on a show of hands, although a poll may be demanded at the meeting on any resolution by the chairman, or by not less than five shareholders (present in person or by proxy) who are entitled to vote on the resolution, or by a shareholder or shareholders (present in person or by proxy) representing in aggregate not less than one-tenth of the total voting rights or sums paid up of all the shareholders having the right to vote on the resolution. The holders of the deferred shares are not entitled to receive notice of, nor to attend, speak or vote at, any general meeting of the company.

Variation of Rights

Whenever our share capital is divided into different classes of shares, the special rights attached to any class may be varied or abrogated either with the consent in writing of the holders of three-fourths in nominal value of the issued shares of that class or with the sanction of a special resolution (which requires a 75% vote) passed at a general meeting of the holders of the shares of that class, and may be so varied and abrogated while the company is a going concern.

Dividends

We may, subject to the provisions of the Companies Act and the Articles of Association, by ordinary resolution declare dividends to be paid to shareholders not exceeding the amount recommended by our board of directors. Subject to the provisions of the Companies Act, if, at the discretion of board of directors, our profits available for

distribution justify such payments, the board of directors may pay interim dividends on any class of our share.

Any dividend unclaimed after a period of 12 years from the date such dividend was declared or became payable shall, if the board of directors' resolve, be forfeited and shall revert to us. No dividend or other moneys payable on or in respect of a share shall bear interest as against us.

Transfer of Ordinary Shares

Each member may transfer all or any of his shares which are in certificated form by means of an instrument of transfer in any usual form or in any other form which the board of directors may approve.

The board of directors may, in its absolute discretion, refuse to register a transfer of certificated shares unless:

- (i) it is for a share which is fully paid up;
- (ii) it is for a share upon which the company has no lien;
- (iii) it is only for one class of share;
- (iv) it is in favor of a single transferee or no more than four joint transferees;
- (v) it is duly stamped or is duly certificated or otherwise shown to the satisfaction of the board of directors to be exempt from stamp duty; and
- (vi) it is delivered for registration to the registered office of the company (or such other place as the board of directors may determine), accompanied (except in the case of a transfer by a person to whom the company is not required by law to issue a certificate and to whom a certificate has not been issued or in the case of a renunciation) by the certificate for the shares to which it relates and such other evidence as the board of directors may reasonably require to prove the title of the transferor (or person renouncing) and the due execution of the transfer or renunciation by him or, if the transfer or renunciation is executed by some other person on his behalf, the authority of that person to do so.

-34-

Our board of directors shall not refuse to register any transfer of partly paid shares in respect of which ADSs are admitted to Nasdaq on the grounds that they are partly paid shares in circumstances where such refusal would prevent dealings in such shares from taking place on an open and proper basis.

Each shareholder may transfer all or any of his shares which are in uncertificated form by means of a relevant system in such manner provided for, and subject as provided in, the uncertificated securities rules and the Nasdaq rules. No provision of the Articles applies in respect of an uncertificated share to the extent that it requires or contemplates the effecting of a transfer by an instrument in writing or the production of a certificate for the share to be transferred.

Allotment of Shares and Pre-emption Rights

Subject to the Companies Act and to any rights attached to existing shares, any share may be issued with or have attached to it such rights and restrictions as the company may by ordinary resolution determine, or if no ordinary resolution has been passed or so far as the resolution does not make specific provision, as the board of directors may determine (including shares which are to be redeemed, or are liable to be redeemed at the option of the company or the holder of such shares).

In accordance with section 551 of the Companies Act, the board of directors may be generally and unconditionally authorized to exercise all the powers of the company to allot shares up to an aggregate nominal amount equal to the amount stated in the relevant ordinary resolution authorizing such allotment. The authorities referred to above were included in the ordinary resolutions passed on January 14, 2022.

The provisions of Section 561 of the Companies Act (which confer on shareholders rights of pre-emption in respect of the allotment of equity securities which are paid up in cash) apply to the company except to the extent disapplied by special resolution of the shareholders of the company. Such pre-emption rights have been generally disapplied to all share issuances by a special resolution passed on January 14, 2022.

Deferred shares

Deferred shares have the following properties:

- a. do not entitle their holders to receive any dividend or other distribution;
- b. do not entitle their holders to receive a share certificate in respect of the relevant shareholding;
- c. do not entitle their holders to receive notice of, nor to attend, speak or vote at, any general meeting of the Company;
- d. entitles their holders on a return of capital on a winding up of the Company (but not otherwise) only to the repayment of the amount paid up on that share after payment of the capital paid up on each Ordinary Share in the share capital of the Company and the further payment of £100,000,000 on each ordinary share;
- e. do not entitle their holders to any further participation in the capital, profits or assets of the Company. The Deferred Shares shall not be capable of transfer at any time other than with the prior written consent of the directors of the Company.

Alteration of Share Capital

The company may by ordinary resolution consolidate its share capital into shares of larger nominal value than its existing shares, or cancel any shares which, at the date of the ordinary resolution, have not been taken or agreed to be taken by any person and diminish the amount of its share capital by the nominal amount of shares so canceled or sub-divide its shares, or any of them, into shares of smaller nominal value.

The company may, in accordance with the Companies Act, reduce or cancel its share capital or any capital redemption reserve or share premium account in any manner and with and subject to any conditions, authorities and consents required by law.

-35-

Board of Directors

Unless otherwise determined by the company by ordinary resolution, the number of directors (other than any alternate directors) shall not be less than two and no more than 11.

Subject to the Articles of Association and the Companies Act, the company may by ordinary resolution appoint a person who is willing to act as a director and the board of directors shall have power at any time to appoint any person who is willing to act as a director, in both cases either to fill a vacancy or as an addition to the existing

board of directors. In addition to any power of removal conferred by the Companies Acts, the Company may by special resolution, or by ordinary resolution of which special notice has been given in accordance with section 312 of the Act, remove a Director at any time (without prejudice to a claim for damages for breach of contract or otherwise) and a director shall be removed from office if all other directors so direct.

Subject to the provisions of the Articles of Association, the board of directors may regulate their proceedings as they deem appropriate. A director may, and the secretary at the request of a director shall, call a meeting of the directors. The minimum notice required to call a meeting of the board of directors shall be 7 days, unless such notice is waived by all directors.

The quorum for a meeting of the board of directors is three (including at least one non-executive director and one executive director),

The Board may appoint one or more of its body as chairman or joint chairman and one or more of its body as deputy chairman of its meetings and may determine the period for which he is or they are to hold office and may at any time remove him or them from office.

Questions and matters requiring resolution arising at a meeting shall be decided by a majority of votes of the participating directors, with each director having one vote. In the case of an equality of votes, the chairman will have a casting vote or second vote.

The directors may establish committees of the board and appoint chairpersons and members to such committees, all as it considers appropriate and at its discretion.

Directors shall be entitled to receive such compensation as the board shall determine for their services to the company as directors, and for any other service which they undertake for the company. The directors shall also be entitled to be paid all reasonable expenses properly incurred by them in connection with their attendance at meetings of shareholders or class meetings, board of director or committee meetings or otherwise in connection with the exercise of their powers and the discharge of their responsibilities in relation to the company.

The board of directors may, in accordance with the requirements in the Articles of Association, authorize any matter proposed to them by any director which would, if not authorized, involve a director breaching his duty under the Companies Act, to avoid conflicts of interests.

A director seeking authorization in respect of such conflict shall declare to the board of directors the nature and extent of his interest in a conflict as soon as is reasonably practicable. The director shall provide the board with such details of the matter as are necessary for the board to decide how to address the conflict together with such additional information as may be requested by the board.

-36-

Any authorization by the board of directors will be effective only if:

- (i) to the extent permitted by the Companies Act, the matter in question shall have been proposed by any director for consideration in the same way that any other matter may be proposed to the directors under the provisions of the Articles;
- (ii) any requirement as to the quorum for consideration of the relevant matter is met without counting the conflicted director and any other conflicted director; and
- (iii) the matter is agreed to without the conflicted director, or any other interested director, voting; or would be agreed to if the conflicted director's and any other interested director's vote is not counted.

Subject to the provisions of the Companies Act, every director, secretary, or other officer of the company (other than an auditor) is entitled to be indemnified against all costs, charges, losses, damages, and liabilities incurred by him in the actual purported exercise or discharge of his duties or exercise of his powers or otherwise in relation to them.

There is no shareholding requirement for directors.

General Meetings

The company must convene and hold an annual general meeting every year and within 6 months of the Companies accounting reference date (which is currently set at December 31), in accordance with the Companies Act. Under the Companies Act, an annual general meeting must be called by notice of at least 21 clear days.

No business shall be transacted at any general meeting unless a quorum is present when the meeting proceeds to business, but the absence of a quorum shall not preclude the choice or appointment of a chairman of the meeting which shall not be treated as part of the business of the meeting. Two shareholders present in person or by proxy and entitled to vote shall be a quorum for all purposes.

Borrowing Powers

Subject to the Articles of Association and the Companies Act, the board of directors may exercise all of the powers of the company to:

- (a) borrow money;
- (b) indemnify and guarantee;
- (c) mortgage or charge;
- (d) create and issue debentures and other securities; and
- (e) give security either outright or as collateral security for any debt, liability or obligation of the company or of any third party.

Capitalization of profits

The directors may, if they are so authorized by an ordinary resolution of the shareholders, decide to capitalize any undivided profits of the company (whether or not they are available for distribution), or any sum standing to the credit of the company's share premium account or capital redemption reserve. The directors may also, subject to the aforementioned ordinary resolution, appropriate any sum which they so decide to capitalize to the persons who would have been entitled to it if it were distributed by way of dividend and in the same proportions.

-37-

Uncertificated Shares

Subject to the uncertificated securities rules, the board of directors may permit title to shares of any class to be issued or held otherwise than by a certificate and to be transferred by means of a “relevant system” (e.g. the depositary or custodian of the ADSs) without a certificate.

The board of directors may take such steps as it sees fit in relation to the evidencing of and transfer of title to uncertificated shares, any records relating to the holding of uncertificated shares and the conversion of uncertificated shares to certificated shares, or *vice versa*.

The company may by notice to the holder of an uncertificated share, require that share to be converted into certificated form.

The board of directors may take such other action that the board considers appropriate to achieve the sale, transfer, disposal, forfeiture, re-allotment or surrender of an uncertificated share or otherwise to enforce a lien in respect of it.

Deferred Shares

The deferred shares of £0.4999 each in the capital of the company:

- (i) do not entitle its holders to receive any dividend or other distribution;
- (ii) do not entitle its holders to receive a share certificate in respect of the relevant shareholding;
- (iii) do not entitle its holders to receive notice of, nor to attend, speak or vote at, any general meeting of the Company;
- (iv) entitle its holders on a return of capital on a winding up of the Company (but not otherwise) only to the repayment of the amount paid up on that share after payment of the capital paid up on each ordinary share in the share capital of the Company and the further payment of £100,000,000 on each ordinary share;
- (v) do not entitle its holder to any further participation in the capital, profits or assets of the Company. The Deferred Shares shall not be capable of transfer at any time other than with the prior written consent of the directors of the Company.

Other Relevant United Kingdom Laws and Regulations

Shareholder protections found in provisions under the UK City Code on Takeovers and Mergers, or the Takeover Code, will not apply if the Company’s place of central management and control for the purposes of the Takeover Code is considered to be outside of the UK (or the Channel Islands or the Isle of Man).

The Takeover Code applies to all offers for companies which have their registered offices in the United Kingdom, the Channel Islands, or the Isle of Man if any of their equity share capital or other transferable securities carrying voting rights are admitted to trading on a UK regulated market or a UK multilateral trading facility or on any stock exchange in the Channel Islands or the Isle of Man.

The Takeover Code also applies to all offers for public companies and (in certain circumstances) private companies which have their registered offices in the United Kingdom, the Channel Islands or the Isle of Man which are considered by the Takeover Panel to have their place of central management and control in the United Kingdom, the Channel Islands or the Isle of Man (the “**residency test**”). The Company became subject to the Takeover Code as a UK resident, UK incorporated, public limited company on 10 January 2022 when the Company re-registered as a public limited company.

The residency test for the purposes of the Takeover Code is not satisfied as a majority of the Company’s directors will be resident overseas. Therefore, shareholders of the Company are not entitled to the benefit of the Takeover Code, including the rules regarding mandatory takeover bids (summarised below).

In the event that the residency test is satisfied at a point in the future the Takeover Code may apply to the Company in the future.

Mandatory Bid

Under the Takeover Code, where:

- a. any person, together with persons acting in concert with such person, acquires, whether by a series of transactions over a period of time or not, an interest in shares which (taken together with shares in which such person is already interested, and in which persons acting in concert with such person are interested) carry 30% or more of the voting rights of a company; or
- b. any person who, together with persons acting in concert with such person, is interested in shares which in the aggregate carry not less than 30% of the voting rights of a company but does not hold shares carrying more than 50% of such voting rights and such person, or any person acting in concert with such person, acquires an interest in any other shares which increases the percentage of shares carrying voting rights in which such person is interested;

such person shall, except in limited circumstances, be obliged to extend offers, on the basis set out in Rules 9.3, 9.4 and 9.5 of the Takeover Code, to the holders of any class of equity share capital, whether voting or non-voting, and also to the holders of any other class of transferable securities carrying voting rights. Offers for different classes of equity share capital must be comparable. The Takeover Panel should be consulted in advance in such cases.

(ii) an offer made under Rule 9 must, in respect of each class of share capital involved, be in cash or be accompanied by a cash alternative at not less than the highest price paid by the offeror or any person acting in concert with it for any interest in shares of that class during the 12 months prior to the announcement of that offer. The Panel should be consulted where there is more than one class of share capital involved.

(iii) under the Takeover Code, a “concert party” arises where persons acting together pursuant to an agreement or understanding (whether formal or informal and whether or not in writing) actively cooperate, through the acquisition by them of an interest in shares in a company, to obtain or consolidate control of the company. “Control” means holding, or aggregate holdings, of an interest in shares carrying 30% or more of the voting rights of the company, irrespective of whether the holding or holdings give de facto control.

Shareholders should note that the rules regarding mandatory takeover bids (summarised above) only apply to the Company when the Takeover Code applies.

Squeeze-out

- (i) Under sections 979 to 982 of the Companies Act, if an offeror were to acquire, or unconditionally contract to acquire, not less than 90% in value of the ordinary shares of the company and 90% of the voting rights carried by the ordinary shares of the company, it could then compulsorily acquire the remaining 10%. It would do so by sending a notice to outstanding shareholders telling them that it will compulsorily acquire their shares, provided

that no such notice may be served after the end of: (a) the period of three months beginning with the day after the last day on which the offer can be accepted; or (b) if earlier, and the offer is not one to which section 943(1) of the Companies Act applies, the period of six months beginning with the date of the offer.

- (ii) Six weeks following service of the notice, the offeror must send a copy of it to the company together with the consideration for the ordinary shares to which the notice relates, and an instrument of transfer executed on behalf of the outstanding shareholder(s) by a person appointed by the offeror.
- (iii) The company will hold the consideration on trust for the outstanding shareholders.

-39-

Sell-out

- (i) Sections 983 to 985 of the Companies Act also give minority shareholders in the company a right to be bought out in certain circumstances by an offeror who has made a takeover offer. If a takeover offer relating to all the ordinary shares of the company is made at any time before the end of the period within which the offer could be accepted and the offeror held or had agreed to acquire not less than 90% of the ordinary shares, any holder of shares to which the offer related who had not accepted the offer could by a written communication to the offeror require it to acquire those shares. The offer is required to give any shareholder notice of his right to be bought out within one month of that right arising. The offeror may impose a time limit on the rights of minority shareholders to be bought out, but that period cannot end less than three months after the end of the acceptance period, or, if longer a period of three months from the date of the notice.
- (ii) If a shareholder exercises his rights, the offeror is bound to acquire those shares on the terms of the offer or on such other terms as may be agreed.

Availability of Shareholder rights

The rights attaching to the ordinary shares described above are only available to the holders of the ordinary shares, not to the holders of ADSs (save to the extent that such rights are replicated for the holders of ADSs). For legal purposes, our shareholders are the persons who are registered as the owners of the legal title to the ordinary shares and whose names are recorded in our share register. If a person who holds ADSs wishes to exercise any rights attaching to ordinary shares, they may be required to first take steps to withdraw their ADSs from the settlement system operated by the Depository Transfer Corporation, or DTC, and exchange their ADS for our ordinary shares thereby becoming the registered holder of the ordinary shares in our share register.

Differences in Corporate Law

The applicable provisions of the Companies Act 2006 differ from laws applicable to U.S. corporations and their shareholders. Set forth below is a summary of certain differences between the provisions of the Companies Act 2006 applicable to us and the Delaware General Corporation Law relating to shareholders' rights and protections. This summary is not intended to be a complete discussion of the respective rights and it is qualified in its entirety by reference to Delaware law and Scottish law.

	SCOTLAND	DELAWARE
Number of Directors	A public limited company must have at least two directors and the number of directors may be fixed by or in the manner provided in a company's articles of association.	A corporation must have at least one director and the number of directors shall be fixed by or in the manner provided in the bylaws.
Removal of Directors	Shareholders may remove a director without cause by an ordinary resolution (which is passed by a simple majority of those voting in person or by proxy at a general meeting) irrespective of any provisions of any service contract the director has with the company, provided 28 clear days' notice of the resolution has been given to the company and its shareholders. On receipt of notice of an intended resolution to remove a director, the company must forthwith send a copy of the notice to the director concerned. Certain other procedural requirements under the Companies Act must also be followed, such as allowing the director to make representations against his or her removal either at the meeting or in writing. In addition, the company's articles of association contain various circumstances where the office of director is to be vacated including where a director is requested to resign by all of the other directors by notice in writing.	Any director or the entire board of directors may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors, except (i) unless the certificate of incorporation provides otherwise, in the case of a corporation whose board of directors is classified, stockholders may effect such removal only for cause, or (ii) in the case of a corporation having cumulative voting, if less than the entire board of directors is to be removed, no director may be removed without cause if the votes cast against his removal would be sufficient to elect him if then cumulatively voted at an election of the entire board of directors, or, if there are classes of directors, at an election of the class of directors of which he is a part.

-40-

Vacancies on the Board of Directors	The procedure by which directors, other than a company's initial directors, are appointed is generally set out in a company's articles of association, provided that where two or more persons are appointed as directors of a public limited company by resolution of the shareholders, resolutions appointing each director must be voted on individually.	Vacancies and newly created directorships may be filled by a majority of the directors then in office (even though less than a quorum) or by a sole remaining director unless (i) otherwise provided in the certificate of incorporation or bylaws of the corporation or (ii) the certificate of incorporation directs that a particular class of stock is to elect such director, in which case a majority of the other directors elected by such class, or a sole remaining director elected by such class, will fill such vacancy.
Annual General Meeting	A public limited company must hold an annual general meeting, once a year, in the six-month period following the company's annual accounting reference date.	The annual meeting of stockholders shall be held at such place, on such date and at such time as may be designated from time to time by the board of directors or as provided in the certificate of incorporation or by the bylaws.
General Meeting	<p>A general meeting of the shareholders of a public limited company may be called by the directors.</p> <p>Shareholders holding at least 5% of the paid-up capital of the company carrying voting rights at general meetings (excluding any paid up capital held as treasury shares) can require the directors to call a general meeting and, if the directors fail to do so within a certain period, may themselves convene a general meeting.</p>	Special meetings of the stockholders may be called by the board of directors or by such person or persons as may be authorized by the certificate of incorporation or by the bylaws.

Notice of General Meetings	At least 21 clear days' notice must be given for an annual general meeting and state the general purpose of the meeting and present any resolutions to be proposed at the meeting. Subject to a company's articles of association providing for a longer period, at least 14 clear days' notice is required for any other general meeting of a public limited company. In addition, certain matters, such as the removal of directors or auditors, require special notice, which is 28 clear days' notice. The shareholders of a company may in all cases consent to a shorter notice period, the proportion of shareholders' consent required being 100% of those entitled to attend and vote in the case of an annual general meeting and, in the case of any other general meeting, a majority in number of the members having a right to attend and vote at the meeting, being a majority who together hold not less than 95% in nominal value of the shares giving a right to attend and vote at the meeting.	Unless otherwise provided in the certificate of incorporation or bylaws, written notice of any meeting of the stockholders must be given to each stockholder entitled to vote at the meeting not less than ten nor more than 60 days before the date of the meeting and shall specify the place, date, hour and purpose or purposes of the meeting.
Proxy	At any meeting of shareholders, a shareholder may designate another person to attend, speak and vote at the meeting on their behalf by proxy.	At any meeting of stockholders, a stockholder may designate another person to act for such stockholder by proxy, but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. A director of may not issue a proxy representing the director's voting rights as a director.

-41-

Pre-emptive Rights	"Equity securities," being (i) shares in the company other than shares that, with respect to dividends and capital, carry a right to participate only up to a specified amount in a distribution, referred to as "ordinary shares," or (ii) rights to subscribe for, or to convert securities into, ordinary shares, proposed to be allotted for cash must be offered first to the existing equity shareholders in the company in proportion to the respective nominal value of their holdings, unless an exception applies or a special resolution to the contrary has been passed by shareholders in a general meeting or the articles of association provide otherwise in each case in accordance with the provisions of the Companies Act.	Stockholders have no pre-emptive rights to subscribe to additional issues of stock or to any security convertible into such stock unless, and except to the extent that, such rights are expressly provided for in the certificate of incorporation.
Authority to Allot	The directors of a company must not allot shares or grant rights to subscribe for or convert any security into shares unless an exception applies or an ordinary resolution to the contrary has been passed by shareholders in a general meeting or the articles of association provide otherwise, in each case in accordance with the provisions of the Companies Act.	If the corporation's charter or certificate of incorporation so provides, the board of directors has the power to authorize the issuance of shares of capital stock. The board of directors may authorize capital stock to be issued for consideration consisting of cash, any tangible or intangible property or any benefit to the corporation or any combination thereof. It may determine the amount of such consideration by approving a formula. In the absence of actual fraud in the transaction, the judgment of the directors as to the value of such consideration is conclusive.
Liability of Directors and Officers	Any provision, whether contained in a company's articles of association or any contract or otherwise, that purports to exempt a director of a company, to any extent, from any liability that would otherwise attach to him in connection with any negligence, default, breach of duty or breach of trust in relation to the company, is void. Any provision by which a company directly or indirectly provides an indemnity, to any extent, for a director of the company or of an associated company against any liability attaching to him in connection with any negligence, default, breach of duty or breach of trust in relation to the company of which he is a director is also void except as permitted by the Companies Act, which provides exceptions for the company to (i) purchase and maintain insurance against such liability; (ii) provide a "qualifying third party indemnity," or an indemnity against liability incurred by the director to a person other than the company or an associated company or criminal proceedings in which he is convicted; and (iii) provide a "qualifying pension scheme indemnity," or an indemnity against liability incurred in connection with the company's activities as trustee of an occupational pension plan.	<p>A corporation's certificate of incorporation may include a provision eliminating or limiting the personal liability of a director to the corporation and its stockholders for damages arising from a breach of fiduciary duty as a director. However, no provision can limit the liability of a director for:</p> <ul style="list-style-type: none"> • any breach of the director's duty of loyalty to the corporation or its stockholders; • acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law; • intentional or negligent payment of unlawful dividends or stock purchases or redemptions; or • any transaction from which the director derives an improper personal benefit.

-42-

Voting Rights

Unless a poll is demanded by the shareholders of a company or is required by the chairman of the meeting or the company's articles of association, shareholders shall vote on all resolutions on a show of hands. Under the Companies Act, a poll may be demanded by (i) not fewer than five shareholders having the right to vote on the resolution; (ii) any shareholder(s) representing not less than 10% of the total voting rights of all the shareholders having the right to vote on the resolution (excluding any voting rights attaching to treasury shares); or (iii) any shareholder(s) holding shares in the company conferring a right to vote on the resolution (excluding any voting rights attaching to treasury shares) being shares on which an aggregate sum has been paid up equal to not less than 10% of the total sum paid up on all the shares conferring that right. A company's articles of association may provide more extensive rights for shareholders to call a poll.

Under the Companies Act, an ordinary resolution is passed on a show of hands if it is approved by a simple majority (more than 50%) of the votes cast by shareholders present (in person or by proxy) and

Entitled to vote. If a poll is demanded, an ordinary resolution is passed if it is approved by holders representing a simple majority of the total voting rights of shareholders present, in person or by proxy, who, being entitled to vote, vote on the resolution. Special resolutions require the affirmative vote of not less than 75% of the votes cast by shareholders present, in person or by proxy, at the meeting.

Stockholder Vote on Certain Transactions

The Companies Act provides for schemes of arrangement, which are arrangements or compromises between a company and any class of shareholders or creditors and used in certain types of reconstructions, amalgamations, capital reorganizations or takeovers. These arrangements require:

- the approval at a shareholders' or creditors' meeting convened by order of the court, of a majority in number of shareholders or creditors representing 75% in value of the capital held by, or debt owed to, the class of shareholders or creditors, or class thereof present and voting, either in person or by proxy; and
- the approval of the court.

Unless otherwise provided in the certificate of incorporation, each stockholder is entitled to one vote for each share of capital stock held by such stockholder.

Generally, unless the certificate of incorporation provides for the vote of a larger portion of the stock, completion of a merger, consolidation, sale, lease or exchange of all or substantially all of a corporation's assets or dissolution requires:

- the approval of the board of directors; and
- the approval by the vote of the holders of a majority of the outstanding stock or, if the certificate of incorporation provides for more or less than one vote per share, a majority of the votes of the outstanding stock of the corporation entitled to vote on the matter.

Standard of Conduct for Directors

A director owes various statutory and fiduciary duties to the company, including:

- to act in the way he considers, in good faith, would be most likely to promote the success of the company for the benefit of its members as a whole;
- to avoid a situation in which he has, or can have, a direct or indirect interest that conflicts, or possibly conflicts, with the interests of the company;
- to act in accordance with the company's constitution and only exercise his powers for the purposes for which they are conferred;
- to exercise independent judgment;
- to exercise reasonable care, skill and diligence;
- not to accept benefits from a third party conferred by reason of his being a director or doing, or not doing, anything as a director; and
- to declare any interest that he has, whether directly or indirectly, in a proposed or existing transaction or arrangement with the company.

Delaware law does not contain specific provisions setting forth the standard of conduct of a director. The scope of the fiduciary duties of directors is generally determined by the courts of the State of Delaware. In general, directors have a duty to act without self-interest, on a well-informed basis and in a manner they reasonably believe to be in the best interest of the stockholders.

Directors owe fiduciary duties of care and loyalty to the corporation and to its stockholders. The duty of care generally requires that a director acts in good faith, with the care that an ordinarily prudent person would exercise under similar circumstances. Under this duty, a director must inform himself of all material information reasonably available regarding a significant transaction. The duty of loyalty requires that a director act in a manner that the director reasonably believes to be in the best interests of the corporation. Directors must not use their corporate position for personal gain or advantage. In general, but subject to certain exceptions, actions of a director are presumed to have been made on an informed basis, in good faith and in the honest belief that the action taken was in the best interests of the corporation. However, this presumption may be rebutted by evidence of a breach of one of the fiduciary duties. Delaware courts have also imposed a heightened standard of conduct upon directors who take any action designed to defeat a threatened change in control of the corporation.

In addition, when the board of directors approves the sale or break-up of a corporation, the board of directors may, in certain circumstances, have a duty to obtain the highest value reasonably available to the stockholders.

Stockholder Litigation

Under Scottish law, generally, the company, rather than its shareholders, is the proper claimant in an action in respect of a wrong done to the company or where there is an irregularity in the company's internal management. Notwithstanding this general position, the Companies Act provides that (i) a court may allow a shareholder to bring a derivative claim (that is, an action in respect of and on behalf of the company) in respect of a cause of action arising from a director's negligence, default, breach of duty or breach of trust and (ii) a shareholder may bring a claim for a court order where the company's affairs have been or are being conducted in a manner that is unfairly prejudicial to some of its shareholders.

A stockholder may initiate a derivative action to enforce a right of a corporation if the corporation fails to enforce the right itself. The complaint must:

- state that the plaintiff was a stockholder at the time of the transaction of which the plaintiff complains or that the plaintiff's shares thereafter devolved on the plaintiff by operation of law; and
- allege with particularity the efforts made by the plaintiff to obtain the action the plaintiff desires from the directors and the reasons for the plaintiff's failure to obtain the action; or
- state the reasons for not making the effort.

Additionally, the plaintiff must remain a stockholder through the duration of the derivative suit. The action will not be dismissed or compromised without the approval of the Delaware Court of Chancery.

Listing

The ADSs are listed on The Nasdaq Capital Market under the symbol "TCBP".

Transfer Agent and Registrar

Our share register is maintained by our registrar, Computershare Investor Services plc. The transfer agent and registrar for our ADSs is The Bank of New York Mellon.

DESCRIPTION OF DEBT SECURITIES

The following description, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the debt securities that we may offer under this prospectus. While the terms we have summarized below will apply generally to any future debt securities we may offer pursuant to this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. If we so indicate in a prospectus supplement, the terms of any debt securities offered under such prospectus supplement may differ from the terms we describe below, and to the extent the terms set forth in a prospectus supplement differ from the terms described below, the terms set forth in the prospectus supplement shall control.

We may sell from time to time, in one or more offerings under this prospectus, debt securities, which may be senior or subordinated. We will issue any such senior debt securities under a senior indenture that we will enter into with a trustee to be named in the senior indenture. We will issue any such subordinated debt securities under a subordinated indenture, which we will enter into with a trustee to be named in the subordinated indenture. We have filed forms of these documents as exhibits to the registration statement, of which this prospectus is a part. We use the term "indentures" to refer to either the senior indenture or the subordinated indenture, as applicable. The indentures will be qualified under the Trust Indenture Act of 1939, as in effect on the date of the indenture. We use the term "debenture trustee" to refer to either the trustee under the senior indenture or the trustee under the subordinated indenture, as applicable.

-45-

The following summaries of material provisions of the senior debt securities, the subordinated debt securities and the indentures are subject to, and qualified in their entirety by reference to, all the provisions of the indenture applicable to a particular series of debt securities.

General

Each indenture provides that debt securities may be issued from time to time in one or more series and may be denominated and payable in foreign currencies or units based on or relating to foreign currencies. Neither indenture limits the amount of debt securities that may be issued thereunder, and each indenture provides that the specific terms of any series of debt securities shall be set forth in, or determined pursuant to, an authorizing resolution and/or a supplemental indenture, if any, relating to such series.

We will describe in each prospectus supplement the following terms relating to a series of debt securities:

- title or designation;
- the aggregate principal amount and any limit on the amount that may be issued;
- the currency or units based on or relating to currencies in which debt securities of such series are denominated and the currency or units in which principal or interest or both will or may be payable;
- whether we will issue the series of debt securities in global form, the terms of any global securities and who the depositary will be;
- the maturity date and the date or dates on which principal will be payable;
- the interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the date or dates interest will be payable and the record dates for interest payment dates or the method for determining such dates;
- whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;
- the terms of the subordination of any series of subordinated debt;
- the place or places where payments will be payable;
- our right, if any, to defer payment of interest and the maximum length of any such deferral period;
- the date, if any, after which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional redemption provisions;
- the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund provisions or otherwise, to redeem, or at the holder's option to purchase, the series of debt securities;
- whether the indenture will restrict our ability to pay dividends, or will require us to maintain any asset ratios or reserves;

- whether we will be restricted from incurring any additional indebtedness;
- a discussion of any material or special U.S. federal income tax considerations applicable to a series of debt securities;
- the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities. We may issue debt securities that provide for an amount less than their stated principal amount to be due and payable upon declaration of acceleration of their maturity pursuant to the terms of the indenture. We will provide you with information on the federal income tax considerations and other special considerations applicable to any of these debt securities in the applicable prospectus supplement.

-46-

Conversion or Exchange Rights

We will set forth in the prospectus supplement the terms, if any, on which a series of debt securities may be convertible into or exchangeable for our ordinary shares or our other securities. We will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of ordinary shares or our other securities that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale; No Protection in Event of a Change of Control or Highly Leveraged Transaction

The indentures do not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all of our assets. However, any successor to or acquirer of such assets must assume all of our obligations under the indentures or the debt securities, as appropriate.

Unless we state otherwise in the applicable prospectus supplement, the debt securities will not contain any provisions that may afford holders of the debt securities protection in the event we have a change of control or in the event of a highly leveraged transaction (whether or not such transaction results in a change of control), which could adversely affect holders of debt securities.

Events of Default Under the Indenture

The following are events of default under the indentures with respect to any series of debt securities that we may issue:

- if we fail to pay interest when due and our failure continues for 90 days and the time for payment has not been extended or deferred;
- if we fail to pay the principal, or premium, if any, when due and the time for payment has not been extended or delayed;
- if we fail to observe or perform any other covenant set forth in the debt securities of such series or the applicable indentures, other than a covenant specifically relating to and for the benefit of holders of another series of debt securities, and our failure continues for 90 days after we receive written notice from the debenture trustee or holders of not less than a majority in aggregate principal amount of the outstanding debt securities of the applicable series; and
- if specified events of bankruptcy, insolvency or reorganization occur as to us.

No event of default with respect to a particular series of debt securities (except as to certain events of bankruptcy, insolvency or reorganization) necessarily constitutes an event of default with respect to any other series of debt securities. The occurrence of an event of default may constitute an event of default under any bank credit agreements we may have in existence from time to time. In addition, the occurrence of certain events of default or an acceleration under the indenture may constitute an event of default under certain of our other indebtedness outstanding from time to time.

-47-

If an event of default with respect to debt securities of any series at the time outstanding occurs and is continuing, then the trustee or the holders of not less than a majority in principal amount of the outstanding debt securities of that series may, by a notice in writing to us (and to the debenture trustee if given by the holders), declare to be due and payable immediately the principal (or, if the debt securities of that series are discount securities, that portion of the principal amount as may be specified in the terms of that series) of and premium and accrued and unpaid interest, if any, on all debt securities of that series. Before a judgment or decree for payment of the money due has been obtained with respect to debt securities of any series, the holders of a majority in principal amount of the outstanding debt securities of that series (or, at a meeting of holders of such series at which a quorum is present, the holders of a majority in principal amount of the debt securities of such series represented at such meeting) may rescind and annul the acceleration if all events of default, other than the non-payment of accelerated principal, premium, if any, and interest, if any, with respect to debt securities of that series, have been cured or waived as provided in the applicable indenture (including payments or deposits in respect of principal, premium or interest that had become due other than as a result of such acceleration). We refer you to the prospectus supplement relating to any series of debt securities that are discount securities for the particular provisions relating to acceleration of a portion of the principal amount of such discount securities upon the occurrence of an event of default.

Subject to the terms of the indentures, if an event of default under an indenture shall occur and be continuing, the debenture trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the debenture trustee reasonable indemnity. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the debenture trustee, or exercising any trust or power conferred on the debenture trustee, with respect to the debt securities of that series, provided that:

- the direction so given by the holder is not in conflict with any law or the applicable indenture; and
- subject to its duties under the Trust Indenture Act, the debenture trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will only have the right to institute a proceeding under the indentures or to appoint a receiver or trustee, or to seek other remedies if:

- these limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities;
- the holder previously has given written notice to the debenture trustee of a continuing event of default with respect to that series;
- the holders of at least a majority in aggregate principal amount of the outstanding debt securities of that series have made written request, and such holders have offered reasonable indemnity to the debenture trustee to institute the proceeding as trustee; and

- the debenture trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series (or at a meeting of holders of such series at which a quorum is present, the holders of a majority in principal amount of the debt securities of such series represented at such meeting) other conflicting directions within 60 days after the notice, request and offer.

We will periodically file statements with the applicable debenture trustee regarding our compliance with specified covenants in the applicable indenture.

Modification of Indenture; Waiver

The debenture trustee and we may change the applicable indenture without the consent of any holders with respect to specific matters, including:

- to fix any ambiguity, defect or inconsistency in the indenture; and
- to change anything that does not materially adversely affect the interests of any holder of debt securities of any series issued pursuant to such indenture.

-48-

In addition, under the indentures, the rights of holders of a series of debt securities may be changed by us and the debenture trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series (or, at a meeting of holders of such series at which a quorum is present, the holders of a majority in principal amount of the debt securities of such series represented at such meeting) that is affected. However, the debenture trustee and we may make the following changes only with the consent of each holder of any outstanding debt securities affected:

- extending the fixed maturity of the series of debt securities;
- reducing the principal amount, reducing the rate of or extending the time of payment of interest, or any premium payable upon the redemption of any debt securities;
- reducing the principal amount of discount securities payable upon acceleration of maturity;
- making the principal of or premium or interest on any debt security payable in currency other than that stated in the debt security; or
- reducing the percentage of debt securities, the holders of which are required to consent to any amendment or waiver.

Except for certain specified provisions, the holders of at least a majority in principal amount of the outstanding debt securities of any series (or, at a meeting of holders of such series at which a quorum is present, the holders of a majority in principal amount of the debt securities of such series represented at such meeting) may on behalf of the holders of all debt securities of that series waive our compliance with provisions of the indenture. The holders of a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all the debt securities of such series waive any past default under the indenture with respect to that series and its consequences, except a default in the payment of the principal of, premium or any interest on any debt security of that series or in respect of a covenant or provision, which cannot be modified or amended without the consent of the holder of each outstanding debt security of the series affected; *provided, however*, that the holders of a majority in principal amount of the outstanding debt securities of any series may rescind an acceleration and its consequences, including any related payment default that resulted from the acceleration.

Discharge

Each indenture provides that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for obligations to:

- the transfer or exchange of debt securities of the series;
- replace stolen, lost or mutilated debt securities of the series;
- maintain paying agencies;
- hold monies for payment in trust;
- compensate and indemnify the trustee; and
- appoint any successor trustee.

In order to exercise our rights to be discharged with respect to a series, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, the premium, if any, and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange, and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we otherwise specify in the applicable prospectus supplement, in denominations of \$1,000 and any integral multiple thereof. The indentures provide that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company or another depository named by us and identified in a prospectus supplement with respect to that series.

At the option of the holder, subject to the terms of the indentures and the limitations applicable to global securities described in the applicable prospectus supplement, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

-49-

Subject to the terms of the indentures and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange or in the applicable indenture, we will make no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any

transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

- issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or
- register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Debenture Trustee

The debenture trustee, other than during the occurrence and continuance of an event of default under the applicable indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the debenture trustee under such indenture must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the debenture trustee is under no obligation to exercise any of the powers given it by the indentures at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay the principal of and any premium and interest due on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check which we will mail to the holder. Unless we otherwise indicate in a prospectus supplement, we will designate the corporate trust office of the debenture trustee in the City of New York as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the debenture trustee for the payment of the principal of or any premium or interest on any debt securities which remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the security thereafter may look only to us for payment thereof.

-50-

Governing Law

The indentures and the debt securities will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

Subordination of Subordinated Debt Securities

Our obligations pursuant to any subordinated debt securities will be unsecured and will be subordinate and junior in priority of payment to certain of our other indebtedness to the extent described in a prospectus supplement. The subordinated indenture does not limit the amount of senior indebtedness we may incur. It also does not limit us from issuing any other secured or unsecured debt.

DESCRIPTION OF WARRANTS

General

We may issue warrants to purchase our ordinary shares represented by ADSs and/or debt securities in one or more series together with other securities or separately, as described in the applicable prospectus supplement. Below is a description of certain general terms and provisions of the warrants that we may offer. Particular terms of the warrants will be described in the warrant agreements and the prospectus supplement relating to the warrants.

The applicable prospectus supplement will contain, where applicable, the following terms of and other information relating to the warrants:

- the specific designation and aggregate number of, and the price at which we will issue, the warrants;
- the currency or currency units in which the offering price, if any, and the exercise price payable;
- the designation, amount and terms of the securities purchasable upon exercise of the warrants;
- if applicable, the exercise price for our ADSs and the number of ADSs to be received upon exercise;
- if applicable, the exercise price for our debt securities, the amount of debt securities to be received upon exercise, and a description of that series of debt securities;
- the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if you may not continuously exercise the warrants throughout that period, the specific date or dates on which you may exercise the warrants;
- whether the warrants will be issued in fully registered form or bearer form, in definitive or global form or in any combination of these forms, although, in any case, the form of a warrant included in a unit will correspond to the form of the unit and of any security included in that unit;
- any applicable material U.S. federal income tax consequences and any applicable material U.K. tax consequences;
- the identity of the warrant agent for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- the proposed listing, if any, of the warrants or any securities purchasable upon exercise of the warrants on any securities exchange;
- if applicable, the date from and after which the warrants and the ADSs and/or debt securities will be separately transferable;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;

- the anti-dilution provisions of the warrants, if any;
- any redemption or call provisions, if any;
- whether the warrants may be sold separately or with other securities as parts of units; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

-51-

Transfer Agent and Registrar

The transfer agent and registrar for any warrants will be set forth in the applicable prospectus supplement.

DESCRIPTION OF RIGHTS

General

We may issue rights to our shareholders to purchase our ordinary shares represented by ADSs or the other securities described in this prospectus. We may offer rights separately or together with one or more additional rights, debt securities, ordinary shares represented by ADSs, or warrants, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. Each series of rights will be issued under a separate rights agreement to be entered into between us and a bank or trust company, as rights agent. The rights agent will act solely as our agent in connection with the certificates relating to the rights of the series of certificates and will not assume any obligation or relationship of agency or trust for or with any holders of rights certificates or beneficial owners of rights. The following description sets forth certain general terms and provisions of the rights to which any prospectus supplement may relate. The particular terms of the rights to which any prospectus supplement may relate and the extent, if any, to which the general provisions may apply to the rights so offered will be described in the applicable prospectus supplement. To the extent that any particular terms of the rights, rights agreement or rights certificates described in a prospectus supplement differ from any of the terms described below, then the terms described below will be deemed to have been superseded by that prospectus supplement. We encourage you to read the applicable rights agreement and rights certificate for additional information before you decide whether to purchase any of our rights. We will provide in a prospectus supplement the following terms of the rights being issued:

- the date of determining the shareholders entitled to the rights distribution;
- the aggregate number of ordinary shares represented by ADSs or other securities purchasable upon exercise of the rights;
- the exercise price;
- the aggregate number of rights issued;
- whether the rights are transferrable and the date, if any, on and after which the rights may be separately transferred;
- the date on which the right to exercise the rights will commence, and the date on which the right to exercise the rights will expire;
- the method by which holders of rights will be entitled to exercise;
- the conditions to the completion of the offering, if any;
- the withdrawal, termination and cancellation rights, if any;
- whether there are any backstop or standby purchaser or purchasers and the terms of their commitment, if any;
- whether shareholders are entitled to oversubscription rights, if any;
- any applicable material U.S. federal income tax considerations and any applicable material U.K. tax considerations; and
- any other terms of the rights, including terms, procedures and limitations relating to the distribution, exchange and exercise of the rights, as applicable.

Each right will entitle the holder of rights to purchase for cash the principal amount of ordinary shares represented by ADSs or other securities at the exercise price provided in the applicable prospectus supplement. Rights may be exercised at any time up to the close of business on the expiration date for the rights provided in the applicable prospectus supplement.

-52-

Holders may exercise rights as described in the applicable prospectus supplement. Upon receipt of payment and the rights certificate properly completed and duly executed at the corporate trust office of the rights agent or any other office indicated in the prospectus supplement, we will, as soon as practicable, forward the ordinary shares represented by ADS or other securities, as applicable, purchasable upon exercise of the rights. If less than all of the rights issued in any rights offering are exercised, we may offer any unsubscribed securities directly to persons other than shareholders, to or through agents, underwriters or dealers or through a combination of such methods, including pursuant to standby arrangements, as described in the applicable prospectus supplement.

Rights Agent

The rights agent for any rights we offer will be set forth in the applicable prospectus supplement.

DESCRIPTION OF UNITS

The following description, together with the additional information that we include in any applicable prospectus supplements summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below.

We will incorporate by reference from reports that we file with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any

supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplements related to the particular series of units that we may offer under this prospectus, as well as any related free writing prospectuses and the complete unit agreement and any supplemental agreements that contain the terms of the units.

General

We may issue units consisting of any combination of the other types of securities offered under this prospectus in one or more series. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each security included in the unit. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We will describe in the applicable prospectus supplement the terms of the series of units being offered, including:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement that differ from those described below; and
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units.

The provisions described in this section, as well as those set forth in any prospectus supplement or as described under “Description of Share Capital,” “Description of American Depositary Shares,” “Description of Debt Securities,” “Description of Warrants,” and “Description of Rights” will apply to each unit, as applicable, and to any ordinary shares represented by ADSs, debt security, warrant or right included in each unit, as applicable.

-53-

Unit Agent

The name and address of the unit agent, if any, for any units we offer will be set forth in the applicable prospectus supplement.

Issuance in Series

We may issue units in such amounts and in such numerous distinct series as we determine.

Enforceability of Rights by Holders of Units

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as a unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

DESCRIPTION OF AMERICAN DEPOSITARY SHARES

The Bank of New York Mellon acts as the depositary for the ADSs. As depositary, The Bank of New York Mellon will register and deliver the ADSs. Each ADS represents one ordinary share (or a right to receive and to exercise the beneficial ownership interests in one ordinary share) deposited with The Bank of New York Mellon, or any successor, as custodian, acting through an office located in the United Kingdom. Each ADS will also represent any other securities, cash or other property that may be held by the depositary in respect of the ordinary shares deposited with it. The deposited shares together with any other securities, cash or other property held by the depositary are referred to as the deposited securities. The depositary’s office at which the ADSs will be administered and its principal executive office are located at 240 Greenwich Street, New York, NY 10286.

Investors may hold ADSs either: (A) directly (i) by having an American Depositary Receipt, also referred to as an ADR, which is a certificate evidencing a specific number of ADSs, registered in the investors name; or (ii) by having uncertificated ADSs registered in the investors name; or (B) indirectly by holding a security entitlement in ADSs through a broker or other financial institution that is a direct or indirect participant in The Depositary Trust Company, also called DTC. If investors hold ADSs directly, it will be the registered ADS holder, also referred to as an ADS holder. This description assumes the investor is an ADS holder. If the investors holds the ADSs indirectly, the investor must rely on the procedures of its broker or other financial institution to assert the rights of ADS holders described in this section. Investors should consult with their broker or financial institution to find out what those procedures are.

Registered holders of uncertificated ADSs will receive statements from the depositary confirming their holdings.

We will not treat the ADS holder as one of our shareholders, and the ADS holder will not have shareholder rights including the rights to attend shareholder meetings of any kind. Scottish law governs the shareholder rights of our company. The depositary will be the holder of the shares underlying the ADSs. As a registered holder of ADSs, the investor only will have ADS holder rights. A deposit agreement among the company, the depositary, ADS holders and all other persons indirectly or beneficially holding ADSs sets out ADS holder rights as well as the rights and obligations of the depositary. New York law governs the deposit agreement and the ADSs.

The following is a summary of the material provisions of the deposit agreement. For more complete information, investors should read the entire deposit agreement and the form of ADR. Portions of this summary description describe matters that may be relevant to the ownership of ADSs but that may not be contained in the deposit agreement.

-54-

Dividends and other distributions

The depositary has agreed to pay or distribute to ADS holders the cash dividends or other distributions it or the custodian receives on shares or other deposited securities, upon payment or deduction of its fees, taxes and expenses. Investors will receive these distributions in proportion to the number of shares that the ADSs represent.

Cash. The depositary will convert any cash dividend or other cash distribution we pay on the shares into U.S. dollars, if it can do so on a reasonable basis and can transfer the U.S. dollars to the United States. If that is not possible or if any government approval is needed and cannot be obtained, the deposit agreement allows the depositary to distribute the foreign currency only to those ADS holders to whom it is possible to do so. It will hold the foreign currency it cannot convert for the account of the ADS holders who have not been paid. It will not invest the foreign currency and it will not be liable for any interest.

Before making a distribution, any withholding taxes, or other governmental charges that must be paid will be deducted. The depositary will distribute only whole U.S. dollars and cents and will round fractional cents to the nearest whole cent. If the exchange rates fluctuate during a time when the depositary cannot convert the foreign currency, investors lose some of the value of the distribution.

Shares. The depositary may distribute additional ADSs representing any shares we distribute as a dividend or free distribution. The depositary will only distribute whole ADSs. It will sell shares which would require it to deliver a fraction of an ADS (or ADSs representing those shares) and distribute the net proceeds in the same way as it does with cash. If the depositary does not distribute additional ADSs, the outstanding ADSs will also represent the new shares. The depositary may sell a portion of the distributed shares (or ADSs representing those shares) sufficient to pay its fees and expenses in connection with that distribution.

Rights to purchase additional shares. If we offer holders of our securities any rights to subscribe for additional shares or any other rights, the depositary may: (i) exercise those rights on behalf of ADS holders; (ii) distribute those rights to ADS holders; or (iii) sell those rights and distribute the net proceeds to ADS holders, in each case after deduction or upon payment of its fees and expenses. To the extent the depositary does not do any of those things, it will allow the rights to lapse. In that case, investors will receive no value for them. The depositary will exercise or distribute rights only if we ask it to and provide satisfactory assurances to the depositary that it is legal to do so. If the depositary will exercise rights, it will purchase the securities to which the rights relate and distribute those securities or, in the case of shares, new ADSs representing the new shares, to subscribing ADS holders, but only if ADS holders have paid the exercise price to the depositary. U.S. securities laws may restrict the ability of the depositary to distribute rights or ADSs or other securities issued on exercise of rights to all or certain ADS holders, and the securities distributed may be subject to restrictions on transfer.

Other Distributions. The depositary will send to ADS holders anything else we distribute on deposited securities by any means it thinks is legal, fair and practical. If it cannot make the distribution in that way, the depositary has a choice. It may decide to sell what we distributed and distribute the net proceeds, in the same way as it does with cash. Or, it may decide to hold what we distributed, in which case ADSs will also represent the newly distributed property. However, the depositary is not required to distribute any securities (other than ADSs) to ADS holders unless it receives satisfactory evidence from us that it is legal to make that distribution. The depositary may sell a portion of the distributed securities or property sufficient to pay its fees and expenses in connection with that distribution. U.S. securities laws may restrict the ability of the depositary to distribute securities to all or certain ADS holders, and the securities distributed may be subject to restrictions on transfer. The depositary is not responsible if it decides that it is unlawful or impractical to make a distribution available to any ADS holders. We have no obligation to register ADSs, shares, rights or other securities under the Securities Act. We also have no obligation to take any other action to permit the distribution of ADSs, shares, rights or anything else to ADS holders. This means that investors may not receive the distributions we make on our shares or any value for them if it is illegal or impractical for us to make them available to the ADS holder.

-55-

Deposit, withdrawal and cancellation

How are the ADSs issued?

The depositary will deliver ADSs if the investor or its broker deposits shares or evidence of rights to receive shares with the custodian. Upon payment of its fees and expenses and of any taxes or charges, such as stamp taxes or stock transfer taxes or fees which may be payable, the depositary will register the appropriate number of ADSs in the names requested and will deliver the ADSs to or upon the order of the person or persons that made the deposit.

How can ADS holders withdraw the deposited securities?

ADS holders may surrender their ADSs for the purpose of withdrawal at the depositary's office. Upon payment of its fees and expenses and of any taxes or charges, such as stamp taxes or stock transfer taxes or fees, the depositary will deliver the shares and any other deposited securities underlying the ADSs to the ADS holder or a person the ADS holder designates at the office of the custodian. Or, at the ADS holders request, risk and expense, the depositary will deliver the deposited securities at its office, if feasible. However, the depositary is not required to accept surrender of ADSs to the extent it would require delivery of a fraction of a deposited share or other security. The depositary may charge a fee and its expenses for instructing the custodian regarding delivery of deposited securities.

How do ADS holders interchange between certificated ADSs and uncertificated ADSs?

ADS holders may surrender their ADR to the depositary for the purpose of exchanging the ADR for uncertificated ADSs. The depositary will cancel that ADR and will send to the ADS holder a statement confirming that the ADS holder is the registered holder of uncertificated ADSs. Upon receipt by the depositary of a proper instruction from a registered holder of uncertificated ADSs requesting the exchange of uncertificated ADSs for certificated ADSs, the depositary will execute and deliver to the ADS holder an ADR evidencing those ADSs.

Voting rights

ADS holders may instruct the depositary how to vote the number of deposited shares their ADSs represent. The voting rights of holders of ordinary shares are described in "Description of share capital and articles of association—Articles of association."

If we request the depositary to solicit voting instructions (and we are not required to do so) from the ADS holders, the depositary will notify them of the relevant general meeting of shareholders and send or make voting materials available to the ADS holders. Those materials will describe the matters to be voted on and explain how the ADS holders may instruct the depositary how to vote. For instructions to be valid, they must reach the depositary by a date set by the depositary. The depositary will try, as far as practical, subject to the laws of Scotland and the provisions of our Articles or similar documents, to vote or to have its agents vote the shares or other deposited securities as instructed by ADS holders. If we do not request the depositary to solicit voting instructions, ADS holder can still send voting instructions to the depositary, and, in that case, the depositary may try to vote as instructed, but it is not required to do so.

Except by instructing the depositary as described above, ADS holders will not be able to exercise voting rights unless they surrender the ADSs and withdraw the shares. However, the ADS holder may not know about the annual general meeting enough in advance to withdraw the shares. In any event, the depositary will not exercise any discretion in voting deposited securities and it will only vote or attempt to vote as instructed or as described in the following sentence. If we asked the depositary to solicit instructions at least 45 days before the meeting date, but the depositary does not receive voting instructions from the ADS holder by the specified date, it will consider that they have been authorized and directed to give a discretionary proxy to a person designated by us to attend the meeting solely for quorum purposes, but not to vote the ordinary shares on any matter presented to the shareholders.

We cannot give assurance that ADS holders will receive the voting materials in time to ensure that they can instruct the depositary to vote their shares. In addition, the depositary and its agents are not responsible for failing to carry out voting instructions or for the manner of carrying out voting instructions. This means that ADS holders may not be able to exercise voting rights, and there may be nothing an ADS holder can do if the shares are not voted as requested.

-56-

In order to give ADS holders a reasonable opportunity to instruct the depositary as to the exercise of voting rights relating to deposited securities, if we request the depositary to act, we agree to give the depositary notice of any such meeting and details concerning the matters to be voted upon at least 45 days in advance of the meeting date.

Fees and expenses

Persons depositing or withdrawing shares or ADS holders must pay:

\$5.00 (or less) per 100 ADSs (or portion of 100 ADSs)

\$0.05 (or less) per ADS

A fee equivalent to the fee that would be payable if securities distributed to the holder had been shares and the shares had been deposited for issuance of ADSs

\$0.05 (or less) per ADS per calendar year

Registration or transfer fees

Expenses of the depositary

Taxes and other governmental charges the depositary or the custodian has to pay on any ADSs or shares underlying ADSs, such as stock transfer taxes, stamp duty or withholding taxes

Any charges incurred by the depositary or its agents for servicing the deposited securities

For:

Issuance of ADSs, including issuances resulting from a distribution of shares or rights or other property
Cancellation of ADSs for the purpose of withdrawal, including if the deposit agreement terminates

Any cash distribution to ADS holders

Distribution of securities distributed to holders of deposited securities (including rights) that are distributed by the depositary to ADS holders

Depositary services

Transfer and registration of shares on our share register to or from the name of the depositary or its agent when deposited or withdrawn shares

Cable (including SWIFT), telex and facsimile transmissions (when expressly provided in the deposit agreement)
Converting foreign currency to U.S. dollars

As necessary

As necessary

The depositary collects its fees for delivery and surrender of ADSs directly from investors depositing shares or surrendering ADSs for the purpose of withdrawal or from intermediaries acting for them. The depositary collects fees for making distributions to investors by deducting those fees from the amounts distributed or by selling a portion of distributable property to pay the fees. The depositary may collect its annual fee for depositary services by deduction from cash distributions or by directly billing investors or by charging the book-entry system accounts of participants acting for them. The depositary may collect any of its fees by deduction from any cash distribution payable (or by selling a portion of securities or other property distributable) to ADS holders that are obligated to pay those fees. The depositary may generally refuse to provide fee-attracting services until its fees for those services are paid.

From time to time, the depositary may make payments to us to reimburse us for costs and expenses generally arising out of establishment and maintenance of the ADS program, waive fees and expenses for services provided to us by the depositary or share revenue from the fees collected from ADS holders. In performing its duties under the deposit agreement, the depositary may use brokers, dealers, foreign currency dealers or other service providers that are owned by or affiliated with the depositary and that may earn or share fees, spreads or commissions.

-57-

The depositary may convert currency itself or through any of its affiliates and, in those cases, acts as principal for its own account and not as agent, advisor, broker or fiduciary on behalf of any other person and earns revenue, including, without limitation, transaction spreads, that it will retain for its own account. The revenue is based on, among other things, the difference between the exchange rate assigned to the currency conversion made under the deposit agreement and the rate that the depositary or its affiliate receives when buying or selling foreign currency for its own account. The depositary makes no representation that the exchange rate used or obtained in any currency conversion under the deposit agreement will be the most favorable rate that could be obtained at the time or that the method by which that rate will be determined will be the most favorable to ADS holders, subject to the depositary's obligations under the deposit agreement. The methodology used to determine exchange rates used in currency conversions is available upon request.

Payment of taxes

ADS holders will be responsible for any taxes or other governmental charges payable on the ADSs or on the deposited securities represented by any of the ADSs. The depositary may refuse to register any transfer of the ADSs or allow a holder to withdraw the deposited securities represented by the ADSs until those taxes or other charges are paid. It may apply payments owed to the holder or sell deposited securities represented by the ADSs to pay any taxes owed and the ADS holder will remain liable for any deficiency. If the depositary sells deposited securities, it will, if appropriate, reduce the number of ADSs to reflect the sale and pay to ADS holders any proceeds, or send to ADS holders any property, remaining after it has paid the taxes.

Tender and exchange offers; redemption, replacement or cancellation of deposited securities

The depositary will not tender deposited securities in any voluntary tender or exchange offer unless instructed to do so by an ADS holder surrendering ADSs and subject to any conditions or procedures the depositary may establish.

If deposited securities are redeemed for cash in a transaction that is mandatory for the depositary as a holder of deposited securities, the depositary will call for surrender of a corresponding number of ADSs and distribute the net redemption money to the holders of called ADSs upon surrender of those ADSs.

If there is any change in the deposited securities such as a sub-division, combination or other reclassification, or any merger, consolidation, recapitalization or reorganization affecting the issuer of deposited securities in which the depositary receives new securities in exchange for or in lieu of the old deposited securities, the depositary will hold those replacement securities as deposited securities under the deposit agreement. However, if the depositary decides it would not be lawful and practical to hold the replacement securities because those securities could not be distributed to ADS holders or for any other reason, the depositary may instead sell the replacement securities and distribute the net proceeds upon surrender of the ADSs.

If there is a replacement of the deposited securities and the depositary will continue to hold the replacement securities, the depositary may distribute new ADSs representing the new deposited securities or ask the ADS holder to surrender their outstanding ADRs in exchange for new ADRs identifying the new deposited securities.

If there are no deposited securities underlying ADSs, including if the deposited securities are cancelled, or if the deposited securities underlying ADSs have become apparently worthless, the depositary may call for surrender of those ADSs or cancel those ADSs upon notice to the ADS holders.

Amendment and termination

How may the deposit agreement be amended?

We may agree with the depositary to amend the deposit agreement and the ADRs without the consent of the ADS holders for any reason. If an amendment adds or increases fees or charges, except for taxes and other governmental charges or expenses of the depositary for registration fees, facsimile costs, delivery charges or similar items, or prejudices a substantial right of ADS holders, it will not become effective for outstanding ADSs until 30 days after the depositary notifies ADS holders of the amendment. At the time an amendment becomes effective, the ADS holder will be considered, by continuing to hold ADSs, to have agreed to the amendment and to be bound by the ADRs and the deposit agreement as amended.

-58-

How may the deposit agreement be terminated?

The depositary will initiate termination of the deposit agreement if we instruct it to do so. The depositary may initiate termination of the deposit agreement if:

- 60 days have passed since the depositary told us it wants to resign but a successor depositary has not been appointed and accepted its appointment;
- we delist the ADSs from an exchange in the United States on which they were listed and do not list the ADSs on another exchange in the United States or make arrangements for trading of ADSs on the U.S. over-the-counter market;
- we delist our shares from an exchange outside the United States on which they were listed and do not list the shares on another exchange outside the United States;
- the depositary has reason to believe the ADSs have become, or will become, ineligible for registration on Form F-6 under the Securities Act of 1933, as amended;
- we appear to be insolvent or enter insolvency proceedings;
- all or substantially all the value of the deposited securities has been distributed either in cash or in the form of securities;
- there are no deposited securities underlying the ADSs or the underlying deposited securities have become apparently worthless; or
- there has been a replacement of deposited securities.

If the deposit agreement will terminate, the depositary will notify ADS holders at least 90 days before the termination date. At any time after the termination date, the depositary may sell the deposited securities. After that, the depositary will hold the money it received on the sale, as well as any other cash it is holding under the deposit agreement, unsegregated and without liability for interest, for the pro rata benefit of the ADS holders that have not surrendered their ADSs. Normally, the depositary will sell as soon as practicable after the termination date.

After the termination date and before the depositary sells, ADS holders can still surrender their ADSs and receive delivery of deposited securities, except that the depositary may refuse to accept a surrender for the purpose of withdrawing deposited securities or reverse previously accepted surrenders of that kind that have not settled if it would interfere with the selling process. The depositary may refuse to accept a surrender for the purpose of withdrawing sale proceeds until all the deposited securities have been sold. The depositary will continue to collect distributions on deposited securities, but, after the termination date, the depositary is not required to register any transfer of ADSs or distribute any dividends or other distributions on deposited securities to the ADSs holder (until they surrender their ADSs) or give any notices or perform any other duties under the deposit agreement except as described in this paragraph.

Limitations on obligations and liability

The deposit agreement expressly limits our obligations and the obligations of the depositary. It also limits our liability and the liability of the depositary. We and the depositary:

- are only obligated to take the actions specifically set forth in the deposit agreement without negligence or bad faith, and the depositary will not be a fiduciary or have any fiduciary duty to holders of ADSs;
- are not liable if we are or it is prevented or delayed by law or by events or circumstances beyond our or its ability to prevent or counteract with reasonable care or effort from performing our or its obligations under the deposit agreement;
- are not liable if we or it exercises discretion permitted under the deposit agreement;

-59-

- are not liable for any action or inaction in reliance on the advice or information received from legal counsel, accountants, any person presenting ordinary shares for deposit, any holder of ADSs or authorized representatives thereof, or any other person believed by either of us in good faith to be competent to give such advice or information;
- are not liable for the inability of any holder of ADSs to benefit from any distribution on deposited securities that is not made available to holders of ADSs under the terms of the deposit agreement, or for any special, consequential or punitive damages for any breach of the terms of the deposit agreement;
- have no obligation to become involved in a lawsuit or other proceeding related to the ADSs or the deposit agreement on behalf of the ADS holder or on behalf of any other person;
- may rely upon any documents we believe or it believes in good faith to be genuine and to have been signed or presented by the proper person;
- are not liable for the acts or omissions of any securities depositary, clearing agency or settlement system; and
- the depositary has no duty to make any determination or provide any information as to our tax status, or any liability for any tax consequences that may be incurred by ADS holders as a result of owning or holding ADSs or be liable for the inability or failure of an ADS holder to obtain the benefit of a foreign tax credit, reduced rate of withholding or refund of amounts withheld in respect of tax or any other tax benefit.

In the deposit agreement, we and the depositary agree to indemnify each other under certain circumstances.

Requirements for depositary actions

Before the depositary will deliver or register a transfer of ADSs, make a distribution on ADSs, or permit withdrawal of shares, the depositary may require:

- payment of stock transfer or other taxes or other governmental charges and transfer or registration fees charged by third parties for the transfer of any shares or other deposited securities;
- satisfactory proof of the identity and genuineness of any signature or other information it deems necessary; and
- compliance with regulations it may establish, from time to time, consistent with the deposit agreement, including presentation of transfer documents.

The depositary may refuse to deliver ADSs or register transfers of ADSs when the transfer books of the depositary or our transfer books are closed or at any time if the depositary or we think it advisable to do so.

Right to receive the shares underlying ADSs

ADS holders have the right to cancel their ADSs and withdraw the underlying shares at any time except:

- when temporary delays arise because: (i) the depositary has closed its transfer books or we have closed our transfer books; (ii) the transfer of shares is blocked to permit voting at an annual general meeting; or (iii) we are paying a dividend on our shares;
- when the ADS holder owes money to pay fees, taxes and similar charges; or
- when it is necessary to prohibit withdrawals in order to comply with any laws or governmental regulations that apply to ADSs or to the withdrawal of shares or other deposited securities.

This right of withdrawal may not be limited by any other provision of the deposit agreement.

-60-

Direct registration system

In the deposit agreement, all parties to the deposit agreement acknowledge that the Direct Registration System, also referred to as DRS, and Profile Modification System, also referred to as Profile, will apply to the ADSs. DRS is a system administered by DTC that facilitates interchange between registered holding of uncertificated ADSs and holding of security entitlements in ADSs through DTC and a DTC participant. Profile is a feature of DRS that allows a DTC participant, claiming to act on behalf of a registered holder of uncertificated ADSs, to direct the depositary to register a transfer of those ADSs to DTC or its nominee and to deliver those ADSs to the DTC account of that DTC participant without receipt by the depositary of prior authorization from the ADS holder to register that transfer.

In connection with and in accordance with the arrangements and procedures relating to DRS/Profile, the parties to the deposit agreement understand that the depositary will not determine whether the DTC participant that is claiming to be acting on behalf of an ADS holder in requesting registration of transfer and delivery as described in the paragraph above has the actual authority to act on behalf of the ADS holder (notwithstanding any requirements under the Uniform Commercial Code). In the deposit agreement, the parties agree that the depositary's reliance on and compliance with instructions received by the depositary through the DRS/Profile system and in accordance with the deposit agreement will not constitute negligence or bad faith on the part of the depositary.

Books of depositary; shareholder communications; inspection of register of holders of ADSs

The depositary will maintain ADS holder records at its depositary office. The depositary will make available for inspection at its office all communications that it receives from us as a holder of deposited securities that we make generally available to holders of deposited securities. The depositary will send copies of those communications or otherwise make those communications available to ADS holders if we ask it to. ADS holders have a right to inspect the register of holders of ADSs, but not for the purpose of contacting those holders about a matter unrelated to our business or the ADSs.

Jury trial waiver

The deposit agreement provides that, to the extent permitted by law, ADS holders waive the right to a jury trial of any claim they may have against us or the depositary arising out of or relating to our shares, the ADSs or the deposit agreement, including any claim under the U.S. federal securities laws. If we or the depositary opposed a jury trial demand based on the waiver, the court would determine whether the waiver was enforceable in the facts and circumstances of that case in accordance with applicable case law.

ADS holders will not, by agreeing to the terms of the deposit agreement, be deemed to have waived our or the depositary's compliance with U.S. federal securities laws or the rules and regulations promulgated thereunder.

-61-

EXPENSES

The following is an estimate of the expenses (all of which are to be paid by us) that we may incur in connection with the securities being registered hereby.

SEC registration fee	\$	15,310
FINRA filing fee		(1)
Legal fees and expenses		(1)
Accounting fees and expenses		(1)
Printing expenses		(1)
Miscellaneous expenses		(1)
Total	\$	(1)

(1) These fees are calculated based on the securities offered and the number of issuances and accordingly cannot be estimated at this time.

LEGAL MATTERS

Unless the applicable prospectus supplement indicates otherwise, the validity of the debt securities, warrants and units governed by U.S. law and certain other matters of U.S. law will be passed upon for us by Sheppard, Mullin, Richter & Hampton LLP. Unless the applicable prospectus supplement indicates otherwise, the validity of our ordinary shares underlying the ADSs and certain matters governed by Scottish law will be passed on for us by Addleshaw Goddard LLP. Additional legal matters may be passed upon for any underwriters, dealers or agents by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of TC BioPharm (Holdings) plc incorporated by reference in TC BioPharm (Holdings) plc's Annual Report (Form 10-K) for the years ended December 31, 2023 and December 31, 2022, have been audited by Marcum LLP, independent registered public accounting firm, as set forth in their report thereon, (which contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements) included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

The registered business address of Marcum LLP is 730 3rd Avenue, 11th Floor, New York, NY 10017, United States of America.

ENFORCEMENT OF JUDGMENTS

We are a corporation organized under the laws of Scotland. Substantially all of our assets and half of our directors and executive officers are located and reside, respectively, outside the United States. Because of the location of our assets and board members, it may not be possible for investors to serve process within the United States upon TCB or those persons with respect to matters arising under the United States federal securities laws or to enforce against us or persons located outside the United States judgments of United States courts asserted under the civil liability provisions of the United States federal securities laws. We understand that there is doubt as to the enforceability in Scotland and the United Kingdom, in original actions or in actions for enforcement of judgments of United States courts, of civil liabilities predicated solely upon the federal securities laws of the United States insofar as they are fines or penalties. In addition, awards of punitive damages in actions brought in the United States or elsewhere may be unenforceable in Scotland and the United Kingdom by reason of being a penalty. TC BioPharm (North America) Inc., a Delaware corporation, with a registered office at Business Filings, Inc. 108 West 13th Street, Wilmington, Delaware 19801, has been appointed agent to receive service of process in any action against TC BioPharm (Holdings) plc in any state or federal court in the State of New York.

-62-

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the periodic reporting and other informational requirements of the Exchange Act. Under the Exchange Act, we file Annual Reports and other information with the SEC. As a foreign private issuer, we are exempt from, among other things, the rules under the Exchange Act prescribing the furnishing and content of proxy statements and our officers, directors and principal shareholders are exempt from the reporting and short-swing profit recovery provisions contained in Section 16 of the Exchange Act.

The SEC maintains a web site that contains reports and information statements and other information about issuers, such as us, who file electronically with the SEC. The address of that website is www.sec.gov.

This prospectus and any prospectus supplement are part of a registration statement that we filed with the SEC and do not contain all of the information in the registration statement. The full registration statement may be obtained from the SEC or us, as provided below. Forms of the documents establishing the terms of the offered securities are or may be filed as exhibits to the registration statement of which this prospectus forms a part. Statements in this prospectus or any prospectus supplement about these documents are summaries and each statement is qualified in all respects by reference to the document to which it refers. You should refer to the actual documents for a more complete description of the relevant matters. You may inspect a copy of the registration statement through the SEC's website, as provided above.

We maintain a corporate website at <https://tcbiopharm.com/>. Information contained on, or that can be accessed through, our website does not constitute a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference. We will post on our website any materials required to be so posted on such website under applicable corporate or securities laws and regulations, including, posting any XBRL interactive financial data required to be filed with the SEC and any notices of general meetings of our shareholders.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" information that we file with them. Incorporation by reference allows us to disclose important information to you by referring you to those other documents. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. We filed a registration statement on Form F-3 under the Securities Act with the SEC with respect to the securities we may offer pursuant to this prospectus. This prospectus omits certain information contained in the registration statement, as permitted by the SEC. You should refer to the registration statement, including the exhibits, for further information about us and the securities we may offer pursuant to this prospectus. Statements in this prospectus regarding the provisions of certain documents filed with, or incorporated by reference in, the registration statement are not necessarily complete and each statement is qualified in all respects by that reference. Copies of all or any part of the registration statement, including the documents incorporated by reference or the exhibits, may be obtained upon payment of the prescribed rates at the offices of the SEC listed above in "Where You Can Find More Information." The documents we are incorporating by reference are:

- our Annual Report on [Form 10-K/A](#) for the fiscal year ended December 31, 2023, filed with the SEC on April 29, 2024;
- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2023, filed with the SEC on April 1, 2024;
- our Quarterly Report on [Form 10-Q](#) for the fiscal quarter ended March 31, 2024, filed with the SEC on May 15, 2024;
- our Current Reports on Form 8-K (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) or Reports of Foreign Private Issuer on Form 6-K filed with the SEC on [January 4, 2024](#), [February 14, 2024](#), [March 6, 2024](#), [March 12, 2024](#), [March 18, 2024](#), [March 19, 2024](#), [April 4, 2024](#), [May 6, 2024](#), [May 8, 2024](#), [May 20, 2024](#), [May 29, 2024](#), [June 28, 2024](#), [July 1, 2024](#), [July 1, 2024](#), [July 29, 2024](#), [August 6, 2024](#), [August 8, 2024](#), [August 15, 2024](#), [August 23, 2024](#), [August 30, 2024](#) and [October 11, 2024](#) and [November 25, 2024](#).
- our definitive Proxy Statement on [Schedule 14A](#) for our 2024 Annual Meeting of Shareholders, filed with the SEC on June 7, 2024;
- the description of our Common Stock contained in our registration statement on [Form 8-A](#) (File No. 001-41231) filed with the SEC on January 14, 2022, including any amendments or reports filed with the SEC for the purposes of updating such description.

-63-

We are also incorporating by reference all subsequent Annual Reports on Form 20-F that we file with the SEC and certain reports on Form 6-K that we furnish to the SEC after the date of this prospectus (if they state that they are incorporated by reference into this prospectus) prior to the termination of this offering. In all cases, you should rely on the later information over different information included in this prospectus or any accompanying prospectus supplement.

Unless expressly incorporated by reference, nothing in this prospectus shall be deemed to incorporate by reference information furnished to, but not filed with, the SEC. Copies of all documents incorporated by reference in this prospectus, other than exhibits to those documents unless such exhibits are specifically incorporated by reference in this prospectus, will be provided at no cost to each person, including any beneficial owner, who receives a copy of this prospectus on the written or oral request of that person made to:

We maintain an internet site at <http://www.tcbiopharm.com>. Our website and the information contained on or connected to it shall not be deemed to be incorporated into this prospectus or the registration statement of which it forms a part.

You should rely only on information contained in, or incorporated by reference into, this prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus or incorporated by reference in this prospectus. We are not making offers to sell the securities in any jurisdiction in which such an offer or solicitation is not authorized or in which the person making such offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make such offer or solicitation.

-64-

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 8. Indemnification of Directors and Officers.

Scottish law does not limit the extent to which a company's articles of association may provide indemnification of officers and directors, except to the extent that it may be held by the Scottish and United Kingdom courts to be contrary to public policy, such as providing indemnification against civil fraud or the consequences of committing a crime.

Our Memorandum and Articles of Association provide that, to the maximum extent permitted by law, every current and former director and officer (excluding an auditor) is entitled to be indemnified out of our assets against any liability, action, proceeding, claim, demand, costs, damages or expenses, including legal expenses, which such indemnified person may incur in that capacity unless such liability arose as a result of the actual fraud or willful default.

A company formed under the laws of Scotland may also purchase insurance for directors and certain other officers against liability incurred as a result of any negligence, default, breach of duty or breach of trust in relation to the company. We expect to maintain director's and officer's liability insurance covering our directors and officers with respect to general civil liability, including liabilities under the Securities Act of 1933, as amended (or the "Securities Act"), which he or she may incur in his or her capacity as such. We have entered into a deed of indemnity with each of our directors and members of our senior management, each of which provides the office holder with indemnification permitted under applicable law and to the extent that these liabilities are not covered by directors' and officers' insurance.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling us under the foregoing provisions, we have been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Item 9. Exhibits.

The following exhibits are filed with this registration statement or are incorporated herein by reference.

Exhibit	Description	Schedule/ Form	File Number	Exhibit	File Date
1.1*	Form of Underwriting Agreement				
4.1	Deposit Agreement – Bank of New York Mellon for American Depositary Shares	F-1	333-260492	4.1	01/14/2022
4.2	Form of American Depositary Share (included in Exhibit 2.1)	F-1	333-260492	4.2	01/14/2022
4.3	Form of Ordinary Share Certificate	F-1	333-260492	4.6	01/14/2022
4.4*	Form of Senior Debt Security				
4.5*	Form of Subordinated Debt Security				
4.6	Form of Senior Indenture				
4.7	Form of Subordinated Indenture				
4.8*	Form of Warrant Agreement and Warrant Certificate				
4.9*	Form of Rights Agreement and Right Certificate				
4.10*	Form of Unit Agreement and Unit				
5.1	Opinion of Addleshaw Goddard LLP				
5.2	Opinion of Sheppard, Mullin, Richter & Hampton LLP				

-65-

23.1	Consent of Marcum LLP
23.2	Consent of Addleshaw Goddard LLP (included in Exhibit 5.1)
23.3	Consent of Sheppard, Mullin, Richter & Hampton LLP (included in Exhibit 5.2)
24.1	Power of Attorney (included as part of the signature page of this Registration Statement)
25.1**	The Statement of Eligibility on Form T-1 under the Trust Indenture Act of 1939, as amended, of the Trustee under the Senior Indenture will be incorporated herein by reference from a subsequent filing in accordance with Section 305(b)(2) of the Trust Indenture Act of 1939
25.2**	The Statement of Eligibility on Form T-1 under the Trust Indenture Act of 1939, as amended, of the Trustee under the Subordinated Indenture will be incorporated herein by reference from a subsequent filing in accordance with Section 305(b)(2) of the Trust Indenture Act of 1939
107	Filing Fee Table

* To be subsequently filed, if applicable, by an amendment to this registration statement or by a Report on Form 6-K

** To be filed pursuant to Section 305(b)(2) of the Trust Indenture Act of 1939

Item 10. Undertakings.

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933, as amended, or the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in Exhibit 107 of the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i), (a)(1)(ii), and (a)(1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is a part of the registration statement.

-66-

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) To file a post-effective amendment to the registration statement to include any financial statements required by Item 8.A. of Form 20-F at the start of any delayed offering or throughout a continuous offering. Financial statements and information otherwise required by Section 10(a)(3) of the Securities Act need not be furnished, provided, that the registrant includes in the prospectus, by means of a post-effective amendment, financial statements required pursuant to this paragraph (a)(4) and other information necessary to ensure that all other information in the prospectus is at least as current as the date of those financial statements. Notwithstanding the foregoing, with respect to registration statements on Form F-3, a post-effective amendment need not be filed to include financial statements and information required by Section 10(a)(3) of the Securities Act, or 3-19 of Regulation S-X if such financial statements and information are contained in periodic reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Exchange Act that are incorporated by reference in the Form F-3.

(5) That, for the purpose of determining liability under the Securities Act to any purchaser:

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(6) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of securities:

The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communications that is an offer in the offering made by the undersigned registrant to the purchaser.

-67-

(7) That, for purposes of determining any liability under the Securities Act, each filing of the registrant's Annual Report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's Annual Report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in this registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(8) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(9) To file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the Securities and Exchange Commission under Section 305(b)(2) of the Trust Indenture Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies it has reasonable grounds to believe that it meets all of the requirements for filing this registration statement on Form F-3 with the Securities and Exchange Commission and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Glasgow, Scotland, United Kingdom, on November 27, 2024.

TC BIOPHARM (HOLDINGS) PLC

By: /s/ Bryan Kobel

Name: Bryan Kobel

Title: Chief Executive Officer

POWER OF ATTORNEY AND SIGNATURES

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Bryan Kobel and Martin Thorp, and each of them, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and re-substitution, for him or her and in his name or her name, place and stead, in any and all capacities, in connection with this registration statement, including to sign and file in the name and on behalf of the undersigned as director or officer of the registrant, any and all amendments or supplements (including any and all prospectus supplements, stickers and post-effective amendments) to this registration statement with all exhibits thereto, and sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and all post-effective amendments thereto and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, and any applicable securities exchange, securities self-regulatory body or other regulatory authority, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite or necessary to be done in connection therewith and in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming that said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Bryan Kobel</u> Bryan Kobel	Chief Executive Officer and Director (Principal Executive Officer)	November 27, 2024
<u>/s/ Martin Thorp</u> Martin Thorp	Chief Financial Officer and Director (Principal Financial and Accounting Officer)	November 27, 2024
<u>/s/ James Culverwell</u> James Culverwell	Non-Executive Director	November 27, 2024
<u>/s/ Arlene Morris</u> Arlene Morris	Chair of the Board and Non-Executive Director	November 27, 2024

SIGNATURE OF AUTHORIZED U.S. REPRESENTATIVE OF THE REGISTRANT

Pursuant to the Securities Act of 1933, the undersigned, the duly authorized representative in the United States of the registrant has signed this registration statement or amendment thereto on November 27, 2024.

TC BioPharm (North America) Inc.

By: /s/ Bryan Kobel

Name: Bryan Kobel

Title: Chief Executive Officer and Director

Authorized Representative in the United States

INDENTURE, dated as of [], by and between TC Biopharm (Holdings) plc, a public limited company incorporated in Scotland pursuant to the Companies Act 2006 (the “Company”), and [], as trustee (the “Trustee”):

WHEREAS, for its lawful corporate purposes, the Company has duly authorized the execution and delivery of this Indenture to provide for the issuance of debt securities (hereinafter referred to as the “Securities”), in an unlimited aggregate principal amount to be issued from time to time in one or more series as in this Indenture provided, as registered Securities without coupons, to be authenticated by the certificate of the Trustee;

WHEREAS, to provide the terms and conditions upon which the Securities are to be authenticated, issued and delivered, the Company has duly authorized the execution of this Indenture; and

WHEREAS, all things necessary to make this Indenture a valid agreement of the Company, in accordance with its terms, have been done.

NOW, THEREFORE, in consideration of the premises and the purchase of the Securities by the holders thereof, it is mutually covenanted and agreed as follows for the equal and ratable benefit of the holders of Securities:

ARTICLE I

DEFINITIONS

SECTION 1.01 Definitions of Terms.

The terms defined in this Section (except as in this Indenture otherwise expressly provided or unless the context otherwise requires) for all purposes of this Indenture and of any indenture supplemental hereto shall have the respective meanings specified in this Section and shall include the plural as well as the singular. All other terms used in this Indenture that are defined in the Trust Indenture Act of 1939, as amended, or that are by reference in such Act defined in the Securities Act of 1933, as amended (except as herein otherwise expressly provided or unless the context otherwise requires), shall have the meanings assigned to such terms in said Trust Indenture Act and in said Securities Act as in force at the date of the execution of this instrument.

“Authenticating Agent” means an authenticating agent with respect to all or any of the series of Securities appointed with respect to all or any series of the Securities by the Trustee pursuant to Section 2.10.

“Bankruptcy Law” means Title 11, U.S. Code, or any similar federal or state law for the relief of debtors.

“Board of Directors” means the Board of Directors of the Company or any duly authorized committee of such Board.

“Board Resolution” means a copy of a resolution certified by the Company Secretary or an Assistant Company Secretary of the Company to have been duly adopted by the Board of Directors and to be in full force and effect on the date of such certification.

“Business Day” means, with respect to any series of Securities, any day other than a day on which Federal or State banking institutions in the Borough of Manhattan, the City and State of New York, are authorized or obligated by law, executive order or regulation to close.

“Certificate” means a certificate signed by the chief executive officer, the chief financial officer or the chief accounting officer of the Company. The Certificate need not comply with the provisions of Section 13.07.

“Commission” means the Securities and Exchange Commission.

“Company” means the corporation named as the “Company” in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture, and thereafter “Company” shall mean such successor Person.

“Corporate Trust Office” means the office of the Trustee at which, at any particular time, its corporate trust business shall be principally administered, which office at the date hereof is located at [], except that whenever a provision herein refers to an office or agency of the Trustee in the Borough of Manhattan, the City and State of New York, such office is located, at the date hereof, at [].

“Custodian” means any receiver, trustee, assignee, liquidator, or similar official under any Bankruptcy Law.

“Default” means an event which is, or after notice or lapse of time, or both, would constitute an Event of Default.

“Depository” means, with respect to Securities of any series, for which the Company shall determine that such Securities will be issued as a Global Security, The Depository Trust Company, New York, New York, another clearing agency, or any successor registered as a clearing agency under the Exchange Act, or other applicable statute or regulation, which, in each case, shall be designated by the Company pursuant to either Section 2.01 or Section 2.11.

“Event of Default” means, with respect to Securities of a particular series, any event specified in Section 6.01, continued for the period of time, if any, therein designated.

“Exchange Act” means the Securities Exchange Act of 1934, as amended.

“Global Security” means, with respect to any series of Securities, a Security executed by the Company and delivered by the Trustee to the Depository or pursuant to the Depository’s instruction, all in accordance with this Indenture, which shall be registered in the name of the Depository or its nominee.

“Governmental Obligations” means securities that are (i) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (ii) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America, the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America that, in either case, are non-callable at the option of the issuer thereof, and shall also include a depository receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act of 1933, as amended) as custodian with respect to any such Governmental Obligation or a specific payment of principal of or interest on any such Governmental Obligation held by such custodian for the account of the holder of such depository receipt; provided, however, that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the Governmental Obligation or the specific payment of principal of or interest on the Governmental Obligation evidenced by such depository receipt.

“herein,” “hereof” and “hereunder,” and other words of similar import, refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

“Indenture” means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into in accordance with the terms hereof.

“Interest Payment Date,” when used with respect to any installment of interest on a Security of a particular series, means the date specified in such Security or in a Board Resolution or in an indenture supplemental hereto with respect to such series as the fixed date on which an installment of interest with respect to Securities of that series is due and payable.

“Officers’ Certificate” means a certificate signed by the Chief Executive Officer, President or a Vice President and by the Chief Financial Officer, Vice President of Finance, the Treasurer or an Assistant Treasurer or the Controller or an Assistant Controller or the Company Secretary or an Assistant Company Secretary of the Company that is delivered to the Trustee in accordance with the terms hereof. Certificate shall include the statements provided for in Section 13.07, if and to the extent required by the provisions thereof.

2

“Opinion of Counsel” means a written opinion of counsel, who may be counsel to the Company (and may include directors or employees of the Company) and which opinion is acceptable to the Trustee which acceptance shall not be unreasonably withheld.

“Outstanding”, when used with reference to Securities of any series, means, subject to the provisions of Section 8.04, as of any particular time, all Securities of that series theretofore authenticated and delivered by the Trustee under this Indenture, except (a) Securities theretofore canceled by the Trustee or any paying agent, or delivered to the Trustee or any paying agent for cancellation or that have previously been canceled; (b) Securities or portions thereof for the payment or redemption of which moneys or Governmental Obligations in the necessary amount shall have been deposited in trust with the Trustee or with any paying agent (other than the Company) or shall have been set aside and segregated in trust by the Company (if the Company shall act as its own paying agent); provided, however, that if such Securities or portions of such Securities are to be redeemed prior to the maturity thereof, notice of such redemption shall have been given as in Article III provided, or provision satisfactory to the Trustee shall have been made for giving such notice; and (c) Securities in lieu of or in substitution for which other Securities shall have been authenticated and delivered pursuant to the terms of Section 2.07.

“Person” means any individual, corporation, limited liability company, limited company, partnership, joint-venture, association, joint-stock company, trust, estate, unincorporated organization or government or any agency or political subdivision thereof.

“Predecessor Security” of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 2.07 in lieu of a mutilated, destroyed, lost or stolen Security shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Security.

“Responsible Officer,” when used with respect to the Trustee, means any officer of the Trustee, including any vice president, assistant vice president, company secretary, assistant company secretary, the treasurer, any assistant treasurer, the managing director or any other officer of the Trustee customarily performing functions similar to those performed by any of the above designated officers and also means, with respect to a particular corporate trust matter, any other officer to whom such matter is referred because of such officer’s knowledge of and familiarity with the particular subject.

“Securities” means the debt Securities authenticated and delivered under this Indenture.

“Security Register” has the meaning specified in Section 2.05.

“Security Registrar” has the meaning specified in Section 2.05.

“Securityholder,” “holder of Securities,” “registered holder,” or other similar term, means the Person or Persons in whose name or names a particular Security shall be registered in the Security Register.

“Subsidiary” means, with respect to any Person, (i) any corporation or limited company at least a majority of whose outstanding Voting Stock shall at the time be owned, directly or indirectly, by such Person or by one or more of its Subsidiaries or by such Person and one or more of its Subsidiaries, (ii) any general partnership, joint venture or similar entity, at least a majority of whose outstanding partnership or similar interests shall at the time be owned by such Person, or by one or more of its Subsidiaries, or by such Person and one or more of its Subsidiaries and (iii) any limited partnership of which such Person or any of its Subsidiaries is a general partner.

“Trustee” means the Person named as the “Trustee” in the first paragraph of this instrument until a successor Trustee shall have become such pursuant to the applicable provisions of this Indenture, and thereafter “Trustee” shall mean such successor Trustee. The term “Trustee” as used with respect to a particular series of the Securities shall mean the trustee with respect to that series.

3

“Trust Indenture Act” means the Trust Indenture Act of 1939, as amended, subject to the provisions of Sections 9.01, 9.02, and 10.01, as in effect at the date of execution of this instrument; provided, however, that in the event the Trust Indenture Act is amended after such date, Trust Indenture Act means, to the extent required by such amendment, the Trust Indenture Act of 1939, as so amended, or any successor statute.

“Voting Stock,” as applied to any Person, means shares, interests, participations or other equivalents in the equity interest (however designated) in such Person having ordinary voting power for the election of a majority of the directors (or the equivalent) of such Person, other than shares, interests, participations or other equivalents having such power only by reason of the occurrence of a contingency.

ARTICLE II

ISSUE, DESCRIPTION, TERMS, EXECUTION, REGISTRATION AND EXCHANGE OF SECURITIES

SECTION 2.01 Designation and Terms of Securities.

- (a) The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited, subject at all times to compliance by the Company with any requirements under its articles of association. The Securities may be issued in one or more series up to the aggregate principal amount of Securities of that series from time to time authorized by or pursuant to a Board Resolution of the Company or pursuant to one or more indentures supplemental hereto. Prior to the initial issuance of Securities of a given series, there shall be established in or pursuant to a Board Resolution of the Company, and set forth in an Officers’ Certificate of the Company, or established in one or more indentures supplemental hereto:

- (1) the title of the Security of the series (which shall distinguish the Securities of the series from all other Securities);

- (2) the aggregate principal amount of the Securities of such series initially to be issued and any limit upon the aggregate principal amount of the Securities of that series that may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration of transfer of, or in exchange for, or in lieu of, other Securities of that series);
- (3) the currency or units based on or relating to currencies in which debt securities of such series are denominated and the currency or units in which principal or interest or both will or may be payable;
- (4) the date or dates on which the principal of the Securities of the series is payable and the place(s) of payment;
- (5) the rate or rates at which the Securities of the series shall bear interest or the manner of calculation of such rate or rates, if any;
- (6) the date or dates from which such interest shall accrue, the Interest Payment Dates on which such interest will be payable or the manner of determination of such Interest Payment Dates, the place(s) of payment, and the record date for the determination of holders to whom interest is payable on any such Interest Payment Dates or the method for determining such dates;
- (7) the right, if any, to extend the interest payment periods or to defer the payment of interest and the duration of such extension;
- (8) the period or periods within which, the price or prices at which and the terms and conditions upon which, Securities of the series may be redeemed, in whole or in part, at the option of the Company;
- (9) the obligation, if any, of the Company to redeem or purchase Securities of the series pursuant to any sinking fund or analogous provisions (including payments made in cash in satisfaction of future sinking fund obligations) or at the option of a holder thereof and the period or periods within which, the price or prices at which, and the terms and conditions upon which, Securities of the series shall be redeemed or purchased, in whole or in part, pursuant to such obligation;

4

- (10) whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;
- (11) the form of the Securities of the series including the form of the Certificate of Authentication for such series;
- (12) if other than denominations of one thousand U.S. dollars (\$1,000) or any integral multiple thereof, the denominations in which the Securities of the series shall be issuable;
- (13) any and all other terms with respect to such series (which terms shall not be inconsistent with the terms of this Indenture, as amended by any supplemental indenture) including any terms which may be required by or advisable under United States laws or regulations or advisable in connection with the marketing of Securities of that series;
- (14) whether the Securities are issuable as a Global Security and, in such case, the identity of the Depositary for such series;
- (15) whether the Securities will be convertible into ordinary shares or other securities of the Company and, if so, the terms and conditions upon which such Securities will be so convertible, including the conversion price and the conversion period;
- (16) if other than the principal amount thereof, the portion of the principal amount of Securities of the series which shall be payable upon declaration of acceleration of the maturity thereof pursuant to Section 6.01; and
- (17) any additional or different Events of Default or restrictive covenants provided for with respect to the Securities of the series.

All Securities of any one series shall be substantially identical except as to denomination and except as may otherwise be provided in or pursuant to any such Board Resolution or in any indentures supplemental hereto.

If any of the terms of the series are established by action taken pursuant to a Board Resolution of the Company, a copy of an appropriate record of such action shall be certified by the Company Secretary or an Assistant Company Secretary of the Company and delivered to the Trustee at or prior to the delivery of the Officers' Certificate of the Company setting forth the terms of the series.

Securities of any particular series may be issued at various times, with different dates on which the principal or any installment of principal is payable, with different rates of interest, if any, or different methods by which rates of interest may be determined, with different dates on which such interest may be payable and with different redemption dates.

SECTION 2.02 Form of Securities and Trustee's Certificate.

The Securities of any series and the Trustee's certificate of authentication to be borne by such Securities shall be substantially of the tenor and purport as set forth in one or more indentures supplemental hereto or as provided in a Board Resolution of the Company and as set forth in an Officers' Certificate of the Company and may have such letters, numbers or other marks of identification or designation and such legends or endorsements printed, lithographed or engraved thereon as the Company may deem appropriate and as are not inconsistent with the provisions of this Indenture, or as may be required to comply with any law or with any rule or regulation made pursuant thereto or with any rule or regulation of any stock exchange on which Securities of that series may be listed, or to conform to usage.

SECTION 2.03 Denominations: Provisions for Payment.

The Securities shall be issuable as registered Securities and in the denominations of one thousand U.S. dollars (\$1,000) or any integral multiple thereof, subject to Section 2.01(a)(12). The Securities of a particular series shall bear interest payable on the dates and at the rate specified with respect to that series. The principal of and the interest on the Securities of any series, as well as any premium thereon in case of redemption thereof prior to maturity, shall be payable in the coin or currency of the United States of America that at the time is legal tender for public and private debt, at the office or agency of the Company maintained for that purpose in the Borough of Manhattan, the City and State of New York. Each Security shall be dated the date of its authentication. Interest on the Securities shall be computed on the basis of a 360-day year composed of twelve 30-day months.

5

The interest installment on any Security that is payable, and is punctually paid or duly provided for, on any Interest Payment Date for Securities of that series shall be paid to the Person in whose name said Security (or one or more Predecessor Securities) is registered at the close of business on the regular record date for such interest installment. In the event that any Security of a particular series or portion thereof is called for redemption and the redemption date is subsequent to a regular record date with respect to any Interest Payment Date and prior to such Interest Payment Date, interest on such Security will be paid upon presentation and surrender of such Security as provided in Section 3.03.

Any interest on any Security that is payable, but is not punctually paid or duly provided for, on any Interest Payment Date for Securities of the same series (herein called "Defaulted Interest") shall forthwith cease to be payable to the registered holder on the relevant regular record date by virtue of having been such holder; and such Defaulted Interest shall be paid by the Company, at its election, as provided in clause (1) or clause (2) below:

- (1) The Company may make payment of any Defaulted Interest on Securities to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered at the close of business on a special record date for the payment of such Defaulted Interest, which shall be fixed in the following manner: the Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each such Security and the date of the proposed payment, and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided. Thereupon the Trustee shall fix a special record date for the payment of such Defaulted Interest which shall not be more than 15 nor less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Company of such special record date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the special record date therefor to be mailed, first class postage prepaid, to each Securityholder at his or her address as it appears in the Security Register, not less than 10 days prior to such special record date. Notice of the proposed payment of such Defaulted Interest and the special record date therefor having been mailed as aforesaid, such Defaulted Interest shall be paid to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered on such special record date.
- (2) The Company may make payment of any Defaulted Interest on any Securities in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Unless otherwise set forth in a Board Resolution of the Company or one or more indentures supplemental hereto establishing the terms of any series of Securities pursuant to Section 2.01 hereof, the term "regular record date" as used in this Section with respect to a series of Securities with respect to any Interest Payment Date for such series shall mean either the fifteenth day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the first day of a month, or the last day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the fifteenth day of a month, whether or not such date is a Business Day.

Subject to the foregoing provisions of this Section, each Security of a series delivered under this Indenture upon transfer of or in exchange for or in lieu of any other Security of such series shall carry the rights to interest accrued and unpaid, and to accrue, that were carried by such other Security.

6

SECTION 2.04 Execution and Authentications.

The Securities shall be signed on behalf of the Company by its Chief Executive Officer, or its Chief Financial Officer, or its President, or one of its Vice Presidents, or its Treasurer, or one of its Assistant Treasurers, or its Company Secretary, or one of its Assistant Company Secretaries, under its corporate seal attested by its Company Secretary or one of its Assistant Company Secretaries. Signatures may be in the form of a manual or facsimile signature. The Company may use the facsimile signature of any Person who shall have been a Chief Executive Officer thereof, a Chief Financial Officer thereof, a President or Vice President thereof, or of any Person who shall have been a Treasurer or Assistant Treasurer thereof, or of any Person who shall have been a Company Secretary or Assistant Company Secretary thereof, notwithstanding the fact that at the time the Securities shall be authenticated and delivered or disposed of such Person shall have ceased to be the Chief Executive Officer or the Chief Financial Officer, President or a Vice President, the Treasurer or an Assistant Treasurer or the Company Secretary or an Assistant Company Secretary, of the Company. The seal of the Company may be in the form of a facsimile of such seal and may be impressed, affixed, imprinted or otherwise reproduced on the Securities. The Securities may contain such notations, legends or endorsements required by law, stock exchange rule or usage. Each Security shall be dated the date of its authentication.

A Security shall not be valid or obligatory for any purpose and shall not be entitled to any benefit under this Indenture, in each case, until authenticated with a certificate of authentication manually signed by an authorized signatory of the Trustee, or by an Authenticating Agent. Such certificate shall be conclusive evidence, and the only evidence, that the Security so authenticated has been duly authenticated and delivered hereunder and that the Security is entitled to the benefits of this Indenture. At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series executed by the Company to the Trustee for authentication, together with a written order of the Company for the authentication and delivery of such Securities, signed by its Chief Executive Officer, or its Chief Financial Officer, or its President or any Vice President and its Company Secretary or any Assistant Company Secretary, and the Trustee in accordance with such written order shall authenticate and deliver such Securities.

In authenticating such Securities and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall be entitled to receive, and (subject to Section 7.01) shall be fully protected in relying upon, an Opinion of Counsel stating that the form and terms thereof have been established in conformity with the provisions of this Indenture.

The Trustee shall not be required to authenticate such Securities if the issue of such Securities pursuant to this Indenture will affect the Trustee's own rights, duties or immunities under the Securities and this Indenture or otherwise in a manner that is not reasonably acceptable to the Trustee.

SECTION 2.05 Registration of Transfer and Exchange.

- (a) Securities of any series may be exchanged upon presentation thereof at the office or agency of the Company designated for such purpose in the Borough of Manhattan, the City and State of New York, for other Securities of such series of authorized denominations, and for a like aggregate principal amount, upon payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, all as provided in this Section. In respect of any Securities so surrendered for exchange, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in exchange therefor the Security or Securities of the same series that the Securityholder making the exchange shall be entitled to receive, bearing numbers not contemporaneously outstanding.
- (b) The Company shall keep, or cause to be kept, at its office or agency designated for such purpose in the Borough of Manhattan, the City and State of New York, or such other location designated by the Company a register or registers (herein referred to as the "Security Register") in which, subject to such reasonable regulations as it may prescribe, the Company shall register the Securities and the transfers of Securities as in this Article provided and which at all reasonable times shall be open for inspection by the Trustee. The registrar for the purpose of registering Securities and transfer of Securities as herein provided shall be appointed as authorized by Board Resolution (the "Security Registrar").

7

Upon surrender for transfer of any Security at the office or agency of the Company designated for such purpose, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in the name of the transferee or transferees a new Security or Securities of the same series as the Security presented for a like aggregate principal amount.

All Securities presented or surrendered for exchange or registration of transfer, as provided in this Section, shall be accompanied (if so required by the Company or the Security

Registrar) by a written instrument or instruments of transfer, in form satisfactory to the Company or the Security Registrar, duly executed by the registered holder or by such holder's duly authorized attorney in writing.

- (c) No service charge shall be made for any exchange or registration of transfer of Securities, or issue of new Securities in case of partial redemption of any series, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, other than exchanges pursuant to Section 2.06, Section 3.03(b) and Section 9.04 not involving any transfer.
- (d) The Company shall not be required (i) to issue, exchange or register the transfer of any Securities during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of less than all the Outstanding Securities of the same series and ending at the close of business on the day of such mailing, nor (ii) to register the transfer of or exchange any Securities of any series or portions thereof called for redemption. The provisions of this Section 2.05 are, with respect to any Global Security, subject to Section 2.11 hereof.

SECTION 2.06 Temporary Securities.

Pending the preparation of definitive Securities of any series, the Company may execute, and the Trustee shall authenticate and deliver, temporary Securities (printed, lithographed or typewritten) of any authorized denomination. Such temporary Securities shall be substantially in the form of the definitive Securities in lieu of which they are issued, but with such omissions, insertions and variations as may be appropriate for temporary Securities, all as may be determined by the Company. Every temporary Security of any series shall be executed by the Company and be authenticated by the Trustee upon the same conditions and in substantially the same manner, and with like effect, as the definitive Securities of such series. Without unnecessary delay the Company will execute and will furnish definitive Securities of such series and thereupon any or all temporary Securities of such series may be surrendered in exchange therefor (without charge to the holders), at the office or agency of the Company designated for the purpose in the Borough of Manhattan, the City and State of New York, and the Trustee shall authenticate and such office or agency shall deliver in exchange for such temporary Securities an equal aggregate principal amount of definitive Securities of such series, unless the Company advises the Trustee to the effect that definitive Securities need not be executed and furnished until further notice from the Company. Until so exchanged, the temporary Securities of such series shall be entitled to the same benefits under this Indenture as definitive Securities of such series authenticated and delivered hereunder.

SECTION 2.07 Mutilated, Destroyed, Lost or Stolen Securities.

In case any temporary or definitive Security shall become mutilated or be destroyed, lost or stolen, the Company (subject to the next succeeding sentence) shall execute, and upon the Company's request the Trustee (subject as aforesaid) shall authenticate and deliver, a new Security of the same series, bearing a number not contemporaneously outstanding, in exchange and substitution for the mutilated Security, or in lieu of and in substitution for the Security so destroyed, lost or stolen. In every case the applicant for a substituted Security shall furnish to the Company and the Trustee such security or indemnity as may be required by them to save each of them harmless, and, in every case of destruction, loss or theft, the applicant shall also furnish to the Company and the Trustee evidence to their satisfaction of the destruction, loss or theft of the applicant's Security and of the ownership thereof. The Trustee may authenticate any such substituted Security and deliver the same upon the written request or authorization of any officer of the Company. Upon the issuance of any substituted Security, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith. In case any Security that has matured or is about to mature shall become mutilated or be destroyed, lost or stolen, the Company may, instead of issuing a substitute Security, pay or authorize the payment of the same (without surrender thereof except in the case of a mutilated Security) if the applicant for such payment shall furnish to the Company and the Trustee such security or indemnity as they may require to save them harmless, and, in case of destruction, loss or theft, evidence to the satisfaction of the Company and the Trustee of the destruction, loss or theft of such Security and of the ownership thereof.

Every replacement Security issued pursuant to the provisions of this Section shall constitute an additional contractual obligation of the Company whether or not the mutilated, destroyed, lost or stolen Security shall be found at any time, or be enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities of the same series duly issued hereunder. All Securities shall be held and owned upon the express condition that the foregoing provisions are exclusive with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities, and shall preclude (to the extent lawful) any and all other rights or remedies, notwithstanding any law or statute existing or hereafter enacted to the contrary with respect to the replacement or payment of negotiable instruments or other securities without their surrender.

SECTION 2.08 Cancellation.

All Securities surrendered for the purpose of payment, redemption, exchange or registration of transfer shall, if surrendered to the Company or any paying agent, be delivered to the Trustee for cancellation, or, if surrendered to the Trustee, shall be cancelled by it, and no Securities shall be issued in lieu thereof except as expressly required or permitted by any of the provisions of this Indenture. On request of the Company at the time of such surrender, the Trustee shall deliver to the Company canceled Securities held by the Trustee. In the absence of such request the Trustee may dispose of canceled Securities in accordance with its standard procedures and deliver a certificate of disposition to the Company. If the Company shall otherwise acquire any of the Securities, however, such acquisition shall not operate as a redemption or satisfaction of the indebtedness represented by such Securities unless and until the same are delivered to the Trustee for cancellation.

SECTION 2.09 Benefits of Indenture.

Nothing in this Indenture or in the Securities, express or implied, shall give or be construed to give to any Person, other than the parties hereto and the holders of the Securities any legal or equitable right, remedy or claim under or in respect of this Indenture, or under any covenant, condition or provision herein contained; all such covenants, conditions and provisions being for the sole benefit of the parties hereto and of the holders of the Securities.

SECTION 2.10 Authenticating Agent.

So long as any of the Securities of any series remain Outstanding there may be an Authenticating Agent for any or all such series of Securities which the Trustee shall have the right to appoint. Said Authenticating Agent shall be authorized to act on behalf of the Trustee to authenticate Securities of such series issued upon exchange, transfer or partial redemption thereof, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. All references in this Indenture to the authentication of Securities by the Trustee shall be deemed to include authentication by an Authenticating Agent for such series. Each Authenticating Agent shall be acceptable to the Company and shall be a corporation that has a combined capital and surplus, as most recently reported or determined by it, sufficient under the laws of any jurisdiction under which it is organized or in which it is doing business to conduct a trust business, and that is otherwise authorized under such laws to conduct such business and is subject to supervision or examination by Federal or State authorities. If at any time any Authenticating Agent shall cease to be eligible in accordance with these provisions, it shall resign immediately.

Any Authenticating Agent may at any time resign by giving written notice of resignation to the Trustee and to the Company. The Trustee may at any time (and upon request by the Company shall) terminate the agency of any Authenticating Agent by giving written notice of termination to such Authenticating Agent and to the Company. Upon resignation, termination or cessation of eligibility of any Authenticating Agent, the Trustee may appoint an eligible successor Authenticating Agent acceptable to the Company. Any successor Authenticating Agent, upon acceptance of its appointment hereunder, shall become vested with all the rights, powers and duties of its predecessor hereunder as if originally named as an Authenticating Agent pursuant hereto.

SECTION 2.11 Global Securities

- (a) If the Company shall establish pursuant to Section 2.01 that some or all of the Securities of a particular series are to be issued as a Global Security, then the Company shall execute and the Trustee shall, in accordance with Section 2.04, authenticate and deliver, a Global Security that (i) shall represent, and shall be denominated in an amount equal to the aggregate principal amount of, the Outstanding Securities of such series which are to be issued as a Global Security, (ii) shall be registered in the name of the Depositary or its nominee, (iii) shall be delivered by the Trustee to the Depositary or pursuant to the Depositary's instruction and (iv) shall bear a legend substantially to the following effect: "Except as otherwise provided in Section 2.11 of the Indenture, this Security may be transferred, in whole but not in part, only to another nominee of the Depositary or to a successor Depositary or to a nominee of such successor Depositary."
- (b) Notwithstanding the provisions of Section 2.05, the Global Security of a series may be transferred, in whole but not in part and in the manner provided in Section 2.05, only to another nominee of the Depositary for such series, or to a successor Depositary for such series selected or approved by the Company or to a nominee of such successor Depositary.
- (c) If at any time the Depositary for a series of the Securities notifies the Company that it is unwilling or unable to continue as Depositary for such series or if at any time the Depositary for such series shall no longer be registered or in good standing under the Exchange Act, or other applicable statute or regulation, and a successor Depositary for such series is not appointed by the Company within 90 days after the Company receives such notice or becomes aware of such condition, as the case may be, this Section 2.11 shall no longer be applicable to the Securities of such series and the Company will execute, and subject to Section 2.05, the Trustee will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. In addition, the Company may at any time determine that the Securities of any series shall no longer be represented by a Global Security and that the provisions of this Section 2.11 shall no longer apply to the Securities of such series. In such event the Company will execute and subject to Section 2.05, the Trustee, upon receipt of an Officers' Certificate evidencing such determination by the Company, will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. Upon the exchange of the Global Security for such Securities in definitive registered form without coupons, in authorized denominations, the Global Security shall be canceled by the Trustee. Such Securities in definitive registered form issued in exchange for the Global Security pursuant to this Section 2.11(c) shall be registered in such names and in such authorized denominations as the Depositary, pursuant to instructions from its direct or indirect participants or otherwise, shall instruct the Trustee. The Trustee shall deliver such Securities to the Depositary for delivery to the Persons in whose names such Securities are so registered.

ARTICLE III

REDEMPTION OF SECURITIES AND SINKING FUND PROVISIONS

SECTION 3.01 Redemption.

The Company may redeem the Securities of any series issued hereunder on and after the dates and in accordance with the terms established for such series pursuant to Section 2.01 hereof.

10

SECTION 3.02 Notice of Redemption.

- (a) In case the Company shall desire to exercise such right to redeem all or, as the case may be, a portion of the Securities of any series in accordance with the right reserved so to do, the Company shall, or shall cause the Trustee to, give notice of such redemption to holders of the Securities of such series to be redeemed by mailing, first class postage prepaid, a notice of such redemption not less than 30 days and not more than 90 days before the date fixed for redemption of that series to such holders at their last addresses as they shall appear upon the Security Register unless a shorter period is specified in the Securities to be redeemed. Any notice that is mailed in the manner herein provided shall be conclusively presumed to have been duly given, whether or not the registered holder receives the notice. In any case, failure duly to give such notice to the holder of any Security of any series designated for redemption in whole or in part, or any defect in the notice, shall not affect the validity of the proceedings for the redemption of any other Securities of such series or any other series. In the case of any redemption of Securities prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, the Company shall furnish the Trustee with an Officers' Certificate evidencing compliance with any such restriction.

Each such notice of redemption shall specify the date fixed for redemption and the redemption price at which Securities of that series are to be redeemed, and shall state that payment of the redemption price of such Securities to be redeemed will be made at the office or agency of the Company in the Borough of Manhattan, the City and State of New York, upon presentation and surrender of such Securities, that interest accrued to the date fixed for redemption will be paid as specified in said notice, that from and after said date interest will cease to accrue and that the redemption is for a sinking fund, if such is the case. If less than all the Securities of a series are to be redeemed, the notice to the holders of Securities of that series to be redeemed in whole or in part shall specify the particular Securities to be so redeemed. In case any Security is to be redeemed in part only, the notice that relates to such Security shall state the portion of the principal amount thereof to be redeemed, and shall state that on and after the redemption date, upon surrender of such Security, a new Security or Securities of such series in principal amount equal to the unredeemed portion thereof will be issued.

- (b) If less than all the Securities of a series are to be redeemed, the Company shall give the Trustee at least 30 days' notice in advance of the date fixed for redemption as to the aggregate principal amount of Securities of the series to be redeemed, and thereupon the Trustee shall select, by lot or in such other manner as it shall deem appropriate and fair in its discretion and that may provide for the selection of a portion or portions (equal to one thousand U.S. dollars (\$1,000) or any integral multiple thereof) of the principal amount of such Securities of a denomination larger than \$1,000, the Securities to be redeemed and shall thereafter promptly notify the Company in writing of the numbers of the Securities to be redeemed, in whole or in part. The Company may, if and whenever it shall so elect, by delivery of instructions signed on its behalf by its Chief Executive Officer, or its Chief Financial Officer, or its President or any Vice President, instruct the Trustee or any paying agent to call all or any part of the Securities of a particular series for redemption and to give notice of redemption in the manner set forth in this Section, such notice to be in the name of the Company or its own name as the Trustee or such paying agent may deem advisable. In any case in which notice of redemption is to be given by the Trustee or any such paying agent, the Company shall deliver or cause to be delivered to, or permit to remain with, the Trustee or such paying agent, as the case may be, such Security Register, transfer books or other records, or suitable copies or extracts therefrom, sufficient to enable the Trustee or such paying agent to give any notice by mail that may be required under the provisions of this Section.

SECTION 3.03 Payment Upon Redemption.

- (a) If the giving of notice of redemption shall have been completed as above provided, the Securities or portions of Securities of the series to be redeemed specified in such notice shall become due and payable on the date and at the place stated in such notice at the applicable redemption price, together with interest accrued to the date fixed for redemption and interest on such Securities or portions of Securities shall cease to accrue on and after the date fixed for redemption, unless the Company shall default in the payment of such redemption price and accrued interest with respect to any such Security or portion thereof. On presentation and surrender of such Securities on or after the date fixed for redemption at the place of payment specified in the notice, said Securities shall be paid and redeemed at the applicable redemption price for such series, together with interest accrued thereon to the date fixed for redemption (but if the date fixed for redemption is an interest payment date, the interest installment payable on such date shall be payable to the registered holder at the close of business on the applicable record date pursuant to Section 2.03).

- (b) Upon presentation of any Security of such series that is to be redeemed in part only, the Company shall execute and the Trustee shall authenticate and the office or agency where the Security is presented shall deliver to the holder thereof, at the expense of the Company, a new Security of the same series of authorized denominations in principal amount equal to the unredeemed portion of the Security so presented.

SECTION 3.04 Sinking Fund.

The provisions of Sections 3.04, 3.05 and 3.06 shall be applicable to any sinking fund for the retirement of Securities of a series, except as otherwise specified as contemplated by Section 2.01 for Securities of such series.

The minimum amount of any sinking fund payment provided for by the terms of Securities of any series is herein referred to as a "mandatory sinking fund payment," and any payment in excess of such minimum amount provided for by the terms of Securities of any series is herein referred to as an "optional sinking fund payment." If provided for by the terms of Securities of any series, the cash amount of any sinking fund payment may be subject to reduction as provided in Section 3.05. Each sinking fund payment shall be applied to the redemption of Securities of any series as provided for by the terms of Securities of such series.

SECTION 3.05 Satisfaction of Sinking Fund Payments with Securities.

The Company (i) may deliver Outstanding Securities of a series (other than any Securities previously called for redemption) and (ii) may apply as a credit Securities of a series that have been redeemed either at the election of the Company pursuant to the terms of such Securities or through the application of permitted optional sinking fund payments pursuant to the terms of such Securities, in each case in satisfaction of all or any part of any sinking fund payment with respect to the Securities of such series required to be made pursuant to the terms of such Securities as provided for by the terms of such series, provided that such Securities have not been previously so credited. Such Securities shall be received and credited for such purpose by the Trustee at the redemption price specified in such Securities for redemption through operation of the sinking fund and the amount of such sinking fund payment shall be reduced accordingly.

SECTION 3.06 Redemption of Securities for Sinking Fund.

Not less than 45 days prior to each sinking fund payment date for any series of Securities, the Company will deliver to the Trustee an Officers' Certificate specifying the amount of the next ensuing sinking fund payment for that series pursuant to the terms of the series, the portion thereof, if any, that is to be satisfied by delivering and crediting Securities of that series pursuant to Section 3.05 and the basis for such credit and will, together with such Officers' Certificate, deliver to the Trustee any Securities to be so delivered. Not less than 30 days before each such sinking fund payment date the Trustee shall select the Securities to be redeemed upon such sinking fund payment date in the manner specified in Section 3.02 and cause notice of the redemption thereof to be given in the name of and at the expense of the Company in the manner provided in Section 3.02. Such notice having been duly given, the redemption of such Securities shall be made upon the terms and in the manner stated in Section 3.03.

ARTICLE IV

COVENANTS

SECTION 4.01 Payment of Principal, Premium and Interest.

The Company will duly and punctually pay or cause to be paid the principal of (and premium, if any) and interest on the Securities of that series at the time and place and in the manner provided herein and established with respect to such Securities.

SECTION 4.02 Maintenance of Office or Agency.

So long as any series of the Securities remain Outstanding, the Company agrees to maintain an office or agency in the Borough of Manhattan, the City and State of New York, with respect to each such series and at such other location or locations as may be designated as provided in this Section 4.02, where (i) Securities of that series may be presented or surrendered for payment, (ii) Securities of that series may be presented as herein above authorized for registration of transfer and exchange, and (iii) notices and demands to or upon the Company in respect of the Securities of that series and this Indenture may be given or served, such designation to continue with respect to such office or agency until the Company shall, by written notice signed by its Chief Executive Officer, or its Chief Financial Officer, or its President or any Vice President and delivered to the trustee, designate some other office or agency for such purposes or any of them. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, notices and demands may be made or served at the Corporate Trust Office of the Trustee, and the Company hereby appoints the Trustee as its agent to receive all such presentations, notices and demands.

SECTION 4.03 Paying Agents.

- (a) If the Company shall appoint one or more paying agents for all or any series of the Securities, other than the Trustee, the Company will cause each such paying agent to execute and deliver to the Trustee an instrument in which such agent shall agree with the Trustee, subject to the provisions of this Section:
- (1) that it will hold all sums held by it as such agent for the payment of the principal of (and premium, if any) or interest on the Securities of that series (whether such sums have been paid to it by the Company or by any other obligor of such Securities) in trust for the benefit of the Persons entitled thereto;
 - (2) that it will give the Trustee notice of any failure by the Company (or by any other obligor of such Securities) to make any payment of the principal of (and premium, if any) or interest on the Securities of that series when the same shall be due and payable;
 - (3) that it will, at any time during the continuance of any failure referred to in the preceding paragraph (a)(2) above, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such paying agent; and
 - (4) that it will perform all other duties of paying agent as set forth in this Indenture.
- (b) If the Company shall act as its own paying agent with respect to any series of the Securities, it will on or before each due date of the principal of (and premium, if any) or interest on Securities of that series, set aside, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient with monies held by all other paying agents to pay such principal (and premium, if any)

or interest so becoming due on Securities of that series until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of such action, or any failure (by it or any other obligor on such Securities) to take such action. Whenever the Company shall have one or more paying agents for any series of Securities, it will, prior to each due date of the principal of (and premium, if any) or interest on any Securities of that series, deposit with the paying agent a sum sufficient to pay the principal (and premium, if any) or interest so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium

or interest, and (unless such paying agent is the Trustee) the Company will promptly notify the Trustee of this action or failure so to act.

- (c) Notwithstanding anything in this Section to the contrary, (i) the agreement to hold sums in trust as provided in this Section is subject to the provisions of Section 11.05, and (ii) the Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or direct any paying agent to pay, to the Trustee all sums held in trust by the Company or such paying agent, such sums to be held by the Trustee upon the same terms and conditions as those upon which such sums were held by the Company or such paying agent; and, upon such payment by any paying agent to the Trustee, such paying agent shall be released from all further liability with respect to such money.

SECTION 4.04 Appointment to Fill Vacancy in Office of Trustee.

The Company, whenever necessary to avoid or fill a vacancy in the office of Trustee, will appoint, in the manner provided in Section 7.10, a Trustee, so that there shall at all times be a Trustee hereunder.

SECTION 4.05 Compliance with Consolidation Provisions.

The Company will not, while any of the Securities remain Outstanding, consolidate with or merge into any other Person, in either case where the Company is not the survivor of such transaction, or sell or convey all or substantially all of its property to any other company unless the provisions of Article X hereof are complied with.

ARTICLE V

SECURITYHOLDERS' LISTS AND REPORTS BY THE COMPANY AND THE TRUSTEE

SECTION 5.01 Company to Furnish Trustee Names and Addresses of Securityholders.

If the Company is not the Security Register, the Company will furnish or use reasonable efforts to cause to be furnished to the Trustee (a) on each regular record date (as defined in Section 2.03) a list, in such form as the Trustee may reasonably require, of the names and addresses of the holders of each series of Securities as of such regular record date, provided that the Company shall not be obligated to furnish or cause to furnish such list at any time that the list shall not differ in any respect from the most recent list furnished to the Trustee by the Company and (b) at such other times as the Trustee may request in writing within 30 days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished; provided, however, that, in either case, no such list need be furnished for any series for which the Trustee shall be the Security Registrar.

SECTION 5.02 Preservation of Information; Communications with Securityholders.

- (a) The Trustee shall preserve, in as current a form as is reasonably practicable, all information as to the names and addresses of the holders of Securities contained in the most recent list furnished to it as provided in Section 5.01 and as to the names and addresses of holders of Securities received by the Trustee in its capacity as Security Registrar (if acting in such capacity) and shall otherwise comply with Section 312(a) of the Trust Indenture Act.
- (b) The Trustee may destroy any list furnished to it as provided in Section 5.01 upon receipt of a new list so furnished.
- (c) Securityholders may communicate as provided in Section 312(b) of the Trust Indenture Act with other Securityholders with respect to their rights under this Indenture or under the Securities.

SECTION 5.03 Reports by the Company.

- (a) The Company covenants and agrees to file with the Trustee, within 15 days after the Company is required to file the same with the Commission, copies of the annual reports and of the information, documents and other reports (or copies of such portions of any of the foregoing as the Commission may from time to time by rules and regulations prescribe) that the Company may be required to file with the Commission pursuant to Section 13 or Section 15(d) of the Exchange Act; or, if the Company is not required to file information, documents or reports pursuant to either of such sections, then to file with the Trustee and the Commission, in accordance with the rules and regulations prescribed from time to time by the Commission, such of the supplementary and periodic information, documents and reports that may be required pursuant to Section 13 of the Exchange Act, in respect of a security listed and registered on a national securities exchange as may be prescribed from time to time in such rules and regulations; provided, however, the Company shall not be required to deliver to the Trustee any materials for which the Company has sought and received confidential treatment by the Commission. The Company also shall comply with the other provisions of Section 314(a) of the Trust Indenture Act.
- (b) The Company covenants and agrees to file with the Trustee and the Commission, in accordance with the rules and regulations prescribed from time to time by the Commission, such additional information, documents and reports with respect to compliance by the Company with the conditions and covenants provided for in this Indenture as may be required from time to time by such rules and regulations.

- (c) The Company covenants and agrees to transmit by mail, first class postage prepaid, or reputable over-night delivery service that provides for evidence of receipt, to the Securityholders, as their names and addresses appear upon the Security Register, within 30 days after the filing thereof with the Trustee, such summaries of any information, documents and reports required to be filed by the Company pursuant to subsections (a) and (b) of this Section as may be required by rules and regulations prescribed from time to time by the Commission.

SECTION 5.04 Reports by the Trustee.

- (a) The Trustee shall transmit to holders as provided in Section 313 of the Trust Indenture Act such reports concerning the Trustee and its actions under this Indenture as may be required by Section 313 of the Trust Indenture Act at the times and in the manner provided by the Trust Indenture Act.
- (b) A copy of each such report shall, at the time of such transmission to Securityholders, be filed by the Trustee with the Company, with each stock exchange upon which any Securities are listed (if so listed) and, if required by Section 313 of the Trust Indenture Act, also with the Commission. The Company agrees to notify the Trustee when any Securities become listed on any stock exchange.

ARTICLE VI

REMEDIES OF THE TRUSTEE AND SECURITYHOLDERS ON EVENT OF DEFAULT

SECTION 6.01 Events of Default.

- (a) Whenever used herein with respect to Securities of a particular series, "Event of Default" means any one or more of the following events that has occurred and is continuing:
- (1) the Company defaults in the payment of any installment of interest upon any of the Securities of that series, as and when the same shall become due and payable, and continuance of such default for a period of 90 days; provided, however, that a valid extension of an interest payment period by the Company in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of interest for this purpose;
 - (2) the Company defaults in the payment of the principal of (or premium, if any, on) any of the Securities of that series as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to that series; provided, however, that a valid extension of the maturity of such Securities in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of principal or premium, if any;
 - (3) the Company fails to observe or perform any other of its covenants or agreements with respect to that series contained in this Indenture or otherwise established with respect to that series of Securities pursuant to Section 2.01 hereof (other than a covenant or agreement that has been expressly included in this Indenture solely for the benefit of one or more series of Securities other than such series) for a period of 90 days after the date on which written notice of such failure, requiring the same to be remedied and stating that such notice is a "Notice of Default" hereunder, shall have been given to the Company by the Trustee, by registered or certified mail, or to the Company and the Trustee by the holders of not less than a majority in principal amount of the Securities of that series at the time Outstanding;
 - (4) the Company pursuant to or within the meaning of any Bankruptcy Law (i) commences a voluntary case, (ii) consents to the entry of an order for relief against it in an involuntary case, (iii) consents to the appointment of a Custodian of it or for all or substantially all of its property or (iv) makes a general assignment for the benefit of its creditors; or
 - (5) a court of competent jurisdiction enters an order under any Bankruptcy Law that (i) is for relief against the Company in an involuntary case, (ii) appoints a Custodian of the Company for all or substantially all of its property, or (iii) orders the liquidation of the Company, and the order or decree remains unstayed and in effect for 90 consecutive days.

- (b) In each and every such case, unless the principal of all the Securities of that series shall have already become due and payable, either the Trustee or the holders of not less than a majority in aggregate principal amount of the Securities of that series then Outstanding hereunder, by notice in writing to the Company (and to the Trustee if given by such Securityholders), may declare the principal (or, if any Securities of that series are discount securities, that portion of the principal amount as may be specified in the terms of that series pursuant to Section 2.01(a)(16)) of (and premium, if any, on) and accrued and unpaid interest, if any, on all the Securities of that series to be due and payable immediately, and upon any such declaration the same shall become and shall be immediately due and payable.
- (c) At any time after the principal of the Securities of that series shall have been so declared due and payable, and before a judgment or decree for the payment of the moneys due shall have been obtained or entered as hereinafter provided, the holders of a majority in aggregate principal amount of the Securities of that series then Outstanding hereunder (or, by action at a meeting of holders of the Securities of such series in accordance with Section 8.09, the holders of a majority in aggregate principal amount of the Securities of such series then Outstanding represented at such meeting), by written notice to the Company and the Trustee, may rescind and annul such declaration and its consequences if: (i) the Company has paid or deposited with the Trustee a sum sufficient to pay all matured installments of interest upon all the Securities of that series and the principal of (and premium, if any, on) any and all Securities of that series that shall have become due otherwise than by acceleration and (ii) any and all Events of Default under this Indenture with respect to such series, other than the nonpayment of principal of (and premium, if any, on) and accrued and unpaid interest, if any, on Securities of that series that shall have become due solely because of such acceleration, shall have been remedied, cured or waived as provided in Section 6.06. No such rescission and annulment shall extend to or shall affect any subsequent default or impair any right consequent thereon.
- (d) In case the Trustee shall have proceeded to enforce any right with respect to Securities of that series under this Indenture and such proceedings shall have been discontinued or abandoned because of such rescission or annulment or for any other reason or shall have been determined adversely to the Trustee, then and in every such case, subject to any determination in such proceedings, the Company, and the Trustee shall be restored respectively to their former positions and rights hereunder, and all rights, remedies and powers of the Company and the Trustee shall continue as though no such proceedings had been taken.

SECTION 6.02 Collection of Indebtedness and Suits for Enforcement by Trustee.

- (a) The Company covenants that (1) in case it shall default in the payment of any installment of interest on any of the Securities of a series, or any payment required by any sinking or analogous fund established with respect to that series as and when the same shall have become due and payable, and such default shall have continued for a period of 90 Business Days, or (2) in case it shall default in the payment of the principal of (or premium, if any, on) any of the Securities of a series when the same shall have become due and payable, whether upon maturity of the Securities of a series or upon redemption or upon declaration or otherwise, then, upon demand of the Trustee, the Company will pay to the Trustee, for the benefit of the holders of the Securities of that series, the whole amount that then shall have been become due and payable on all such Securities for principal (and premium, if any) or interest, or both, as the case may be, with interest upon the overdue principal (and premium, if any) and (to the extent that payment of such interest is enforceable under applicable law) upon overdue installments of interest at the rate per annum expressed in the Securities of that series; and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses of collection, and the amount payable to the Trustee under Section 7.06.
- (b) If the Company shall fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, shall be entitled and empowered to institute any action or proceedings at law or in equity for the collection of the sums so due and unpaid, and may prosecute any such action or proceeding to judgment or final decree, and may enforce any such judgment or final decree against the Company or other obligor upon the Securities of that series and collect the moneys adjudged or decreed to be payable in the manner provided by law out of the property of the Company or other obligor upon the Securities of that series, wherever situated.

- (c) In case of any receivership, insolvency, liquidation, bankruptcy, reorganization, readjustment, arrangement, composition or judicial proceedings affected the Company, or its creditors or property, or any other analogous proceedings in a relevant jurisdiction, the Trustee shall have power to intervene in such proceedings and take any action therein that may be permitted by the court and shall (except as may be otherwise provided by law) be entitled to file such proofs of claim and other papers and documents as may be necessary or advisable in order to have the claims of the Trustee and of the holders of Securities of such series allowed for the entire amount due and payable by the Company under this Indenture at the date of institution of such proceedings and for any additional amount that may become due and payable by the Company after such date, and to collect and receive any moneys or other property payable or deliverable on any such claim, and to distribute the same after the deduction of the amount payable to the Trustee under Section 7.06; and any receiver, assignee or trustee in bankruptcy or reorganization is hereby authorized by each of the holders of Securities of such series to make such payments to the Trustee, and, in the event that the Trustee shall consent to the making of such payments directly to such Securityholders, to pay to the Trustee any amount due it under Section 7.06.

- (d) All rights of action and of asserting claims under this Indenture, or under any of the terms established with respect to Securities of that series, may be enforced by the Trustee without the possession of any of such Securities, or the production thereof at any trial or other proceeding relative thereto, and any such suit or proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for payment to the Trustee of any amounts due under Section 7.06, be for the ratable benefit of the holders of the Securities of such series.

In case of an Event of Default hereunder, the Trustee may in its discretion proceed to protect and enforce the rights vested in it by this Indenture by such appropriate judicial proceedings as the Trustee shall deem most effectual to protect and enforce any of such rights, either at law or in equity or in bankruptcy or otherwise, whether for the specific enforcement of any covenant or agreement contained in this Indenture or in aid of the exercise of any power granted in this Indenture, or to enforce any other legal or equitable right vested in the Trustee by this Indenture or by law.

Nothing contained herein shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Securityholder any plan of reorganization, arrangement, adjustment or composition affecting the Securities of that series or the rights of any holder thereof or to authorize the Trustee to vote in respect of the claim of any Securityholder in any such proceeding.

SECTION 6.03 Application of Moneys Collected.

Any moneys collected by the Trustee pursuant to this Article with respect to a particular series of Securities shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such moneys on account of principal (or premium, if any) or interest, upon presentation of the Securities of that series, and notation thereon the payment, if only partially paid, and upon surrender thereof if fully paid:

FIRST: To the payment of costs and expenses of collection and of all amounts payable to the Trustee under Section 7.06; and

SECOND: To the payment of the amounts then due and unpaid upon Securities of such series for principal (and premium, if any) and interest, in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities for principal (and premium, if any) and interest, respectively.

SECTION 6.04 Limitation on Suits.

No holder of any Security of any series shall have any right by virtue or by availing of any provision of this Indenture to institute any suit, action or proceeding in equity or at law upon or under or with respect to this Indenture or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless (i) such holder previously shall have given to the Trustee written notice of an Event of Default and of the continuance thereof with respect to the Securities of such series specifying such Event of Default, as hereinbefore provided; (ii) the holders of not less than a majority in aggregate principal amount of the Securities of such series then Outstanding shall have made written request upon the Trustee to institute such action, suit or proceeding in its own name as trustee hereunder; (iii) such holder or holders shall have offered to the Trustee such reasonable indemnity as it may require against the costs, expenses and liabilities to be incurred therein or thereby; and (iv) the Trustee for 60 days after its receipt of such notice, request and offer of indemnity, shall have failed to institute any such action, suit or proceeding and (v) during such 60 day period, the holders of a majority in principal amount of the Securities of that series (or such amount as shall have acted at a meeting of the holders of Securities of such series pursuant to the provisions of this Indenture) do not give the Trustee a direction inconsistent with the request; provided, however, that no one or more of such holders may use this Indenture to prejudice the rights of another holder or to obtain preference or priority over another holder.

Notwithstanding anything contained herein to the contrary, any other provisions of this Indenture, the right of any holder of any Security to receive payment of the principal of (and premium, if any) and interest on such Security, as therein provided, on or after the respective due dates expressed in such Security (or in the case of redemption, on the redemption date), or to institute suit for the enforcement of any such payment on or after such respective dates or redemption date, shall not be impaired or affected without the consent of such holder and by accepting a Security hereunder it is expressly understood, intended and covenanted by the taker and holder of every Security of such series with every other such taker and holder and the Trustee, that no one or more holders of Securities of such series shall have any right in any manner whatsoever by virtue or by availing of any provision of this Indenture to affect, disturb or prejudice the rights of the holders of any other of such Securities, or to obtain or seek to obtain priority over or preference to any other such holder, or to enforce any right under this Indenture, except in the manner herein provided and for the equal, ratable and common benefit of all holders of Securities of such series. For the protection and enforcement of the provisions of this Section, each and every Securityholder and the Trustee shall be entitled to such relief as can be given either at law or in equity.

SECTION 6.05 Rights and Remedies Cumulative; Delay or Omission Not Waiver.

- (a) Except as otherwise provided in Section 2.07, all powers and remedies given by this Article to the Trustee or to the Securityholders shall, to the extent permitted by law, be deemed cumulative and not exclusive of any other powers and remedies available to the Trustee or the holders of the Securities, by judicial proceedings or otherwise, to enforce the performance or observance of the covenants and agreements contained in this Indenture or otherwise established with respect to such Securities.
- (b) No delay or omission of the Trustee or of any holder of any of the Securities to exercise any right or power accruing upon any Event of Default occurring and continuing as aforesaid shall impair any such right or power, or shall be construed to be a waiver of any such default or on acquiescence therein; and, subject to the provisions of Section 6.04, every power and remedy given by this Article or by law to the Trustee or the Securityholders may be exercised from time to time, and as often as shall be deemed expedient, by the Trustee or by the Securityholders.

SECTION 6.06 Control by Securityholders.

The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding, determined in accordance with Section 8.01, shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee with respect to such series; provided, however, that such direction shall not be in conflict with any rule of law or with this Indenture or be unduly prejudicial to the rights of holders of Securities of any other series at the time Outstanding determined in accordance with Section 8.01. Subject to the provisions of Section 7.01, the Trustee shall have the right to decline to follow any such direction if the Trustee in good faith shall, by a Responsible Officer or Officers of the Trustee, determine that the proceeding so directed would involve the Trustee in personal liability. The holders either (a) through the written consent of not less than a majority in aggregate principal amount of the Securities of any series at the time Outstanding or (b) by action at a meeting of holders of the Securities of such series in accordance with Section 8.09, by the holders of a majority in aggregate principal amount of the Securities of such series then Outstanding represented at such meeting, may on behalf of the holders of all of the Securities of such series waive any past default in the performance of any of the covenants contained herein or established pursuant to Section 2.01 with respect to such series and its consequences, except a default in the payment of the principal of, or premium, if any, or interest on, any of the Securities of that series as and when the same shall become due by the terms of such Securities otherwise than by acceleration (unless such default has been cured and a sum sufficient to pay all matured installments of interest and principal and any premium has been deposited with the Trustee (in accordance with Section 6.01(c)) and except in respect a provision hereof which, under Section 9.02, cannot be modified or amended without the consent of the holders of each Outstanding Security affected; provided however that this Section shall not limit the right of holders of Securities of a series to rescind and annul any acceleration as set forth in Section 6.01. Upon any such waiver, the default covered thereby shall be deemed to be cured for all purposes of this Indenture and the Company, the Trustee and the holders of the Securities of such series shall be restored to their former positions and rights hereunder, respectively; but no such waiver shall extend to any

subsequent or other default or impair any right consequent thereon. The provisions which otherwise would be automatically deemed to be contained in this Indenture pursuant to Section (316)(a)(1) of the Trust Indenture Act are hereby expressly excluded from this Indenture, except to the extent such provisions are expressly included herein.

SECTION 6.07 Undertaking to Pay Costs.

All parties to this Indenture agree, and each holder of any Securities by such holder's acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken or omitted by it as Trustee, the filing by any party litigant in such suit of an undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys' fees, against any party litigant in such suit, having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this Section shall not apply to any suit instituted by the Trustee, to any suit instituted by any Securityholder, or group of Securityholders, holding more than 10% in aggregate principal amount of the Outstanding Securities of any series, or to any suit instituted by any Securityholder for the enforcement of the payment of the principal of (or premium, if any) or interest on any Security of such series, on or after the respective due dates expressed in such Security or established pursuant to this Indenture.

ARTICLE VII

CONCERNING THE TRUSTEE

SECTION 7.01 Certain Duties and Responsibilities of Trustee.

- (a) The Trustee, prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing of all Events of Default with respect to the Securities of that series that may have occurred, shall undertake to perform with respect to the Securities of such series such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants shall be read into this Indenture against the Trustee. In case an Event of Default with respect to the Securities of a series has occurred (that has not been cured or waived), the Trustee shall exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his own affairs.
- (b) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct, except that:
 - (1) prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing or waiving of all such Events of Default with respect to that series that may have occurred:
 - (i) the duties and obligations of the Trustee shall with respect to the Securities of such series be determined solely by the express provisions of this Indenture, and the Trustee shall not be liable with respect to the Securities of such series except for the performance of such duties and obligations as are specifically set forth in this Indenture, and no implied covenants or obligations shall be read into this Indenture against the Trustee; and
 - (ii) in the absence of bad faith on the part of the Trustee, the Trustee may with respect to the Securities of such series conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon any certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions that by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirement of this Indenture;

19

- (2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer or Responsible Officers of the Trustee, unless it shall be proved that the Trustee, was negligent in ascertaining the pertinent facts;
- (3) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the holders of not less than a majority in principal amount of the Securities of any series at the time Outstanding relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee under this Indenture with respect to the Securities of that series; and
- (4) None of the provisions contained in this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur personal financial liability in the performance of any of its duties or in the exercise of any of its rights or powers, if there is reasonable ground for believing that the repayment of such funds or liability is not reasonably assured to it under the terms of this Indenture or adequate indemnity against such risk is not reasonably assured to it.

SECTION 7.02 Certain Rights of Trustee.

Except as otherwise provided in Section 7.01:

- (a) The Trustee may rely and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;
- (b) Any request, direction, order or demand of the Company mentioned herein shall be sufficiently evidenced by a Board Resolution or an instrument signed in the name of the Company, by the Chief Executive Officer, or the Chief Financial officer, or the President or any Vice President and by the Company Secretary or an Assistant Company Secretary or the Treasurer or an Assistant Treasurer thereof (unless other evidence in respect thereof is specifically prescribed herein);
- (c) The Trustee may consult with counsel and the written advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken or suffered or omitted hereunder in good faith and in reliance thereon;
- (d) The Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request, order or direction of any of the Securityholders, pursuant to the provisions of this Indenture, unless such Securityholders shall have offered to the Trustee reasonable security or indemnity against the costs, expenses and liabilities that may be incurred therein or thereby; nothing contained herein shall, however, relieve the Trustee of the obligation, upon the occurrence of an Event of Default with respect to a series of the Securities (that has not been cured or waived) to exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and to use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his own affairs;
- (e) The Trustee shall not be liable for any action taken or omitted to be taken by it in good faith and believed by it to be authorized or within the discretion or rights or powers conferred upon it by this Indenture;

20

- (f) The Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security, or other papers or documents, unless requested in writing so to do by the holders of not less than a majority in principal amount of the Outstanding Securities of the particular series affected thereby (determined as provided in Section 8.04); provided, however, that if the payment within a reasonable time to the Trustee of the costs, expenses or liabilities likely to be incurred by it in the making of such investigation is, in the opinion of the Trustee, not reasonably assured to the Trustee by the security afforded to it by the terms of this Indenture, the Trustee may require reasonable indemnity against such costs, expenses or liabilities as a condition to so proceeding. The reasonable expense of every such examination shall be paid by the Company or, if paid by the Trustee, shall be repaid by the Company upon demand; and
- (g) The Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder.

SECTION 7.03 Trustee Not Responsible for Recitals or Issuance of Securities.

- (a) The recitals contained herein and in the Securities shall be taken as the statements of the Company, and the Trustee assumes no responsibility for the correctness of the same.
- (b) The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities.
- (c) The Trustee shall not be accountable for the use or application by the Company of any of the Securities or of the proceeds of such Securities, or for the use or application of any moneys paid over by the Trustee in accordance with any provision of this Indenture or established pursuant to Section 2.01, or for the use or application of any moneys received by any paying agent other than the Trustee.

SECTION 7.04 May Hold Securities.

The Trustee or any paying agent or Security Registrar, in its individual or any other capacity, may become the owner or pledgee of Securities with the same rights it would have if it were not Trustee, paying agent or Security Registrar.

SECTION 7.05 Moneys Held in Trust.

Subject to the provisions of Section 11.05, all moneys received by the Trustee shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, but need not be segregated from other funds except to the extent required by law. The Trustee shall be under no liability for interest on any moneys received by it hereunder except such as it may agree with the Company to pay thereon.

SECTION 7.06 Compensation and Reimbursement.

- (a) The Company covenants and agrees to pay to the Trustee, and the Trustee shall be entitled to, such reasonable compensation (which shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust), as the Company, and the Trustee may from time to time agree in writing, for all services rendered by it in the execution of the trusts hereby created and in the exercise and performance of any of the powers and duties hereunder of the Trustee, and, except as otherwise expressly provided herein, the Company will pay or reimburse the Trustee upon its request for all reasonable expenses, disbursements and advances incurred or made by the Trustee in accordance with any of the provisions of this Indenture (including the reasonable compensation and the expenses and disbursements of its counsel and of all Persons not regularly in its employ) except any such expense, disbursement or advance as may arise from its negligence or bad faith. The Company also covenants to indemnify the Trustee (and its officers, agents, directors and employees) for, and to hold it harmless against, any loss, liability or expense incurred without negligence or bad faith on the part of the Trustee and arising out of or in connection with the acceptance or administration of this trust, including the costs and expenses of defending itself against any claim of liability in the premises.

- (b) The obligations of the Company under this Section to compensate and indemnify the Trustee and to pay or reimburse the Trustee for expenses, disbursements and advances shall constitute additional indebtedness hereunder. Such additional indebtedness shall be secured by a lien prior to that of the Securities upon all property and funds held or collected by the Trustee as such, except funds held in trust for the benefit of the holders of particular Securities.

SECTION 7.07 Reliance on Officers' Certificate.

Except as otherwise provided in Section 7.01, whenever in the administration of the provisions of this Indenture the Trustee shall deem it necessary or desirable that a matter be proved or established prior to taking or suffering or omitting to take any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may, in the absence of negligence or bad faith on the part of the Trustee, be deemed to be conclusively proved and established by an Officers' Certificate delivered to the Trustee and such certificate, in the absence of negligence or bad faith on the part of the Trustee, shall be full warrant to the Trustee for any action taken, suffered or omitted to be taken by it under the provisions of this Indenture upon the faith thereof.

SECTION 7.08 Disqualification; Conflicting Interests.

If the Trustee has or shall acquire any "conflicting interest" within the meaning of Section 310(b) of the Trust Indenture Act, the Trustee and the Company shall in all respects comply with the provisions of Section 310(b) of the Trust Indenture Act.

SECTION 7.09 Corporate Trustee Required; Eligibility.

There shall at all times be a Trustee with respect to the Securities issued hereunder which shall at all times be a corporation organized and doing business under the laws of the United States of America or any State or Territory thereof or of the District of Columbia, or a corporation or other Person permitted to act as trustee by the Commission, authorized under such laws to exercise corporate trust powers, having a combined capital and surplus of at least 50 million U.S. dollars (\$50,000,000), and subject to supervision or examination by Federal, State, Territorial, or District of Columbia authority. If such corporation publishes reports of condition at least annually, pursuant to law or to the requirements of the aforesaid supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such corporation shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. The Company may not, nor may any Person directly or indirectly controlling, controlled by, or under common control with the Company, serve as Trustee. In case at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, the Trustee shall resign immediately in the manner and with the effect specified in Section 7.10.

SECTION 7.10 Resignation and Removal; Appointment of Successor.

- (a) The Trustee or any successor hereafter appointed, may at any time resign with respect to the Securities of one or more series by giving written notice thereof to the Company and by transmitting notice of resignation by mail, first class postage prepaid, to the Securityholders of such series, as their names and addresses appear upon the Security Register. Upon receiving such notice of resignation, the Company shall promptly appoint a successor trustee with respect to Securities of such series by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the resigning Trustee and one copy to the successor trustee. If no successor trustee shall have been so appointed and have accepted appointment within 30 days after the mailing of such notice of resignation, the resigning Trustee may petition any court of competent jurisdiction for the appointment of a successor trustee with respect to Securities of such series, or any Securityholder of that series who has been a bona fide holder of a Security or Securities for at least six months may on behalf of himself and all others similarly situated, petition any such court for the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, appoint a successor trustee.

- (b) In case at any time any one of the following shall occur:
- (1) the Trustee shall fail to comply with the provisions of Section 7.08 after written request therefor by the Company or by any Securityholder who has been a bona fide holder of a Security or Securities for at least six months; or
 - (2) the Trustee shall cease to be eligible in accordance with the provisions of Section 7.09 and shall fail to resign after written request therefor by the Company or by any such Securityholder; or
 - (3) the Trustee shall become incapable of acting, or shall be adjudged a bankrupt or insolvent, or commence a voluntary bankruptcy proceeding, or a receiver of the Trustee or of its property shall be appointed or consented to, or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation, then, in any such case, the Company may remove the Trustee with respect to all Securities and appoint a successor trustee by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the Trustee so removed and one copy to the successor trustee, or, unless the Trustee's duty to resign is stayed as provided herein, any Securityholder who has been a bona fide holder of a Security or Securities for at least six months may, on behalf of that holder and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, remove the Trustee and appoint a successor trustee.
- (c) The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding may at any time remove the Trustee with respect to such series by so notifying the Trustee and the Company and may appoint a successor Trustee for such series with the consent of the Company.
- (d) Any resignation or removal of the Trustee and appointment of a successor trustee with respect to the Securities of a series pursuant to any of the provisions of this Section shall become effective upon acceptance of appointment by the successor trustee as provided in Section 7.11.
- (e) Any successor trustee appointed pursuant to this Section may be appointed with respect to the Securities of one or more series or all of such series, and at any time there shall be only one Trustee with respect to the Securities of any particular series.

SECTION 7.11 Acceptance of Appointment By Successor.

- (a) In case of the appointment hereunder of a successor trustee with respect to all Securities, every such successor trustee so appointed shall execute, acknowledge and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on the request of the Company or the successor trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor trustee all the rights, powers, and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor trustee all property and money held by such retiring Trustee hereunder.

- (b) In case of the appointment hereunder of a successor trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee and each successor trustee with respect to the Securities of one or more series shall execute and deliver an indenture supplemental hereto wherein each successor trustee shall accept such appointment and which (1) shall contain such provisions as shall be necessary or desirable to transfer and confirm to, and to vest in, each successor trustee all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates, (2) shall contain such provisions as shall be deemed necessary or desirable to confirm that all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring shall continue to be vested in the retiring Trustee, and (3) shall add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture shall constitute such Trustees co-trustees of the same trust, that each such Trustee shall be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustee and that no Trustee shall be responsible for any act or failure to act on the part of any other Trustee hereunder; and upon the execution and delivery of such supplemental indenture the resignation or removal of the retiring Trustee shall become effective to the extent provided therein, such retiring Trustee shall with respect to the Securities of that or those series to which the appointment of such successor trustee relates have no further responsibility for the exercise of rights and powers or for the performance of the duties and obligations vested in the Trustee under this Indenture, and each such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates; but, on request of the Company or any successor trustee, such retiring Trustee shall duly assign, transfer and deliver to such successor trustee, to the extent contemplated by such supplemental indenture, the property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor trustee relates.
- (c) Upon request of any such successor trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor trustee all such rights, powers and trusts referred to in paragraph (a) or (b) of this Section, as the case may be.
- (d) No successor trustee shall accept its appointment unless at the time of such acceptance such successor trustee shall be qualified and eligible under this Article.
- (e) Upon acceptance of appointment by a successor trustee as provided in this Section, the Company shall transmit notice of the succession of such trustee hereunder by mail, first class postage prepaid, to the Securityholders, as their names and addresses appear upon the Security Register. If the Company fails to transmit such notice within ten days after acceptance of appointment by the successor trustee, the successor trustee shall cause such notice to be transmitted at the expense of the Company.

SECTION 7.12 Merger, Conversion, Consolidation or Succession to Business.

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to the corporate trust business of the Trustee, shall be the successor of the Trustee hereunder, provided that such corporation shall be qualified under the provisions of Section 7.08 and eligible under the provisions of Section 7.09, without the execution or filing of any

paper or any further act on the part of any of the parties hereto, anything herein to the contrary notwithstanding. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities.

SECTION 7.13 Preferential Collection of Claims Against the Company.

The Trustee shall comply with Section 311(a) of the Trust Indenture Act, excluding any creditor relationship described in Section 311(b) of the Trust Indenture Act. A Trustee who has resigned or been removed shall be subject to Section 311(a) of the Trust Indenture Act to the extent included therein.

ARTICLE VIII

CONCERNING THE SECURITYHOLDERS

SECTION 8.01 Evidence of Action by Securityholders.

Whenever in this Indenture it is provided that the holders of a majority or specified percentage in aggregate principal amount of the Securities of a particular series may take any action (including the making of any demand or request, the giving of any notice, consent or waiver or the taking of any other action), the fact that at the time of taking any such action the holders of such majority or specified percentage of that series have joined therein may be evidenced by any instrument or any number of instruments of similar tenor executed by such holders of Securities of that series in Person or by agent or proxy appointed in writing.

If the Company shall solicit from the Securityholders of any series any request, demand, authorization, direction, notice, consent, waiver or other action, the Company may, at its option, as evidenced by an Officers' Certificate, fix in advance a record date for such series for the determination of Securityholders entitled to give such request, demand, authorization, direction, notice, consent, waiver or other action, but the Company shall have no obligation to do so. If such a record date is fixed, such request, demand, authorization, direction, notice, consent, waiver or other action may be given before or after the record date, but only the Securityholders of record at the close of business on the record date shall be deemed to be Securityholders for the purposes of determining whether Securityholders of the requisite proportion of Outstanding Securities of that series have authorized or agreed or consented to such request, demand, authorization, direction, notice, consent, waiver or other action, and for that purpose the Outstanding Securities of that series shall be computed as of the record date; provided, however, that no such authorization, agreement or consent by such Securityholders on the record date shall be deemed effective unless it shall become effective pursuant to the provisions of this Indenture not later than six months after the record date.

SECTION 8.02 Proof of Execution by Securityholders.

Subject to the provisions of Section 7.01, proof of the execution of any instrument by a Securityholder (such proof will not require notarization) or his agent or proxy and proof of the holding by any Person of any of the Securities shall be sufficient if made in the following manner:

- (a) The fact and date of the execution by any such Person of any instrument may be proved in any reasonable manner acceptable to the Trustee.
- (b) The ownership of Securities shall be proved by the Security Register of such Securities or by a certificate of the Security Registrar thereof.
- (c) The Trustee may require such additional proof of any matter referred to in this Section as it shall deem necessary.

SECTION 8.03 Who May be Deemed Owners.

Prior to the due presentment for registration of transfer of any Security, the Company, the Trustee, any paying agent and any Security Registrar may deem and treat the Person in whose name such Security shall be registered upon the books of the Company as the absolute owner of such Security (whether or not such Security shall be overdue and notwithstanding any notice of ownership or writing thereon made by anyone other than the Security Registrar) for the purpose of receiving payment of or on account of the principal of, premium, if any, and (subject to Section 2.03) interest on such Security and for all other purposes; and neither the Company nor the Trustee nor any paying agent nor any Security Registrar shall be affected by any notice to the contrary.

SECTION 8.04 Certain Securities Owned by Company Disregarded.

In determining whether the holders of the requisite aggregate principal amount of Securities of a particular series have concurred in any direction, consent or waiver under this Indenture, the Securities of that series that are owned by the Company or any other obligor on the Securities of that series or by any Person directly or indirectly controlling or controlled by or under common control with the Company or any other obligor on the Securities of that series shall be disregarded and deemed not to be Outstanding for the purpose of any such determination, except that for the purpose of determining whether the Trustee shall be protected in relying on any such direction, consent or waiver, only Securities of such series that the Trustee actually knows are so owned shall be so disregarded. The Securities so owned that have been pledged in good faith may be regarded as Outstanding for the purposes of this Section, if the pledgee shall establish to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not a Person directly or indirectly controlling or controlled by or under direct or indirect common control with the Company or any such other obligor. In case of a dispute as to such right, any decision by the Trustee taken upon the advice of counsel shall be full protection to the Trustee.

SECTION 8.05 Actions Binding on Future Securityholders.

At any time prior to (but not after) the evidencing to the Trustee, as provided in Section 8.01, of the taking of any action by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action, any holder of a Security of that series that is shown by the evidence to be included in the Securities the holders of which have consented to such action may, by filing written notice with the Trustee, and upon proof of holding as provided in Section 8.02, revoke such action so far as concerns such Security. Except as aforesaid any such action taken by the holder of any Security shall be conclusive and binding upon such holder and upon all future holders and owners of such Security, and of any Security issued in exchange therefor, on registration of transfer thereof or in place thereof, irrespective of whether or not any notation in regard thereto is made upon such Security. Any action taken by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action shall be conclusively binding upon the Company, the Trustee and the holders of all the Securities of that series.

SECTION 8.06 Purposes for Which Meetings May Be Called.

A meeting of holders of any series of Securities may be called at any time and from time to time pursuant to this Article to make, give or take any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be made, given or taken by holders of such series of Securities.

Notwithstanding anything contained in this Article VIII, the Trustee may, during the pendency of a Default or an Event of Default, call a meeting of holders of any series of Securities in accordance with its standard practices.

SECTION 8.07 Call Notice and Place of Meetings.

- (a) The Trustee may at any time call a meeting of holders of any series of Securities for any purpose specified in Section 8.06 hereof, to be held at such time and at such place in The City of New York or Boston, Massachusetts. Notice of every meeting of holders of any series of Securities, setting forth the time and the place of such meeting, in general terms the action proposed to be taken at such meeting and the percentage of the principal amount of the Outstanding Securities of such series which shall constitute a quorum at such meeting, shall be given, in the manner provided in Section 13.04 hereof, not less than 21 nor more than 180 days prior to the date fixed for the meeting to holders of Outstanding Securities of such series.
- (b) In case at any time the Company, pursuant to a Board Resolution, or the holders of at least 10% in principal amount of the Outstanding Securities of any series shall have requested the Trustee to call a meeting of the holders of Securities of such series for any purpose specified in Section 8.06 hereof, by written request setting forth in reasonable detail the action proposed to be taken at the meeting, and the Trustee shall not have made the first publication of the notice of such meeting within 21 days after receipt of such request or shall not thereafter proceed to cause the meeting to be held as provided herein, then the Company or the holders of Securities of such series in the amount specified, as the case may be, may determine the time and the place in The City of New York or Boston, Massachusetts for such meeting and may call such meeting for such purposes by giving notice thereof as provided in paragraph (a) of this Section.

SECTION 8.08 Persons Entitled To Vote at Meetings.

To be entitled to vote at any meeting of holders of Securities of a given series, a Person shall be (a) a holder of one or more Outstanding Securities of such series or (b) a Person appointed by an instrument in writing as proxy for a holder or holders of one or more Outstanding Securities of such series by such holder or holders. The only Persons who shall be entitled to be present or to speak at any meeting of holders shall be the Persons entitled to vote at such meeting and their counsel, any representatives of the Trustee and its counsel and any representatives of the Company and its counsel.

26

SECTION 8.09 Quorum; Action.

The Persons entitled to vote a majority in aggregate principal amount of the Outstanding Securities of a given series shall constitute a quorum with respect to a meeting of holders of Outstanding Securities of such series. In the absence of a quorum within 30 minutes of the time appointed for any such meeting, the meeting shall, if convened at the request of holders of Securities of such series, be dissolved. In any other case, the meeting may be adjourned for a period of not less than 10 days as determined by the chairman of the meeting prior to the adjournment of such meeting. In the absence of a quorum at any such adjourned meeting, such adjourned meeting may be further adjourned for a period of not less than 10 days as determined by the chairman of the meeting prior to the adjournment of such adjourned meeting. Notice of the reconvening of any adjourned meeting shall be given as provided in Section 8.07(a) hereof, except that such notice need be given only once and not less than five days prior to the date on which the meeting is scheduled to be reconvened.

At a meeting or an adjourned meeting duly reconvened and at which a quorum is present as aforesaid, any resolution and all matters (except as limited by the proviso to the first paragraph of Section 9.02 hereof) shall be effectively passed and decided if passed or decided by the Persons entitled to vote not less than a majority in aggregate principal amount of Outstanding Securities of a series represented and voting at such meeting with respect to a meeting of holders of Outstanding Securities of such series.

Any resolution passed or decisions taken at any meeting of holders of Securities duly held in accordance with this Section shall be binding on all the holders of Securities of such series, whether or not present or represented at the meeting.

SECTION 8.10 Determination of Voting Rights; Conduct and Adjournment of Meetings.

- (a) Notwithstanding any other provisions of this Indenture, the Trustee may make such reasonable regulations as it may deem advisable for any meeting of holders of Securities in regard to proof of the holding of Securities and of the appointment of proxies and in regard to the appointment and duties of inspectors of votes, the submission and examination of proxies, certificates and other evidence of the right to vote, and such other matters concerning the conduct of the meeting as it shall deem appropriate.
- (b) The Trustee shall, by an instrument in writing, appoint a temporary chairman (which may be the Trustee) of the meeting, unless the meeting shall have been called by the Company or by holders of Securities of a given series as provided in Section 8.07(b) hereof, in which case the Company or the holders of Securities of such series calling the meeting, as the case may be, shall in like manner appoint a temporary chairman. A permanent chairman and a permanent secretary of the meeting shall be elected by vote of the Persons entitled to vote a majority in principal amount of the Outstanding Securities of such series represented at the meeting.
- (c) At any meeting, each holder of a Security of the series in respect of which such meeting is being held or proxy shall be entitled to one vote for each \$1,000 principal amount of Securities of such series held or represented by him; provided, however, that no vote shall be cast or counted at any meeting in respect of any Security of such series challenged as not Outstanding and ruled by the chairman of the meeting to be not Outstanding. The chairman of the meeting shall have no right to vote, except as a holder of a Security of such series or proxy.
- (d) Any meeting of holders of Securities duly called pursuant to Section 8.07 hereof at which a quorum is present may be adjourned from time to time by Persons entitled to vote a majority in principal amount of the Outstanding Securities of the series in respect of which such meeting is being held represented at the meeting, and the meeting may be held as so adjourned without further notice.

27

SECTION 8.11 Counting Votes and Recording Action of Meetings.

The vote upon any resolution submitted to any meeting of holders of Securities of a given series shall be by written ballots on which shall be subscribed the signatures of the holders of Securities of such series or of their representatives by proxy and the principal amounts and serial numbers of the Outstanding Securities of such series held or represented by them. The permanent chairman of the meeting shall appoint two inspectors of votes who shall count all votes cast at the meeting for or against any resolution and who shall make and file with the secretary of the meeting their verified written reports in duplicate of all votes cast at the meeting. A record, at least in duplicate, of the proceedings of each meeting of holders of Securities of such series shall be prepared by the secretary of the meeting and there shall be attached to said record the original reports of the inspectors of votes on any vote by ballot taken thereat and affidavits by one or more Persons having knowledge of the facts setting forth a copy of the notice of the meeting and showing that said notice was given as provided in Section 8.07 hereof and, if applicable, Section 8.09 hereof. Each copy shall be signed and verified by the affidavits of the permanent chairman and secretary of the meeting and one such copy shall be delivered to the Company and another to the Trustee to be preserved by the Trustee, the latter to have attached thereto the ballots voted at the meeting. Any record so signed and verified shall be conclusive evidence of the matters therein stated.

ARTICLE IX

SUPPLEMENTAL INDENTURES

SECTION 9.01 Supplemental Indentures Without the Consent of Securityholders.

In addition to any supplemental indenture otherwise authorized by this Indenture, the Company and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect), without the consent of the Securityholders, for one or more of the following purposes:

- (a) cure any ambiguity, correct or supplement any provision herein which may be inconsistent with any other provision herein or which is otherwise defective, or make any other provisions with respect to matters or questions arising under this Indenture which the Company and the Trustee may deem necessary or desirable and which shall not be inconsistent with the provisions of this Indenture;
- (b) to comply with Article X;
- (c) to provide for uncertificated Securities in addition to or in place of certificated Securities;
- (d) to add to the covenants of the Company for the benefit of the holders of all or any Series of Securities (and if such covenants are to be for the benefit of less than all series of Securities, stating that such covenants are expressly being included solely for the benefit of such series) or to surrender any right or power herein conferred upon the Company;
- (e) to add to, delete from, or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication, and delivery of Securities, as herein set forth;
- (f) to make any change that does not adversely affect the rights of any Securityholder in any material respect;
- (g) to provide for the issuance of and establish the form and terms and conditions of the Securities of any series as provided in Section 2.01, to establish the form of any certifications required to be furnished pursuant to the terms of this Indenture or any series of Securities, or to add to the rights of the holders of any series of Securities; or
- (h) comply with the requirements of the Commission in order to effect or maintain the qualification of this Indenture under the Trust Indenture Act.

The Trustee is hereby authorized to join with the Company in the execution of any such supplemental indenture, and to make any further appropriate agreements and stipulations that may be therein contained, but the Trustee shall not be obligated to enter into any such supplemental indenture that affects the Trustee's own rights, duties or immunities under this Indenture or otherwise.

28

Any supplemental indenture authorized by the provisions of this Section may be executed by the Company and the Trustee without the consent of the holders of any of the Securities at the time Outstanding, notwithstanding any of the provisions of Section 9.02.

SECTION 9.02 Supplemental Indentures With Consent of Securityholders.

With the written consent of the holders of at least a majority in aggregate principal amount of the Outstanding Securities of any series or by action at a meeting of holders of the Securities of such series in accordance with Section 8.09, by the holders of a majority in aggregate principal amount of the Securities of such series then Outstanding represented at such meeting, the Company, when authorized by Board Resolutions, and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect) for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of any supplemental indenture or of modifying in any manner not covered by Section 9.01 the rights of the holders of the Securities of such series under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the holders of each Security then Outstanding and affected thereby, (i) extend the fixed maturity of any Securities of any series, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of interest thereon, or reduce any premium payable upon the redemption thereof, (ii) reduce the aforesaid percentage of Securities, the holders of which are required to consent to any such supplemental indenture, or any consent or waiver, (iii) reduce the principal amount of discount securities payable upon acceleration of the maturity of any Securities of any series or (iv) make the principal of or premium or interest on any Security of a series payable in currency or currency units other than that stated in the Securities of such series.

It shall not be necessary for the consent of the Securityholders of any series affected thereby under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such consent shall approve the substance thereof.

SECTION 9.03 Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture pursuant to the provisions of this Article or of Section 10.01, this Indenture shall, with respect to such series, be and be deemed to be modified and amended in accordance therewith and the respective rights, limitations of rights, obligations, duties and immunities under this Indenture of the Trustee, the Company and the holders of Securities of the series affected thereby shall thereafter be determined, exercised and enforced hereunder subject in all respects to such modifications and amendments, and all the terms and conditions of any such supplemental indenture shall be and be deemed to be part of the terms and conditions of this Indenture for any and all purposes.

SECTION 9.04 Securities Affected by Supplemental Indentures.

Securities of any series affected by a supplemental indenture, authenticated and delivered after the execution of such supplemental indenture pursuant to the provisions of this Article or of Section 10.01, may bear a notation in form approved by the Company, provided such form meets the requirements of any exchange upon which such series may be listed, as to any matter provided for in such supplemental indenture. If the Company shall so determine, new Securities of that series so modified as to conform, in the opinion of the Board of Directors of the Company, to any modification of this Indenture contained in any such supplemental indenture may be prepared by the Company, authenticated by the Trustee and delivered in exchange for the Securities of that series then Outstanding.

SECTION 9.05 Execution of Supplemental Indentures.

Upon the request of the Company, accompanied by its Board Resolutions authorizing the execution of any such supplemental indenture, and upon the filing with the Trustee of evidence of the consent of Securityholders required to consent thereto as aforesaid, the Trustee shall join with the Company in the execution of such supplemental indenture unless such supplemental indenture affects the Trustee's own rights, duties or immunities under this Indenture or otherwise, in which case the Trustee may in its discretion but shall not be obligated to enter into such supplemental indenture. The Trustee, subject to the provisions of Section 7.01, may receive an Opinion of Counsel as conclusive evidence that any supplemental indenture executed pursuant to this Article is authorized or permitted by, and conforms to, the terms of this Article and that it is proper for the Trustee under the provisions of this Article to join in the execution thereof; provided, however, that such Opinion of Counsel need not be provided in connection with the execution of a supplemental indenture that establishes the terms of a series of Securities pursuant to Section 2.01 hereof.

29

Promptly after the execution by the Company and the Trustee of any supplemental indenture pursuant to the provisions of this Section, the Trustee shall transmit by mail, first class postage prepaid, a notice, setting forth in general terms the substance of such supplemental indenture, to the Securityholders of all series affected thereby as their names and addresses appear upon the Security Register. Any failure of the Trustee to mail such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such supplemental indenture.

ARTICLE X

SUCCESSOR ENTITY

SECTION 10.01 Company May Consolidate, Etc.

Nothing contained in this Indenture or in any of the Securities shall prevent any consolidation or merger of the Company with or into any other Person (whether or not affiliated with the Company) or successive consolidations or mergers in which the Company or its successor or successors shall be a party or parties, or shall prevent any sale, conveyance, transfer or other disposition of the property of the Company or its successor or successors as an entirety, or substantially as an entirety, to any other corporation (whether or not affiliated with the Company or its successor or successors) authorized to acquire and operate the same; provided, however, the Company hereby covenants and agrees that, upon any such consolidation or merger (in each case, if the Company is not the survivor of such transaction), sale, conveyance, transfer or other disposition, the due and punctual payment of the principal of (premium, if any) and interest on all of the Securities of all series in accordance with the terms of each series, according to their tenor and the due and punctual performance and observance of all the covenants and conditions of this Indenture with respect to each series or established with respect to such series pursuant to Section 2.01 to be kept or performed by the Company shall be expressly assumed, by supplemental indenture (which shall conform to the provisions of the Trust Indenture Act, as then in effect) satisfactory in form to the Trustee executed and delivered to the Trustee by the entity formed by such consolidation, or into which the Company shall have been merged, or by the entity which shall have acquired such property.

SECTION 10.02 Successor Entity Substituted.

- (a) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition and upon the assumption by the successor entity by supplemental indenture, executed and delivered to the Trustee and satisfactory in form to the Trustee, of the due and punctual payment of the principal of, premium, if any, and interest on all of the Securities of all series Outstanding and the due and punctual performance of all of the covenants and conditions of this Indenture or established with respect to each series of the Securities pursuant to Section 2.01 to be performed by the Company with respect to each series, such successor entity shall succeed to and be substituted for the Company with the same effect as if it had been named as the Company herein, and thereupon the predecessor corporation shall be relieved of all obligations and covenants under this Indenture and the Securities.
- (b) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition such changes in phraseology and form (but not in substance) may be made in the Securities thereafter to be issued as may be appropriate.
- (c) Nothing contained in this Article shall require any action by the Company in the case of a consolidation or merger of any Person into the Company where the Company is the survivor of such transaction, or the acquisition by the Company, by purchase or otherwise, of all or any part of the property of any other Person (whether or not affiliated with the Company).

30

SECTION 10.03 Evidence of Consolidation, Etc. to Trustee.

The Trustee, subject to the provisions of Section 7.01, may receive an Opinion of Counsel as conclusive evidence that any such consolidation, merger, sale, conveyance, transfer or other disposition, and any such assumption, comply with the provisions of this Article.

ARTICLE XI

SATISFACTION AND DISCHARGE

SECTION 11.01 Satisfaction and Discharge of Indenture.

If at any time: (a) the Company shall have delivered to the Trustee for cancellation all Securities of a series theretofore authenticated (other than any Securities that shall have been destroyed, lost or stolen and that shall have been replaced or paid as provided in Section 2.07) and Securities for whose payment money or Governmental Obligations have theretofore been deposited in trust or segregated and held in trust by the Company (and thereupon repaid to the Company or discharged from such trust, as provided in Section 11.05); or (b) all such Securities of a particular series not theretofore delivered to the Trustee for cancellation shall have become due and payable, or are by their terms to become due and payable within one year or are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption, and the Company shall deposit or cause to be deposited with the Trustee as trust funds the entire amount in moneys or Governmental Obligations sufficient or a combination thereof, sufficient (assuming that no tax liability will be imposed on the Trustee) in the opinion of a nationally recognized firm of independent public accountants expressed in a written certification thereof delivered to the Trustee, to pay at maturity or upon redemption all Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be, and if the Company shall also pay or cause to be paid all other sums payable hereunder with respect to such series by the Company then this Indenture shall thereupon cease to be of further effect with respect to such series except for the provisions of Sections 2.03, 2.05, 2.07, 4.01, 4.02, 4.03 and 7.10, that shall survive until the date of maturity or redemption date, as the case may be, and Sections 7.06 and 11.05, that shall survive to such date and thereafter, and the Trustee, on demand of the Company and at the cost and expense of the Company shall execute proper instruments acknowledging satisfaction of and discharging this Indenture with respect to such series.

SECTION 11.02 Discharge of Obligations.

If at any time all such Securities of a particular series not heretofore delivered to the Trustee for cancellation or that have not become due and payable as described in Section 11.01 shall have been paid by the Company by depositing irrevocably with the Trustee as trust funds moneys or an amount of Governmental Obligations sufficient to pay at maturity or upon redemption all such Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be, and if the Company shall also pay or cause to be paid all other sums payable hereunder by the Company with respect to such series, then after the date such moneys or Governmental Obligations, as the case may be, are deposited with the Trustee the obligations of the Company under this Indenture with respect to such series shall cease to be of further effect except for the provisions of Sections 2.03, 2.05, 2.07, 4.01, 4.02, 4.03, 7.06, 7.10 and 11.05 hereof that shall survive until such Securities shall mature and be paid thereafter, Sections 7.06 and 11.05 shall survive.

SECTION 11.03 Deposited Moneys to be Held in Trust.

Subject to Section 11.05, all moneys or Governmental Obligations deposited with the Trustee pursuant to Sections 11.01 or 11.02 shall be held in trust and shall be available for payment as due, either directly or through any paying agent (including the Company acting as its own paying agent), to the holders of the particular series of Securities for the payment or redemption of which such moneys or Governmental Obligations have been deposited with the Trustee.

31

SECTION 11.04 Payment of Moneys Held by Paying Agents.

In connection with the satisfaction and discharge of this Indenture all moneys or Governmental Obligations then held by any paying agent under the provisions of this Indenture shall, upon demand of the Company, be paid to the Trustee and thereupon such paying agent shall be released from all further liability with respect to such moneys or Governmental Obligations.

SECTION 11.05 Repayment to Company.

Any moneys or Governmental Obligations deposited with any paying agent or the Trustee, or then held by the Company, in trust for payment of principal of or premium or interest on the Securities of a particular series that are not applied but remain unclaimed by the holders of such Securities for two years after the date upon which the principal of (and premium, if any) or interest on such Securities shall have respectively become due and payable, shall be repaid to the Company or (if then held by the Company) shall be discharged from such trust in each case, promptly after the end of any such two-year period or, at the request of the Company, on a later date specified by the Company; and thereupon the paying agent and the Trustee shall be released from all further liability with respect to such moneys or Governmental Obligations, and the holder of any of the Securities entitled to receive such payment shall thereafter, as an unsecured general creditor, look only to the Company for the payment thereof.

ARTICLE XII

IMMUNITY OF INCORPORATORS, SHAREHOLDERS, OFFICERS AND DIRECTORS

SECTION 12.01 No Recourse.

No recourse under or upon any obligation, covenant or agreement of this Indenture, or of any Security, or for any claim based thereon or otherwise in respect thereof, shall be had against any incorporator, shareholder, officer or director, past, present or future as such, of the Company or of any predecessor or successor Person, either directly or through the Company or any such predecessor or successor Person, whether by virtue of any constitution, statute or rule of law, or by the enforcement of any assessment or penalty or otherwise; it being expressly understood that this Indenture and the obligations issued hereunder are solely corporate obligations, and that no such personal liability whatever shall attach to, or is or shall be incurred by, the incorporators, shareholders, officers or directors as such, of the Company or of any predecessor or successor Person, or any of them, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or

in any of the Securities or implied therefrom; and that any and all such personal liability of every name and nature, either at common law or in equity or by constitution or statute, of, and any and all such rights and claims against, every such incorporator, shareholder, officer or director as such, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom, are hereby expressly waived and released as a condition of, and as a consideration for, the execution of this Indenture and the issuance of such Securities.

ARTICLE XIII

MISCELLANEOUS PROVISIONS

SECTION 13.01 Effect on Successors and Assigns.

All the covenants, stipulations, promises and agreements in this Indenture contained by or on behalf of the Company shall bind its successors and assigns, whether so expressed or not.

SECTION 13.02 Actions by Successor.

Any act or proceeding by any provision of this Indenture authorized or required to be done or performed by any board, committee or officer of the Company shall and may be done and performed with like force and effect by the corresponding board, committee or officer of any corporation that shall at the time be the lawful successor of the Company.

SECTION 13.03 Surrender of Company Powers.

The Company by instrument in writing executed by authority of its Board of Directors and delivered to the Trustee may surrender any of the powers reserved to the Company, and thereupon such power so surrendered shall terminate both as to the Company and as to any successor Person.

SECTION 13.04 Notices.

Except as otherwise expressly provided herein any notice or demand that by any provision of this Indenture is required or permitted to be given or served by the Trustee or by the holders of Securities to or on the Company may be given or served by being deposited first class postage prepaid in a post-office letterbox addressed (until another address is filed in writing by the Company with the Trustee), as follows: TC Biopharm (Holdings) plc, Attn: [], Maxim 1, 2 Parklands Way, Holytonw, Motherwell, ML1 4WR, Scotland, United Kingdom. Any notice, election, request or demand by the Company or any Securityholder to or upon the Trustee shall be deemed to have been sufficiently given or made, for all purposes, if given or made in writing at the Corporate Trust Office of the Trustee. Any notice or communication to a holder shall be mailed by first-class mail to his address shown on the Security Register kept by the Security Registrar.

Failure to mail a notice or communication to a holder or any defect in such notice or communication shall not affect its sufficiency with respect to other holders. If a notice or communication is mailed or sent in the manner provided above within the time prescribed, it is duly given as of the date it is mailed, whether or not the addressee receives it, except that notice to the Trustee or the Company shall only be effective upon receipt thereof by the Trustee or the Company, respectively. If the Company mails a notice or communication to holders of Securities, it shall mail a copy to the Trustee at the same time.

SECTION 13.05 Governing Law.

This Indenture and each Security shall be deemed to be a contract made under the internal laws of the State of New York, and for all purposes shall be construed in accordance with the laws of said State.

SECTION 13.06 Treatment of Securities as Debt.

It is intended that the Securities will be treated as indebtedness and not as equity for U.S. federal income tax purposes. The provisions of this Indenture shall be interpreted to further this intention.

SECTION 13.07 Compliance Certificates and Opinions.

- (a) Upon any application or demand by the Company to the Trustee to take any action under any of the provisions of this Indenture, the Company, shall furnish to the Trustee an Officers' Certificate stating that all conditions precedent provided for in this Indenture relating to the proposed action have been complied with and an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent have been complied with, except that in the case of any such application or demand as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or demand, no additional certificate or opinion need be furnished.
- (b) Each certificate or opinion provided for in this Indenture and delivered to the Trustee with respect to compliance with a condition or covenant in this Indenture shall include (1) a statement that the Person making such certificate or opinion has read such covenant or condition; (2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based; (3) a statement that, in the opinion of such Person, he has made such examination or investigation as is necessary to enable him to express an informed opinion as to whether or not such covenant or condition has been complied with; and (4) a statement as to whether or not, in the opinion of such Person, such condition or covenant has been complied with.

SECTION 13.08 Payments on Business Days.

Except as provided pursuant to Section 2.01 pursuant to a Board Resolution, and as set forth in an Officers' Certificate, or established in one or more indentures supplemental to this Indenture, in any case where the date of maturity of interest or principal of any Security or the date of redemption of any Security shall not be a Business Day, then payment of interest or principal (and premium, if any) may be made on the next succeeding Business Day with the same force and effect as if made on the nominal date of maturity or redemption, and no interest shall accrue for the period after such nominal date.

SECTION 13.09 Conflict with Trust Indenture Act.

If and to the extent that any provision of this Indenture limits, qualifies or conflicts with the duties imposed by Sections 310 to 317, inclusive, of the Trust Indenture Act, such imposed duties shall control.

SECTION 13.10 Counterparts.

This Indenture may be executed in any number of counterparts, each of which shall be an original, but such counterparts shall together constitute but one and the same instrument.

SECTION 13.11 Separability.

In case any one or more of the provisions contained in this Indenture or in the Securities of any series shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Indenture or of such Securities, but this Indenture and such Securities shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein or therein.

SECTION 13.12 Assignment.

The Company will have the right at all times to assign any of its rights or obligations under this Indenture to a direct or indirect wholly-owned Subsidiary of the Company, provided that, in the event of any such assignment, the Company, will remain liable for all such obligations. Subject to the foregoing, this Indenture is binding upon and inures to the benefit of the parties thereto and their respective successors and assigns. This Indenture may not otherwise be assigned by the parties thereto.

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed all as of the day and year first above written.

TC BIOPHARM (HOLDINGS) PLC

By: _____
Name:
Title:

[_____],
As Trustee

By: _____
Name:
Title:

INDENTURE, dated as of [], by and between TC Biopharm (Holdings) plc, a public limited company incorporated in Scotland pursuant to the Companies Act 2006 (the “Company”), and [], as trustee (the “Trustee”):

WHEREAS, for its lawful corporate purposes, the Company has duly authorized the execution and delivery of this Indenture to provide for the issuance of subordinated debt securities (hereinafter referred to as the “Securities”), in an unlimited aggregate principal amount to be issued from time to time in one or more series as in this Indenture provided, as registered Securities without coupons, to be authenticated by the certificate of the Trustee;

WHEREAS, to provide the terms and conditions upon which the Securities are to be authenticated, issued and delivered, the Company has duly authorized the execution of this Indenture; and

WHEREAS, all things necessary to make this Indenture a valid agreement of the Company, in accordance with its terms, have been done.

NOW, THEREFORE, in consideration of the premises and the purchase of the Securities by the holders thereof, it is mutually covenanted and agreed as follows for the equal and ratable benefit of the holders of Securities:

ARTICLE I

DEFINITIONS

SECTION 1.01 Definitions of Terms.

The terms defined in this Section (except as in this Indenture otherwise expressly provided or unless the context otherwise requires) for all purposes of this Indenture and of any indenture supplemental hereto shall have the respective meanings specified in this Section and shall include the plural as well as the singular. All other terms used in this Indenture that are defined in the Trust Indenture Act of 1939, as amended, or that are by reference in such Act defined in the Securities Act of 1933, as amended (except as herein otherwise expressly provided or unless the context otherwise requires), shall have the meanings assigned to such terms in said Trust Indenture Act and in said Securities Act as in force at the date of the execution of this instrument.

“Authenticating Agent” means an authenticating agent with respect to all or any of the series of Securities appointed with respect to all or any series of the Securities by the Trustee pursuant to Section 2.10.

“Bankruptcy Law” means Title 11, U.S. Code, or any similar federal or state law for the relief of debtors.

“Board of Directors” means the Board of Directors of the Company or any duly authorized committee of such Board.

“Board Resolution” means a copy of a resolution certified by the Company Secretary or an Assistant Company Secretary of the Company to have been duly adopted by the Board of Directors and to be in full force and effect on the date of such certification.

“Business Day” means, with respect to any series of Securities, any day other than a day on which Federal or State banking institutions in the Borough of Manhattan, the City and State of New York, are authorized or obligated by law, executive order or regulation to close.

“Certificate” means a certificate signed by the chief executive officer, the chief financial officer or the chief accounting officer of the Company. The Certificate need not comply with the provisions of Section 13.07.

“Commission” means the Securities and Exchange Commission.

1

“Company” means the corporation named as the “Company” in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture, and thereafter “Company” shall mean such successor Person.

“Corporate Trust Office” means the office of the Trustee at which, at any particular time, its corporate trust business shall be principally administered, which office at the date hereof is located at [], except that whenever a provision herein refers to an office or agency of the Trustee in the Borough of Manhattan, the City and State of New York, such office is located, at the date hereof, at [].

“Custodian” means any receiver, trustee, assignee, liquidator, or similar official under any Bankruptcy Law.

“Default” means an event which is, or after notice or lapse of time, or both, would constitute an Event of Default.

“Depository” means, with respect to Securities of any series, for which the Company shall determine that such Securities will be issued as a Global Security, The Depository Trust Company, New York, New York, another clearing agency, or any successor registered as a clearing agency under the Exchange Act, or other applicable statute or regulation, which, in each case, shall be designated by the Company pursuant to either Section 2.01 or Section 2.11.

“Event of Default” means, with respect to Securities of a particular series, any event specified in Section 6.01, continued for the period of time, if any, therein designated.

“Exchange Act” means the Securities Exchange Act of 1934, as amended.

“Global Security” means, with respect to any series of Securities, a Security executed by the Company and delivered by the Trustee to the Depository or pursuant to the Depository’s instruction, all in accordance with this Indenture, which shall be registered in the name of the Depository or its nominee.

“Governmental Obligations” means securities that are (i) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (ii) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America, the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America that, in either case, are non-callable at the option of the issuer thereof, and shall also include a depository receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act of 1933, as amended) as custodian with respect to any such Governmental Obligation or a specific payment of principal of or interest on any such Governmental Obligation held by such custodian for the account of the holder of such depository receipt; provided, however, that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the Governmental Obligation or the specific payment of principal of or interest on the Governmental Obligation evidenced by such depository receipt.

“herein,” “hereof” and “hereunder,” and other words of similar import, refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

“Indenture” means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into in accordance with the terms hereof.

“Interest Payment Date,” when used with respect to any installment of interest on a Security of a particular series, means the date specified in such Security or in a Board Resolution or in an indenture supplemental hereto with respect to such series as the fixed date on which an installment of interest with respect to Securities of that series is due and payable.

“Officers’ Certificate” means a certificate signed by the Chief Executive Officer, or the President or a Vice President and by the Chief Financial Officer, Vice President of Finance, the Treasurer or an Assistant Treasurer or the Controller or an Assistant Controller or the Company Secretary or an Assistant Company Secretary of the Company that is delivered to the Trustee in accordance with the terms hereof. Certificate shall include the statements provided for in Section 13.07, if and to the extent required by the provisions thereof.

2

“Opinion of Counsel” means a written opinion of counsel, who may be counsel to the Company (and may include directors or employees of the Company) and which opinion is acceptable to the Trustee which acceptance shall not be unreasonably withheld.

“Outstanding,” when used with reference to Securities of any series, means, subject to the provisions of Section 8.04, as of any particular time, all Securities of that series theretofore authenticated and delivered by the Trustee under this Indenture, except (a) Securities theretofore canceled by the Trustee or any paying agent, or delivered to the Trustee or any paying agent for cancellation or that have previously been canceled; (b) Securities or portions thereof for the payment or redemption of which moneys or Governmental Obligations in the necessary amount shall have been deposited in trust with the Trustee or with any paying agent (other than the Company) or shall have been set aside and segregated in trust by the Company (if the Company shall act as its own paying agent); provided, however, that if such Securities or portions of such Securities are to be redeemed prior to the maturity thereof, notice of such redemption shall have been given as in Article III provided, or provision satisfactory to the Trustee shall have been made for giving such notice; and (c) Securities in lieu of or in substitution for which other Securities shall have been authenticated and delivered pursuant to the terms of Section 2.07.

“Person” means any individual, corporation, limited liability company, limited company, partnership, joint-venture, association, joint-stock company, trust, estate, unincorporated organization or government or any agency or political subdivision thereof.

“Predecessor Security” of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 2.07 in lieu of a mutilated, destroyed, lost or stolen Security shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Security.

“Responsible Officer,” when used with respect to the Trustee, means any officer of the Trustee, including any vice president, assistant vice president, company secretary, assistant company secretary, the treasurer, any assistant treasurer, the managing director or any other officer of the Trustee customarily performing functions similar to those performed by any of the above designated officers and also means, with respect to a particular corporate trust matter, any other officer to whom such matter is referred because of such officer’s knowledge of and familiarity with the particular subject.

“Securities” means the debt Securities authenticated and delivered under this Indenture.

“Security Register” has the meaning specified in Section 2.05.

“Security Registrar” has the meaning specified in Section 2.05.

“Securityholder,” “holder of Securities,” “registered holder,” or other similar term, means the Person or Persons in whose name or names a particular Security shall be registered in the Security Register.

“Subsidiary” means, with respect to any Person, (i) any corporation or limited company at least a majority of whose outstanding Voting Stock shall at the time be owned, directly or indirectly, by such Person or by one or more of its Subsidiaries or by such Person and one or more of its Subsidiaries, (ii) any general partnership, joint venture or similar entity, at least a majority of whose outstanding partnership or similar interests shall at the time be owned by such Person, or by one or more of its Subsidiaries, or by such Person and one or more of its Subsidiaries and (iii) any limited partnership of which such Person or any of its Subsidiaries is a general partner.

“Trustee” means the Person named as the “Trustee” in the first paragraph of this instrument until a successor Trustee shall have become such pursuant to the applicable provisions of this Indenture, and thereafter “Trustee” shall mean such successor Trustee. The term “Trustee” as used with respect to a particular series of the Securities shall mean the trustee with respect to that series.

3

“Trust Indenture Act” means the Trust Indenture Act of 1939, as amended, subject to the provisions of Sections 9.01, 9.02, and 10.01, as in effect at the date of execution of this instrument; provided, however, that in the event the Trust Indenture Act is amended after such date, Trust Indenture Act means, to the extent required by such amendment, the Trust Indenture Act of 1939, as so amended, or any successor statute.

“Voting Stock,” as applied to any Person, means shares, interests, participations or other equivalents in the equity interest (however designated) in such Person having ordinary voting power for the election of a majority of the directors (or the equivalent) of such Person, other than shares, interests, participations or other equivalents having such power only by reason of the occurrence of a contingency.

ARTICLE II

ISSUE, DESCRIPTION, TERMS, EXECUTION, REGISTRATION AND EXCHANGE OF SECURITIES

SECTION 2.01 Designation and Terms of Securities.

- (a) The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited, subject at all times to compliance by the Company with any requirements under its articles of association. The Securities may be issued in one or more series up to the aggregate principal amount of Securities of that series from time to time authorized by or pursuant to a Board Resolution of the Company or pursuant to one or more indentures supplemental hereto. Prior to the initial issuance of Securities of a given series, there shall be established in or pursuant to a Board Resolution of the Company, and set forth in an Officers’ Certificate of the Company, or established in one or more indentures supplemental hereto:

- (1) the title of the Security of the series (which shall distinguish the Securities of the series from all other Securities);

- (2) the aggregate principal amount of the Securities of such series initially to be issued and any limit upon the aggregate principal amount of the Securities of that series that may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration of transfer of, or in exchange for, or in lieu of, other Securities of that series);
- (3) the currency or units based on or relating to currencies in which debt securities of such series are denominated and the currency or units in which principal or interest or both will or may be payable;
- (4) the date or dates on which the principal of the Securities of the series is payable and the place(s) of payment;
- (5) the rate or rates at which the Securities of the series shall bear interest or the manner of calculation of such rate or rates, if any;
- (6) the date or dates from which such interest shall accrue, the Interest Payment Dates on which such interest will be payable or the manner of determination of such Interest Payment Dates, the place(s) of payment, and the record date for the determination of holders to whom interest is payable on any such Interest Payment Dates or the method for determining such dates;
- (7) the right, if any, to extend the interest payment periods or to defer the payment of interest and the duration of such extension;
- (8) the period or periods within which, the price or prices at which and the terms and conditions upon which, Securities of the series may be redeemed, in whole or in part, at the option of the Company;
- (9) the obligation, if any, of the Company to redeem or purchase Securities of the series pursuant to any sinking fund or analogous provisions (including payments made in cash in satisfaction of future sinking fund obligations) or at the option of a holder thereof and the period or periods within which, the price or prices at which, and the terms and conditions upon which, Securities of the series shall be redeemed or purchased, in whole or in part, pursuant to such obligation;
- (10) whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;
- (11) the form of the Securities of the series including the form of the Certificate of Authentication for such series;

- (12) if other than denominations of one thousand U.S. dollars (\$1,000) or any integral multiple thereof, the denominations in which the Securities of the series shall be issuable;
- (13) any and all other terms with respect to such series (which terms shall not be inconsistent with the terms of this Indenture, as amended by any supplemental indenture) including any terms which may be required by or advisable under United States laws or regulations or advisable in connection with the marketing of Securities of that series;
- (14) whether the Securities are issuable as a Global Security and, in such case, the identity of the Depositary for such series;
- (15) whether the Securities will be convertible into ordinary shares or other securities of the Company and, if so, the terms and conditions upon which such Securities will be so convertible, including the conversion price and the conversion period;
- (16) if other than the principal amount thereof, the portion of the principal amount of Securities of the series which shall be payable upon declaration of acceleration of the maturity thereof pursuant to Section 6.01;
- (17) any additional or different Events of Default or restrictive covenants provided for with respect to the Securities of the series; and
- (18) the subordination terms of the Securities of the series.

All Securities of any one series shall be substantially identical except as to denomination and except as may otherwise be provided in or pursuant to any such Board Resolution or in any indentures supplemental hereto.

If any of the terms of the series are established by action taken pursuant to a Board Resolution of the Company, a copy of an appropriate record of such action shall be certified by the Company Secretary or an Assistant Company Secretary of the Company and delivered to the Trustee at or prior to the delivery of the Officers' Certificate of the Company setting forth the terms of the series.

Securities of any particular series may be issued at various times, with different dates on which the principal or any installment of principal is payable, with different rates of interest, if any, or different methods by which rates of interest may be determined, with different dates on which such interest may be payable and with different redemption dates.

SECTION 2.02 Form of Securities and Trustee's Certificate.

The Securities of any series and the Trustee's certificate of authentication to be borne by such Securities shall be substantially of the tenor and purport as set forth in one or more indentures supplemental hereto or as provided in a Board Resolution of the Company and as set forth in an Officers' Certificate of the Company and may have such letters, numbers or other marks of identification or designation and such legends or endorsements printed, lithographed or engraved thereon as the Company may deem appropriate and as are not inconsistent with the provisions of this Indenture, or as may be required to comply with any law or with any rule or regulation made pursuant thereto or with any rule or regulation of any stock exchange on which Securities of that series may be listed, or to conform to usage.

SECTION 2.03 Denominations: Provisions for Payment.

The Securities shall be issuable as registered Securities and in the denominations of one thousand U.S. dollars (\$1,000) or any integral multiple thereof, subject to Section 2.01(a)(12). The Securities of a particular series shall bear interest payable on the dates and at the rate specified with respect to that series. The principal of and the interest on the Securities of any series, as well as any premium thereon in case of redemption thereof prior to maturity, shall be payable in the coin or currency of the United States of America that at the time is legal tender for public and private debt, at the office or agency of the Company maintained for that purpose in the Borough of Manhattan, the City and State of New York. Each Security shall be dated the date of its authentication. Interest on the Securities shall be computed on the basis of a 360-day year composed of twelve 30-day months.

The interest installment on any Security that is payable, and is punctually paid or duly provided for, on any Interest Payment Date for Securities of that series shall be paid to the Person in whose name said Security (or one or more Predecessor Securities) is registered at the close of business on the regular record date for such interest installment. In the event that any Security of a particular series or portion thereof is called for redemption and the redemption date is subsequent to a regular record date with respect to any Interest Payment Date and prior to such Interest Payment Date, interest on such Security will be paid upon presentation and surrender of such Security as provided in Section 3.03.

Any interest on any Security that is payable, but is not punctually paid or duly provided for, on any Interest Payment Date for Securities of the same series (herein called "Defaulted Interest") shall forthwith cease to be payable to the registered holder on the relevant regular record date by virtue of having been such holder; and such Defaulted

Interest shall be paid by the Company, at its election, as provided in clause (1) or clause (2) below:

- (1) The Company may make payment of any Defaulted Interest on Securities to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered at the close of business on a special record date for the payment of such Defaulted Interest, which shall be fixed in the following manner: the Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each such Security and the date of the proposed payment, and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided. Thereupon the Trustee shall fix a special record date for the payment of such Defaulted Interest which shall not be more than 15 nor less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Company of such special record date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the special record date therefor to be mailed, first class postage prepaid, to each Securityholder at his or her address as it appears in the Security Register, not less than 10 days prior to such special record date. Notice of the proposed payment of such Defaulted Interest and the special record date therefor having been mailed as aforesaid, such Defaulted Interest shall be paid to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered on such special record date.
- (2) The Company may make payment of any Defaulted Interest on any Securities in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Unless otherwise set forth in a Board Resolution of the Company or one or more indentures supplemental hereto establishing the terms of any series of Securities pursuant to Section 2.01 hereof, the term "regular record date" as used in this Section with respect to a series of Securities with respect to any Interest Payment Date for such series shall mean either the fifteenth day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the first day of a month, or the last day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the fifteenth day of a month, whether or not such date is a Business Day.

Subject to the foregoing provisions of this Section, each Security of a series delivered under this Indenture upon transfer of or in exchange for or in lieu of any other Security of such series shall carry the rights to interest accrued and unpaid, and to accrue, that were carried by such other Security.

SECTION 2.04 Execution and Authentications.

The Securities shall be signed on behalf of the Company by its Chief Executive Officer, or its Chief Financial Officer, or its President, or one of its Vice Presidents, or its Treasurer, or one of its Assistant Treasurers, or its Company Secretary, or one of its Assistant Company Secretaries, under its corporate seal attested by its Company Secretary or one of its Assistant Company Secretaries. Signatures may be in the form of a manual or facsimile signature. The Company may use the facsimile signature of any Person who shall have been a Chief Executive Officer thereof, a Chief Financial Officer thereof, a President or Vice President thereof, or of any Person who shall have been a Treasurer or Assistant Treasurer thereof, or of any Person who shall have been a Company Secretary or Assistant Company Secretary thereof, notwithstanding the fact that at the time the Securities shall be authenticated and delivered or disposed of such Person shall have ceased to be the Chief Executive Officer or the Chief Financial Officer, President or a Vice President, the Treasurer or an Assistant Treasurer or the Company Secretary or an Assistant Company Secretary, of the Company. The seal of the Company may be in the form of a facsimile of such seal and may be impressed, affixed, imprinted or otherwise reproduced on the Securities. The Securities may contain such notations, legends or endorsements required by law, stock exchange rule or usage. Each Security shall be dated the date of its authentication.

6

A Security shall not be valid or obligatory for any purpose and shall not be entitled to any benefit under this Indenture, in each case, until authenticated with a certificate of authentication manually signed by an authorized signatory of the Trustee, or by an Authenticating Agent. Such certificate shall be conclusive evidence, and the only evidence, that the Security so authenticated has been duly authenticated and delivered hereunder and that the Security is entitled to the benefits of this Indenture. At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series executed by the Company to the Trustee for authentication, together with a written order of the Company for the authentication and delivery of such Securities, signed by its Chief Executive Officer, or its Chief Financial Officer, or its President or any Vice President and its Company Secretary or any Assistant Company Secretary, and the Trustee in accordance with such written order shall authenticate and deliver such Securities.

In authenticating such Securities and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall be entitled to receive, and (subject to Section 7.01) shall be fully protected in relying upon, an Opinion of Counsel stating that the form and terms thereof have been established in conformity with the provisions of this Indenture.

The Trustee shall not be required to authenticate such Securities if the issue of such Securities pursuant to this Indenture will affect the Trustee's own rights, duties or immunities under the Securities and this Indenture or otherwise in a manner that is not reasonably acceptable to the Trustee.

SECTION 2.05 Registration of Transfer and Exchange.

- (a) Securities of any series may be exchanged upon presentation thereof at the office or agency of the Company designated for such purpose in the Borough of Manhattan, the City and State of New York, for other Securities of such series of authorized denominations, and for a like aggregate principal amount, upon payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, all as provided in this Section. In respect of any Securities so surrendered for exchange, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in exchange therefor the Security or Securities of the same series that the Securityholder making the exchange shall be entitled to receive, bearing numbers not contemporaneously outstanding.
- (b) The Company shall keep, or cause to be kept, at its office or agency designated for such purpose in the Borough of Manhattan, the City and State of New York, or such other location designated by the Company a register or registers (herein referred to as the "Security Register") in which, subject to such reasonable regulations as it may prescribe, the Company shall register the Securities and the transfers of Securities as in this Article provided and which at all reasonable times shall be open for inspection by the Trustee. The registrar for the purpose of registering Securities and transfer of Securities as herein provided shall be appointed as authorized by Board Resolution (the "Security Registrar").

Upon surrender for transfer of any Security at the office or agency of the Company designated for such purpose, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in the name of the transferee or transferees a new Security or Securities of the same series as the Security presented for a like aggregate principal amount.

All Securities presented or surrendered for exchange or registration of transfer, as provided in this Section, shall be accompanied (if so required by the Company or the Security Registrar) by a written instrument or instruments of transfer, in form satisfactory to the Company or the Security Registrar, duly executed by the registered holder or by such holder's duly authorized attorney in writing.

- (c) No service charge shall be made for any exchange or registration of transfer of Securities, or issue of new Securities in case of partial redemption of any series, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, other than exchanges pursuant to Section 2.06, Section 3.03(b) and Section 9.04 not involving any transfer.
- (d) The Company shall not be required (i) to issue, exchange or register the transfer of any Securities during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of less than all the Outstanding Securities of the same series and ending at the close of business on the day of such mailing, nor (ii) to register the transfer of or exchange any Securities of any series or portions thereof called for redemption. The provisions of this Section 2.05 are, with respect to any Global Security, subject to Section 2.11 hereof.

SECTION 2.06 Temporary Securities.

Pending the preparation of definitive Securities of any series, the Company may execute, and the Trustee shall authenticate and deliver, temporary Securities (printed, lithographed or typewritten) of any authorized denomination. Such temporary Securities shall be substantially in the form of the definitive Securities in lieu of which they are issued, but with such omissions, insertions and variations as may be appropriate for temporary Securities, all as may be determined by the Company. Every temporary Security of any series shall be executed by the Company and be authenticated by the Trustee upon the same conditions and in substantially the same manner, and with like effect, as the definitive Securities of such series. Without unnecessary delay the Company will execute and will furnish definitive Securities of such series and thereupon any or all temporary Securities of such series may be surrendered in exchange therefor (without charge to the holders), at the office or agency of the Company designated for the purpose in the Borough of Manhattan, the City and State of New York, and the Trustee shall authenticate and such office or agency shall deliver in exchange for such temporary Securities an equal aggregate principal amount of definitive Securities of such series, unless the Company advises the Trustee to the effect that definitive Securities need not be executed and furnished until further notice from the Company. Until so exchanged, the temporary Securities of such series shall be entitled to the same benefits under this Indenture as definitive Securities of such series authenticated and delivered hereunder.

SECTION 2.07 Mutilated, Destroyed, Lost or Stolen Securities.

In case any temporary or definitive Security shall become mutilated or be destroyed, lost or stolen, the Company (subject to the next succeeding sentence) shall execute, and upon the Company's request the Trustee (subject as aforesaid) shall authenticate and deliver, a new Security of the same series, bearing a number not contemporaneously outstanding, in exchange and substitution for the mutilated Security, or in lieu of and in substitution for the Security so destroyed, lost or stolen. In every case the applicant for a substituted Security shall furnish to the Company and the Trustee such security or indemnity as may be required by them to save each of them harmless, and, in every case of destruction, loss or theft, the applicant shall also furnish to the Company and the Trustee evidence to their satisfaction of the destruction, loss or theft of the applicant's Security and of the ownership thereof. The Trustee may authenticate any such substituted Security and deliver the same upon the written request or authorization of any officer of the Company. Upon the issuance of any substituted Security, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith. In case any Security that has matured or is about to mature shall become mutilated or be destroyed, lost or stolen, the Company may, instead of issuing a substitute Security, pay or authorize the payment of the same (without surrender thereof except in the case of a mutilated Security) if the applicant for such payment shall furnish to the Company and the Trustee such security or indemnity as they may require to save them harmless, and, in case of destruction, loss or theft, evidence to the satisfaction of the Company and the Trustee of the destruction, loss or theft of such Security and of the ownership thereof.

Every replacement Security issued pursuant to the provisions of this Section shall constitute an additional contractual obligation of the Company whether or not the mutilated, destroyed, lost or stolen Security shall be found at any time, or be enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities of the same series duly issued hereunder. All Securities shall be held and owned upon the express condition that the foregoing provisions are exclusive with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities, and shall preclude (to the extent lawful) any and all other rights or remedies, notwithstanding any law or statute existing or hereafter enacted to the contrary with respect to the replacement or payment of negotiable instruments or other securities without their surrender.

SECTION 2.08 Cancellation.

All Securities surrendered for the purpose of payment, redemption, exchange or registration of transfer shall, if surrendered to the Company or any paying agent, be delivered to the Trustee for cancellation, or, if surrendered to the Trustee, shall be cancelled by it, and no Securities shall be issued in lieu thereof except as expressly required or permitted by any of the provisions of this Indenture. On request of the Company at the time of such surrender, the Trustee shall deliver to the Company canceled Securities held by the Trustee. In the absence of such request the Trustee may dispose of canceled Securities in accordance with its standard procedures and deliver a certificate of disposition to the Company. If the Company shall otherwise acquire any of the Securities, however, such acquisition shall not operate as a redemption or satisfaction of the indebtedness represented by such Securities unless and until the same are delivered to the Trustee for cancellation.

SECTION 2.09 Benefits of Indenture.

Nothing in this Indenture or in the Securities, express or implied, shall give or be construed to give to any Person, other than the parties hereto and the holders of the Securities (and, with respect to the provisions of Article XIV, the holders of Senior Indebtedness, as defined in any supplement to this Indenture pursuant to Article XIV) any legal or equitable right, remedy or claim under or in respect of this Indenture, or under any covenant, condition or provision herein contained; all such covenants, conditions and provisions being for the sole benefit of the parties hereto and of the holders of the Securities (and, with respect to the provisions of Article XIV, the holders of Senior Indebtedness).

SECTION 2.10 Authenticating Agent.

So long as any of the Securities of any series remain Outstanding there may be an Authenticating Agent for any or all such series of Securities which the Trustee shall have the right to appoint. Said Authenticating Agent shall be authorized to act on behalf of the Trustee to authenticate Securities of such series issued upon exchange, transfer or partial redemption thereof, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. All references in this Indenture to the authentication of Securities by the Trustee shall be deemed to include authentication by an Authenticating Agent for such series. Each Authenticating Agent shall be acceptable to the Company and shall be a corporation that has a combined capital and surplus, as most recently reported or determined by it, sufficient under the laws of any jurisdiction under which it is organized or in which it is doing business to conduct a trust business, and that is otherwise authorized under such laws to conduct such business and is subject to supervision or examination by Federal or State authorities. If at any time any Authenticating Agent shall cease to be eligible in accordance with these provisions, it shall resign immediately.

Any Authenticating Agent may at any time resign by giving written notice of resignation to the Trustee and to the Company. The Trustee may at any time (and upon request by the Company shall) terminate the agency of any Authenticating Agent by giving written notice of termination to such Authenticating Agent and to the Company. Upon resignation, termination or cessation of eligibility of any Authenticating Agent, the Trustee may appoint an eligible successor Authenticating Agent acceptable to the Company. Any successor Authenticating Agent, upon acceptance of its appointment hereunder, shall become vested with all the rights, powers and duties of its predecessor hereunder as if originally named as an Authenticating Agent pursuant hereto.

SECTION 2.11 Global Securities

- (a) If the Company shall establish pursuant to Section 2.01 that some or all of the Securities of a particular series are to be issued as a Global Security, then the Company shall execute and the Trustee shall, in accordance with Section 2.04, authenticate and deliver, a Global Security that (i) shall represent, and shall be denominated in an amount equal to the aggregate principal amount of, the Outstanding Securities of such series which are to be issued as a Global Security, (ii) shall be registered in the name of the Depositary or its nominee, (iii) shall be delivered by the Trustee to the Depositary or pursuant to the Depositary's instruction and (iv) shall bear a legend substantially to the following effect: "Except as otherwise provided in Section 2.11 of the Indenture, this Security may be transferred, in whole but not in part, only to another nominee of the Depositary or to a successor Depositary or to a nominee of such successor Depositary."
- (b) Notwithstanding the provisions of Section 2.05, the Global Security of a series may be transferred, in whole but not in part and in the manner provided in Section 2.05, only to another nominee of the Depositary for such series, or to a successor Depositary for such series selected or approved by the Company or to a nominee of such successor Depositary.
- (c) If at any time the Depositary for a series of the Securities notifies the Company that it is unwilling or unable to continue as Depositary for such series or if at any time the Depositary for such series shall no longer be registered or in good standing under the Exchange Act, or other applicable statute or regulation, and a successor Depositary for such series is not appointed by the Company within 90 days after the Company receives such notice or becomes aware of such condition, as the case may be, this Section 2.11 shall no longer be applicable to the Securities of such series and the Company will execute, and subject to Section 2.05, the Trustee will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. In addition, the Company may at any time determine that the Securities of any series shall no longer be represented by a Global Security and that the provisions of this Section 2.11 shall no longer apply to the Securities of such series. In such event the Company will execute and subject to Section 2.05, the Trustee, upon receipt of an Officers' Certificate evidencing such determination by the Company, will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. Upon the exchange of the Global Security for such Securities in definitive registered form without coupons, in authorized denominations, the Global Security shall be canceled by the Trustee. Such Securities in definitive registered form issued in exchange for the Global Security pursuant to this Section 2.11(c) shall be registered in such names and in such authorized denominations as the Depositary, pursuant to instructions from its direct or indirect participants or otherwise, shall instruct the Trustee. The Trustee shall deliver such Securities to the Depositary for delivery to the Persons in whose names such Securities are so registered.

ARTICLE III

REDEMPTION OF SECURITIES AND SINKING FUND PROVISIONS

SECTION 3.01 Redemption.

The Company may redeem the Securities of any series issued hereunder on and after the dates and in accordance with the terms established for such series pursuant to Section 2.01 hereof.

10

SECTION 3.02 Notice of Redemption.

- (a) In case the Company shall desire to exercise such right to redeem all or, as the case may be, a portion of the Securities of any series in accordance with the right reserved so to do, the Company shall, or shall cause the Trustee to, give notice of such redemption to holders of the Securities of such series to be redeemed by mailing, first class postage prepaid, a notice of such redemption not less than 30 days and not more than 90 days before the date fixed for redemption of that series to such holders at their last addresses as they shall appear upon the Security Register unless a shorter period is specified in the Securities to be redeemed. Any notice that is mailed in the manner herein provided shall be conclusively presumed to have been duly given, whether or not the registered holder receives the notice. In any case, failure duly to give such notice to the holder of any Security of any series designated for redemption in whole or in part, or any defect in the notice, shall not affect the validity of the proceedings for the redemption of any other Securities of such series or any other series. In the case of any redemption of Securities prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, the Company shall furnish the Trustee with an Officers' Certificate evidencing compliance with any such restriction.

Each such notice of redemption shall specify the date fixed for redemption and the redemption price at which Securities of that series are to be redeemed, and shall state that payment of the redemption price of such Securities to be redeemed will be made at the office or agency of the Company in the Borough of Manhattan, the City and State of New York, upon presentation and surrender of such Securities, that interest accrued to the date fixed for redemption will be paid as specified in said notice, that from and after said date interest will cease to accrue and that the redemption is for a sinking fund, if such is the case. If less than all the Securities of a series are to be redeemed, the notice to the holders of Securities of that series to be redeemed in whole or in part shall specify the particular Securities to be so redeemed. In case any Security is to be redeemed in part only, the notice that relates to such Security shall state the portion of the principal amount thereof to be redeemed, and shall state that on and after the redemption date, upon surrender of such Security, a new Security or Securities of such series in principal amount equal to the unredeemed portion thereof will be issued.

- (b) If less than all the Securities of a series are to be redeemed, the Company shall give the Trustee at least 30 days' notice in advance of the date fixed for redemption as to the aggregate principal amount of Securities of the series to be redeemed, and thereupon the Trustee shall select, by lot or in such other manner as it shall deem appropriate and fair in its discretion and that may provide for the selection of a portion or portions (equal to one thousand U.S. dollars (\$1,000) or any integral multiple thereof) of the principal amount of such Securities of a denomination larger than \$1,000, the Securities to be redeemed and shall thereafter promptly notify the Company in writing of the numbers of the Securities to be redeemed, in whole or in part. The Company may, if and whenever it shall so elect, by delivery of instructions signed on its behalf by its Chief Executive Officer, or its Chief Financial Officer, or its President or any Vice President, instruct the Trustee or any paying agent to call all or any part of the Securities of a particular series for redemption and to give notice of redemption in the manner set forth in this Section, such notice to be in the name of the Company or its own name as the Trustee or such paying agent may deem advisable. In any case in which notice of redemption is to be given by the Trustee or any such paying agent, the Company shall deliver or cause to be delivered to, or permit to remain with, the Trustee or such paying agent, as the case may be, such Security Register, transfer books or other records, or suitable copies or extracts therefrom, sufficient to enable the Trustee or such paying agent to give any notice by mail that may be required under the provisions of this Section.

11

SECTION 3.03 Payment Upon Redemption.

- (a) If the giving of notice of redemption shall have been completed as above provided, the Securities or portions of Securities of the series to be redeemed specified in such notice shall become due and payable on the date and at the place stated in such notice at the applicable redemption price, together with interest accrued to the date fixed for redemption and interest on such Securities or portions of Securities shall cease to accrue on and after the date fixed for redemption, unless the Company shall default in the payment of such redemption price and accrued interest with respect to any such Security or portion thereof. On presentation and surrender of such Securities on or after the date fixed for redemption at the place of payment specified in the notice, said Securities shall be paid and redeemed at the applicable redemption price for such series, together with interest accrued thereon to the date fixed for redemption (but if the date fixed for redemption is an interest payment date, the interest installment payable on such date shall be payable to the registered holder at the close of business on the applicable record date pursuant to Section 2.03).
- (b) Upon presentation of any Security of such series that is to be redeemed in part only, the Company shall execute and the Trustee shall authenticate and the office or agency where the Security is presented shall deliver to the holder thereof, at the expense of the Company, a new Security of the same series of authorized denominations in principal amount equal to the unredeemed portion of the Security so presented.

SECTION 3.04 Sinking Fund.

The provisions of Sections 3.04, 3.05 and 3.06 shall be applicable to any sinking fund for the retirement of Securities of a series, except as otherwise specified as contemplated by Section 2.01 for Securities of such series.

The minimum amount of any sinking fund payment provided for by the terms of Securities of any series is herein referred to as a "mandatory sinking fund payment," and any payment in excess of such minimum amount provided for by the terms of Securities of any series is herein referred to as an "optional sinking fund payment." If provided for by the terms of Securities of any series, the cash amount of any sinking fund payment may be subject to reduction as provided in Section 3.05. Each sinking fund payment shall be applied to the redemption of Securities of any series as provided for by the terms of Securities of such series.

SECTION 3.05 Satisfaction of Sinking Fund Payments with Securities.

The Company (i) may deliver Outstanding Securities of a series (other than any Securities previously called for redemption) and (ii) may apply as a credit Securities of a series that have been redeemed either at the election of the Company pursuant to the terms of such Securities or through the application of permitted optional sinking fund payments pursuant to the terms of such Securities, in each case in satisfaction of all or any part of any sinking fund payment with respect to the Securities of such series required to be made pursuant to the terms of such Securities as provided for by the terms of such series, provided that such Securities have not been previously so credited. Such Securities shall be received and credited for such purpose by the Trustee at the redemption price specified in such Securities for redemption through operation of the sinking fund and the amount of such sinking fund payment shall be reduced accordingly.

SECTION 3.06 Redemption of Securities for Sinking Fund.

Not less than 45 days prior to each sinking fund payment date for any series of Securities, the Company will deliver to the Trustee an Officers' Certificate specifying the amount of the next ensuing sinking fund payment for that series pursuant to the terms of the series, the portion thereof, if any, that is to be satisfied by delivering and crediting Securities of that series pursuant to Section 3.05 and the basis for such credit and will, together with such Officers' Certificate, deliver to the Trustee any Securities to be so delivered. Not less than 30 days before each such sinking fund payment date the Trustee shall select the Securities to be redeemed upon such sinking fund payment date in the manner specified in Section 3.02 and cause notice of the redemption thereof to be given in the name of and at the expense of the Company in the manner provided in Section 3.02. Such notice having been duly given, the redemption of such Securities shall be made upon the terms and in the manner stated in Section 3.03.

ARTICLE IV

COVENANTS

SECTION 4.01 Payment of Principal, Premium and Interest.

The Company will duly and punctually pay or cause to be paid the principal of (and premium, if any) and interest on the Securities of that series at the time and place and in the manner provided herein and established with respect to such Securities.

SECTION 4.02 Maintenance of Office or Agency.

So long as any series of the Securities remain Outstanding, the Company agrees to maintain an office or agency in the Borough of Manhattan, the City and State of New York, with respect to each such series and at such other location or locations as may be designated as provided in this Section 4.02, where (i) Securities of that series may be presented or surrendered for payment, (ii) Securities of that series may be presented as herein above authorized for registration of transfer and exchange, and (iii) notices and demands to or upon the Company in respect of the Securities of that series and this Indenture may be given or served, such designation to continue with respect to such office or agency until the Company shall, by written notice signed by its Chief Executive Officer, or its Chief Financial Officer, or its President or any Vice President and delivered to the trustee, designate some other office or agency for such purposes or any of them. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, notices and demands may be made or served at the Corporate Trust Office of the Trustee, and the Company hereby appoints the Trustee as its agent to receive all such presentations, notices and demands.

SECTION 4.03 Paying Agents.

- (a) If the Company shall appoint one or more paying agents for all or any series of the Securities, other than the Trustee, the Company will cause each such paying agent to execute and deliver to the Trustee an instrument in which such agent shall agree with the Trustee, subject to the provisions of this Section:
- (1) that it will hold all sums held by it as such agent for the payment of the principal of (and premium, if any) or interest on the Securities of that series (whether such sums have been paid to it by the Company or by any other obligor of such Securities) in trust for the benefit of the Persons entitled thereto;
 - (2) that it will give the Trustee notice of any failure by the Company (or by any other obligor of such Securities) to make any payment of the principal of (and premium, if any) or interest on the Securities of that series when the same shall be due and payable;
 - (3) that it will, at any time during the continuance of any failure referred to in the preceding paragraph (a)(2) above, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such paying agent; and
 - (4) that it will perform all other duties of paying agent as set forth in this Indenture.

- (b) If the Company shall act as its own paying agent with respect to any series of the Securities, it will on or before each due date of the principal of (and premium, if any) or interest on Securities of that series, set aside, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient with monies held by all other paying agents to pay such principal (and premium, if any) or interest so becoming due on Securities of that series until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of such action, or any failure (by it or any other obligor on such Securities) to take such action. Whenever the Company shall have one or more paying agents for any series of Securities, it will, prior to each due date of the principal of (and premium, if any) or interest on any Securities of that series, deposit with the paying agent a sum sufficient to pay the principal (an premium, if any) or interest so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such paying agent is the Trustee) the Company will promptly notify the Trustee of this action or failure so to act.

- (c) Notwithstanding anything in this Section to the contrary, (i) the agreement to hold sums in trust as provided in this Section is subject to the provisions of Section 11.05, and (ii) the Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or direct any paying agent to pay, to the Trustee all sums held in trust by the Company or such paying agent, such sums to be held by the Trustee upon the same terms and conditions as those upon which such sums were held by the Company or such paying agent; and, upon such payment by any paying agent to the Trustee, such paying agent shall be released from all further liability with respect to such money.

SECTION 4.04 Appointment to Fill Vacancy in Office of Trustee.

The Company, whenever necessary to avoid or fill a vacancy in the office of Trustee, will appoint, in the manner provided in Section 7.10, a Trustee, so that there shall at all times be a Trustee hereunder.

SECTION 4.05 Compliance with Consolidation Provisions.

The Company will not, while any of the Securities remain Outstanding, consolidate with or merge into any other Person, in either case where the Company is not the survivor of such transaction, or sell or convey all or substantially all of its property to any other company unless the provisions of Article X hereof are complied with.

ARTICLE V

SECURITYHOLDERS' LISTS AND REPORTS BY THE COMPANY AND THE TRUSTEE

SECTION 5.01 Company to Furnish Trustee Names and Addresses of Securityholders.

If the Company is not the Security Register, the Company will furnish or use reasonable efforts to cause to be furnished to the Trustee (a) on each regular record date (as defined in Section 2.03) a list, in such form as the Trustee may reasonably require, of the names and addresses of the holders of each series of Securities as of such regular record date, provided that the Company shall not be obligated to furnish or cause to furnish such list at any time that the list shall not differ in any respect from the most recent list furnished to the Trustee by the Company and (b) at such other times as the Trustee may request in writing within 30 days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished; provided, however, that, in either case, no such list need be furnished for any series for which the Trustee shall be the Security Registrar.

SECTION 5.02 Preservation of Information; Communications with Securityholders.

- (a) The Trustee shall preserve, in as current a form as is reasonably practicable, all information as to the names and addresses of the holders of Securities contained in the most recent list furnished to it as provided in Section 5.01 and as to the names and addresses of holders of Securities received by the Trustee in its capacity as Security Registrar (if acting in such capacity) and shall otherwise comply with Section 312(a) of the Trust Indenture Act.
- (b) The Trustee may destroy any list furnished to it as provided in Section 5.01 upon receipt of a new list so furnished.
- (c) Securityholders may communicate as provided in Section 312(b) of the Trust Indenture Act with other Securityholders with respect to their rights under this Indenture or under the Securities.

SECTION 5.03 Reports by the Company.

- (a) The Company covenants and agrees to file with the Trustee, within 15 days after the Company is required to file the same with the Commission, copies of the annual reports and of the information, documents and other reports (or copies of such portions of any of the foregoing as the Commission may from time to time by rules and regulations prescribe) that the Company may be required to file with the Commission pursuant to Section 13 or Section 15(d) of the Exchange Act; or, if the Company is not required to file information, documents or reports pursuant to either of such sections, then to file with the Trustee and the Commission, in accordance with the rules and regulations prescribed from time to time by the Commission, such of the supplementary and periodic information, documents and reports that may be required pursuant to Section 13 of the Exchange Act, in respect of a security listed and registered on a national securities exchange as may be prescribed from time to time in such rules and regulations; provided, however, the Company shall not be required to deliver to the Trustee any materials for which the Company has sought and received confidential treatment by the Commission. The Company also shall comply with the other provisions of Section 314(a) of the Trust Indenture Act.
- (b) The Company covenants and agrees to file with the Trustee and the Commission, in accordance with the rules and regulations prescribed from time to time by the Commission, such additional information, documents and reports with respect to compliance by the Company with the conditions and covenants provided for in this Indenture as may be required from time to time by such rules and regulations.
- (c) The Company covenants and agrees to transmit by mail, first class postage prepaid, or reputable over-night delivery service that provides for evidence of receipt, to the Securityholders, as their names and addresses appear upon the Security Register, within 30 days after the filing thereof with the Trustee, such summaries of any information, documents and reports required to be filed by the Company pursuant to subsections (a) and (b) of this Section as may be required by rules and regulations prescribed from time to time by the Commission.

SECTION 5.04 Reports by the Trustee.

- (a) The Trustee shall transmit to holders as provided in Section 313 of the Trust Indenture Act such reports concerning the Trustee and its actions under this Indenture as may be required by Section 313 of the Trust Indenture Act at the times and in the manner provided by the Trust Indenture Act.
- (b) A copy of each such report shall, at the time of such transmission to Securityholders, be filed by the Trustee with the Company, with each stock exchange upon which any Securities are listed (if so listed) and, if required by Section 313 of the Trust Indenture Act, also with the Commission. The Company agrees to notify the Trustee when any Securities become listed on any stock exchange.

REMEDIES OF THE TRUSTEE AND SECURITYHOLDERS ON EVENT OF DEFAULT

SECTION 6.01 Events of Default.

- (a) Whenever used herein with respect to Securities of a particular series, "Event of Default" means any one or more of the following events that has occurred and is continuing:
- (1) the Company defaults in the payment of any installment of interest upon any of the Securities of that series, as and when the same shall become due and payable, and continuance of such default for a period of 90 days; provided, however, that a valid extension of an interest payment period by the Company in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of interest for this purpose;
 - (2) the Company defaults in the payment of the principal of (or premium, if any, on) any of the Securities of that series as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to that series; provided, however, that a valid extension of the maturity of such Securities in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of principal or premium, if any;

15

- (3) the Company fails to observe or perform any other of its covenants or agreements with respect to that series contained in this Indenture or otherwise established with respect to that series of Securities pursuant to Section 2.01 hereof (other than a covenant or agreement that has been expressly included in this Indenture solely for the benefit of one or more series of Securities other than such series) for a period of 90 days after the date on which written notice of such failure, requiring the same to be remedied and stating that such notice is a "Notice of Default" hereunder, shall have been given to the Company by the Trustee, by registered or certified mail, or to the Company and the Trustee by the holders of not less than a majority in principal amount of the Securities of that series at the time Outstanding;
 - (4) the Company pursuant to or within the meaning of any Bankruptcy Law (i) commences a voluntary case, (ii) consents to the entry of an order for relief against it in an involuntary case, (iii) consents to the appointment of a Custodian of it or for all or substantially all of its property or (iv) makes a general assignment for the benefit of its creditors; or
 - (5) a court of competent jurisdiction enters an order under any Bankruptcy Law that (i) is for relief against the Company in an involuntary case, (ii) appoints a Custodian of the Company for all or substantially all of its property, or (iii) orders the liquidation of the Company, and the order or decree remains unstayed and in effect for 90 consecutive days.
- (b) In each and every such case, unless the principal of all the Securities of that series shall have already become due and payable, either the Trustee or the holders of not less than a majority in aggregate principal amount of the Securities of that series then Outstanding hereunder, by notice in writing to the Company (and to the Trustee if given by such Securityholders), may declare the principal (or, if any Securities of that series are discount securities, that portion of the principal amount as may be specified in the terms of that series pursuant to Section 2.01(a)(16)) of (and premium, if any, on) and accrued and unpaid interest, if any, on all the Securities of that series to be due and payable immediately, and upon any such declaration the same shall become and shall be immediately due and payable. Notwithstanding the foregoing, the payment of such principal (or, if any Securities of that series are discount securities, that portion of the principal amount as may be specified in the terms of that series pursuant to Section 2.01(a)(16)) of (and premium, if any, on) and accrued and unpaid interest, if any, on the Securities of such series shall remain subordinated to the extent provided in Article XIV.
- (c) At any time after the principal of the Securities of that series shall have been so declared due and payable, and before a judgment or decree for the payment of the moneys due shall have been obtained or entered as hereinafter provided, the holders of a majority in aggregate principal amount of the Securities of that series then Outstanding hereunder (or, by action at a meeting of holders of the Securities of such series in accordance with Section 8.09, the holders of a majority in aggregate principal amount of the Securities of such series then Outstanding represented at such meeting), by written notice to the Company and the Trustee, may rescind and annul such declaration and its consequences if: (i) the Company has paid or deposited with the Trustee a sum sufficient to pay all matured installments of interest upon all the Securities of that series and the principal of (and premium, if any, on) any and all Securities of that series that shall have become due otherwise than by acceleration and (ii) any and all Events of Default under this Indenture with respect to such series, other than the nonpayment of principal of (and premium, if any, on) and accrued and unpaid interest, if any, on Securities of that series that shall have become due solely because of such acceleration, shall have been remedied, cured or waived as provided in Section 6.06. No such rescission and annulment shall extend to or shall affect any subsequent default or impair any right consequent thereon.
- (d) In case the Trustee shall have proceeded to enforce any right with respect to Securities of that series under this Indenture and such proceedings shall have been discontinued or abandoned because of such rescission or annulment or for any other reason or shall have been determined adversely to the Trustee, then and in every such case, subject to any determination in such proceedings, the Company, and the Trustee shall be restored respectively to their former positions and rights hereunder, and all rights, remedies and powers of the Company and the Trustee shall continue as though no such proceedings had been taken.

16

SECTION 6.02 Collection of Indebtedness and Suits for Enforcement by Trustee.

- (a) The Company covenants that (1) in case it shall default in the payment of any installment of interest on any of the Securities of a series, or any payment required by any sinking or analogous fund established with respect to that series as and when the same shall have become due and payable, and such default shall have continued for a period of 90 Business Days, or (2) in case it shall default in the payment of the principal of (or premium, if any, on) any of the Securities of a series when the same shall have become due and payable, whether upon maturity of the Securities of a series or upon redemption or upon declaration or otherwise, then, upon demand of the Trustee, the Company will pay to the Trustee, for the benefit of the holders of the Securities of that series, the whole amount that then shall have become due and payable on all such Securities for principal (and premium, if any) or interest, or both, as the case may be, with interest upon the overdue principal (and premium, if any) and (to the extent that payment of such interest is enforceable under applicable law) upon overdue installments of interest at the rate per annum expressed in the Securities of that series; and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses of collection, and the amount payable to the Trustee under Section 7.06.
- (b) If the Company shall fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, shall be entitled and empowered to institute any action or proceedings at law or in equity for the collection of the sums so due and unpaid, and may prosecute any such action or proceeding to judgment or final decree, and may enforce any such judgment or final decree against the Company or other obligor upon the Securities of that series and collect the moneys adjudged or decreed to be payable in the manner provided by law out of the property of the Company or other obligor upon the Securities of that series, wherever situated.

- (c) In case of any receivership, insolvency, liquidation, bankruptcy, reorganization, readjustment, arrangement, composition or judicial proceedings affected the Company, or its creditors or property, or any other analogous proceedings in a relevant jurisdiction, the Trustee shall have power to intervene in such proceedings and take any action therein that may be permitted by the court and shall (except as may be otherwise provided by law) be entitled to file such proofs of claim and other papers and documents as may be necessary or advisable in order to have the claims of the Trustee and of the holders of Securities of such series allowed for the entire amount due and payable by the Company under this Indenture at the date of institution of such proceedings and for any additional amount that may become due and payable by the Company after such date, and to collect and receive any moneys or other property payable or deliverable on any such claim, and to distribute the same after the deduction of the amount payable to the Trustee under Section 7.06; and any receiver, assignee or trustee in bankruptcy or reorganization is hereby authorized by each of the holders of Securities of such series to make such payments to the Trustee, and, in the event that the Trustee shall consent to the making of such payments directly to such Securityholders, to pay to the Trustee any amount due it under Section 7.06.
- (d) All rights of action and of asserting claims under this Indenture, or under any of the terms established with respect to Securities of that series, may be enforced by the Trustee without the possession of any of such Securities, or the production thereof at any trial or other proceeding relative thereto, and any such suit or proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for payment to the Trustee of any amounts due under Section 7.06, be for the ratable benefit of the holders of the Securities of such series.

In case of an Event of Default hereunder, the Trustee may in its discretion proceed to protect and enforce the rights vested in it by this Indenture by such appropriate judicial proceedings as the Trustee shall deem most effectual to protect and enforce any of such rights, either at law or in equity or in bankruptcy or otherwise, whether for the specific enforcement of any covenant or agreement contained in this Indenture or in aid of the exercise of any power granted in this Indenture, or to enforce any other legal or equitable right vested in the Trustee by this Indenture or by law.

Nothing contained herein shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Securityholder any plan of reorganization, arrangement, adjustment or composition affecting the Securities of that series or the rights of any holder thereof or to authorize the Trustee to vote in respect of the claim of any Securityholder in any such proceeding.

17

SECTION 6.03 Application of Moneys Collected.

Any moneys collected by the Trustee pursuant to this Article with respect to a particular series of Securities shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such moneys on account of principal (or premium, if any) or interest, upon presentation of the Securities of that series, and notation thereon the payment, if only partially paid, and upon surrender thereof if fully paid:

- FIRST: To the payment of costs and expenses of collection and of all amounts payable to the Trustee under Section 7.06;
- SECOND: To the payment of all Senior Indebtedness of the Company if and to the extent required by Article XIV; and
- THIRD: To the payment of the amounts then due and unpaid upon Securities of such series for principal (and premium, if any) and interest, in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities for principal (and premium, if any) and interest, respectively.

SECTION 6.04 Limitation on Suits.

No holder of any Security of any series shall have any right by virtue or by availing of any provision of this Indenture to institute any suit, action or proceeding in equity or at law upon or under or with respect to this Indenture or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless (i) such holder previously shall have given to the Trustee written notice of an Event of Default and of the continuance thereof with respect to the Securities of such series specifying such Event of Default, as hereinbefore provided; (ii) the holders of not less than a majority in aggregate principal amount of the Securities of such series then Outstanding shall have made written request upon the Trustee to institute such action, suit or proceeding in its own name as trustee hereunder; (iii) such holder or holders shall have offered to the Trustee such reasonable indemnity as it may require against the costs, expenses and liabilities to be incurred therein or thereby; and (iv) the Trustee for 60 days after its receipt of such notice, request and offer of indemnity, shall have failed to institute any such action, suit or proceeding and (v) during such 60 day period, the holders of a majority in principal amount of the Securities of that series (or such amount as shall have acted at a meeting of the holders of Securities of such series pursuant to the provisions of this Indenture) do not give the Trustee a direction inconsistent with the request; provided, however, that no one or more of such holders may use this Indenture to prejudice the rights of another holder or to obtain preference or priority over another holder.

Notwithstanding anything contained herein to the contrary, any other provisions of this Indenture, the right of any holder of any Security to receive payment of the principal of (and premium, if any) and interest on such Security, as therein provided, on or after the respective due dates expressed in such Security (or in the case of redemption, on the redemption date), or to institute suit for the enforcement of any such payment on or after such respective dates or redemption date, shall not be impaired or affected without the consent of such holder and by accepting a Security hereunder it is expressly understood, intended and covenanted by the taker and holder of every Security of such series with every other such taker and holder and the Trustee, that no one or more holders of Securities of such series shall have any right in any manner whatsoever by virtue or by availing of any provision of this Indenture to affect, disturb or prejudice the rights of the holders of any other of such Securities, or to obtain or seek to obtain priority over or preference to any other such holder, or to enforce any right under this Indenture, except in the manner herein provided and for the equal, ratable and common benefit of all holders of Securities of such series. For the protection and enforcement of the provisions of this Section, each and every Securityholder and the Trustee shall be entitled to such relief as can be given either at law or in equity.

SECTION 6.05 Rights and Remedies Cumulative; Delay or Omission Not Waiver.

- (a) Except as otherwise provided in Section 2.07, all powers and remedies given by this Article to the Trustee or to the Securityholders shall, to the extent permitted by law, be deemed cumulative and not exclusive of any other powers and remedies available to the Trustee or the holders of the Securities, by judicial proceedings or otherwise, to enforce the performance or observance of the covenants and agreements contained in this Indenture or otherwise established with respect to such Securities.

18

- (b) No delay or omission of the Trustee or of any holder of any of the Securities to exercise any right or power accruing upon any Event of Default occurring and continuing as aforesaid shall impair any such right or power, or shall be construed to be a waiver of any such default or on acquiescence therein; and, subject to the provisions of Section 6.04, every power and remedy given by this Article or by law to the Trustee or the Securityholders may be exercised from time to time, and as often as shall be deemed expedient, by the Trustee or by the Securityholders.

SECTION 6.06 Control by Securityholders.

The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding, determined in accordance with Section 8.01, shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee with respect to such series; provided, however, that such direction shall not be in conflict with any rule of law or with this Indenture or be unduly prejudicial to the rights of holders

of Securities of any other series at the time Outstanding determined in accordance with Section 8.01. Subject to the provisions of Section 7.01, the Trustee shall have the right to decline to follow any such direction if the Trustee in good faith shall, by a Responsible Officer or Officers of the Trustee, determine that the proceeding so directed would involve the Trustee in personal liability.

The holders either (a) through the written consent of not less than a majority in aggregate principal amount of the Securities of any series at the time Outstanding or (b) by action at a meeting of holders of the Securities of such series in accordance with Section 8.09, by the holders of a majority in aggregate principal amount of the Securities of such series then Outstanding represented at such meeting, may on behalf of the holders of all of the Securities of such series waive any past default in the performance of any of the covenants contained herein or established pursuant to Section 2.01 with respect to such series and its consequences, except a default in the payment of the principal of, or premium, if any, or interest on, any of the Securities of that series as and when the same shall become due by the terms of such Securities otherwise than by acceleration (unless such default has been cured and a sum sufficient to pay all matured installments of interest and principal and any premium has been deposited with the Trustee (in accordance with Section 6.01(c)) and except in respect a provision hereof which, under Section 9.02, cannot be modified or amended without the consent of the holders of each Outstanding Security affected; provided however that this Section shall not limit the right of holders of Securities of a series to rescind and annul any acceleration as set forth in Section 6.01. Upon any such waiver, the default covered thereby shall be deemed to be cured for all purposes of this Indenture and the Company, the Trustee and the holders of the Securities of such series shall be restored to their former positions and rights hereunder, respectively; but no such waiver shall extend to any subsequent or other default or impair any right consequent thereon. The provisions which otherwise would be automatically deemed to be contained in this Indenture pursuant to Section 316(a)(1) of the Trust Indenture Act are hereby expressly excluded from this Indenture, except to the extent such provisions are expressly included herein.

SECTION 6.07 Undertaking to Pay Costs.

All parties to this Indenture agree, and each holder of any Securities by such holder's acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken or omitted by it as Trustee, the filing by any party litigant in such suit of an undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys' fees, against any party litigant in such suit, having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this Section shall not apply to any suit instituted by the Trustee, to any suit instituted by any Securityholder, or group of Securityholders, holding more than 10% in aggregate principal amount of the Outstanding Securities of any series, or to any suit instituted by any Securityholder for the enforcement of the payment of the principal of (or premium, if any) or interest on any Security of such series, on or after the respective due dates expressed in such Security or established pursuant to this Indenture.

19

ARTICLE VII

CONCERNING THE TRUSTEE

SECTION 7.01 Certain Duties and Responsibilities of Trustee.

- (a) The Trustee, prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing of all Events of Default with respect to the Securities of that series that may have occurred, shall undertake to perform with respect to the Securities of such series such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants shall be read into this Indenture against the Trustee. In case an Event of Default with respect to the Securities of a series has occurred (that has not been cured or waived), the Trustee shall exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his own affairs.
- (b) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct, except that:
 - (1) prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing or waiving of all such Events of Default with respect to that series that may have occurred:
 - (i) the duties and obligations of the Trustee shall with respect to the Securities of such series be determined solely by the express provisions of this Indenture, and the Trustee shall not be liable with respect to the Securities of such series except for the performance of such duties and obligations as are specifically set forth in this Indenture, and no implied covenants or obligations shall be read into this Indenture against the Trustee; and
 - (ii) in the absence of bad faith on the part of the Trustee, the Trustee may with respect to the Securities of such series conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon any certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions that by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirement of this Indenture;
 - (2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer or Responsible Officers of the Trustee, unless it shall be proved that the Trustee, was negligent in ascertaining the pertinent facts;
 - (3) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the holders of not less than a majority in principal amount of the Securities of any series at the time Outstanding relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee under this Indenture with respect to the Securities of that series; and
 - (4) None of the provisions contained in this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur personal financial liability in the performance of any of its duties or in the exercise of any of its rights or powers, if there is reasonable ground for believing that the repayment of such funds or liability is not reasonably assured to it under the terms of this Indenture or adequate indemnity against such risk is not reasonably assured to it.

SECTION 7.02 Certain Rights of Trustee.

Except as otherwise provided in Section 7.01:

- (a) The Trustee may rely and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;
- (b) Any request, direction, order or demand of the Company mentioned herein shall be sufficiently evidenced by a Board Resolution or an instrument signed in the name of the Company, by the Chief Executive Officer, or the Chief Financial officer, or the President or any Vice President and by the Company Secretary or an Assistant Company Secretary or the Treasurer or an Assistant Treasurer thereof (unless other evidence in respect thereof is specifically prescribed herein);

- (c) The Trustee may consult with counsel and the written advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken or suffered or omitted hereunder in good faith and in reliance thereon;
- (d) The Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request, order or direction of any of the Securityholders, pursuant to the provisions of this Indenture, unless such Securityholders shall have offered to the Trustee reasonable security or indemnity against the costs, expenses and liabilities that may be incurred therein or thereby; nothing contained herein shall, however, relieve the Trustee of the obligation, upon the occurrence of an Event of Default with respect to a series of the Securities (that has not been cured or waived) to exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and to use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his own affairs;
- (e) The Trustee shall not be liable for any action taken or omitted to be taken by it in good faith and believed by it to be authorized or within the discretion or rights or powers conferred upon it by this Indenture;
- (f) The Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security, or other papers or documents, unless requested in writing so to do by the holders of not less than a majority in principal amount of the Outstanding Securities of the particular series affected thereby (determined as provided in Section 8.04); provided, however, that if the payment within a reasonable time to the Trustee of the costs, expenses or liabilities likely to be incurred by it in the making of such investigation is, in the opinion of the Trustee, not reasonably assured to the Trustee by the security afforded to it by the terms of this Indenture, the Trustee may require reasonable indemnity against such costs, expenses or liabilities as a condition to so proceeding. The reasonable expense of every such examination shall be paid by the Company or, if paid by the Trustee, shall be repaid by the Company upon demand; and
- (g) The Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder.

SECTION 7.03 Trustee Not Responsible for Recitals or Issuance of Securities.

- (a) The recitals contained herein and in the Securities shall be taken as the statements of the Company, and the Trustee assumes no responsibility for the correctness of the same.
- (b) The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities.
- (c) The Trustee shall not be accountable for the use or application by the Company of any of the Securities or of the proceeds of such Securities, or for the use or application of any moneys paid over by the Trustee in accordance with any provision of this Indenture or established pursuant to Section 2.01, or for the use or application of any moneys received by any paying agent other than the Trustee.

SECTION 7.04 May Hold Securities.

The Trustee or any paying agent or Security Registrar, in its individual or any other capacity, may become the owner or pledgee of Securities with the same rights it would have if it were not Trustee, paying agent or Security Registrar.

SECTION 7.05 Moneys Held in Trust.

Subject to the provisions of Section 11.05, all moneys received by the Trustee shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, but need not be segregated from other funds except to the extent required by law. The Trustee shall be under no liability for interest on any moneys received by it hereunder except such as it may agree with the Company to pay thereon.

SECTION 7.06 Compensation and Reimbursement.

- (a) The Company covenants and agrees to pay to the Trustee, and the Trustee shall be entitled to, such reasonable compensation (which shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust), as the Company, and the Trustee may from time to time agree in writing, for all services rendered by it in the execution of the trusts hereby created and in the exercise and performance of any of the powers and duties hereunder of the Trustee, and, except as otherwise expressly provided herein, the Company will pay or reimburse the Trustee upon its request for all reasonable expenses, disbursements and advances incurred or made by the Trustee in accordance with any of the provisions of this Indenture (including the reasonable compensation and the expenses and disbursements of its counsel and of all Persons not regularly in its employ) except any such expense, disbursement or advance as may arise from its negligence or bad faith. The Company also covenants to indemnify the Trustee (and its officers, agents, directors and employees) for, and to hold it harmless against, any loss, liability or expense incurred without negligence or bad faith on the part of the Trustee and arising out of or in connection with the acceptance or administration of this trust, including the costs and expenses of defending itself against any claim of liability in the premises.
- (b) The obligations of the Company under this Section to compensate and indemnify the Trustee and to pay or reimburse the Trustee for expenses, disbursements and advances shall constitute additional indebtedness hereunder. Such additional indebtedness shall be secured by a lien prior to that of the Securities upon all property and funds held or collected by the Trustee as such, except funds held in trust for the benefit of the holders of particular Securities.

SECTION 7.07 Reliance on Officers' Certificate.

Except as otherwise provided in Section 7.01, whenever in the administration of the provisions of this Indenture the Trustee shall deem it necessary or desirable that a matter be proved or established prior to taking or suffering or omitting to take any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may, in the absence of negligence or bad faith on the part of the Trustee, be deemed to be conclusively proved and established by an Officers' Certificate delivered to the Trustee and such certificate, in the absence of negligence or bad faith on the part of the Trustee, shall be full warrant to the Trustee for any action taken, suffered or omitted to be taken by it under the provisions of this Indenture upon the faith thereof.

SECTION 7.08 Disqualification; Conflicting Interests.

If the Trustee has or shall acquire any "conflicting interest" within the meaning of Section 310(b) of the Trust Indenture Act, the Trustee and the Company shall in all respects comply with the provisions of Section 310(b) of the Trust Indenture Act.

SECTION 7.09 Corporate Trustee Required; Eligibility.

There shall at all times be a Trustee with respect to the Securities issued hereunder which shall at all times be a corporation organized and doing business under the laws of the United States of America or any State or Territory thereof or of the District of Columbia, or a corporation or other Person permitted to act as trustee by the Commission,

authorized under such laws to exercise corporate trust powers, having a combined capital and surplus of at least 50 million U.S. dollars (\$50,000,000), and subject to supervision or examination by Federal, State, Territorial, or District of Columbia authority. If such corporation publishes reports of condition at least annually, pursuant to law or to the requirements of the aforesaid supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such corporation shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. The Company may not, nor may any Person directly or indirectly controlling, controlled by, or under common control with the Company, serve as Trustee. In case at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, the Trustee shall resign immediately in the manner and with the effect specified in Section 7.10.

SECTION 7.10 Resignation and Removal; Appointment of Successor.

- (a) The Trustee or any successor hereafter appointed, may at any time resign with respect to the Securities of one or more series by giving written notice thereof to the Company and by transmitting notice of resignation by mail, first class postage prepaid, to the Securityholders of such series, as their names and addresses appear upon the Security Register. Upon receiving such notice of resignation, the Company shall promptly appoint a successor trustee with respect to Securities of such series by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the resigning Trustee and one copy to the successor trustee. If no successor trustee shall have been so appointed and have accepted appointment within 30 days after the mailing of such notice of resignation, the resigning Trustee may petition any court of competent jurisdiction for the appointment of a successor trustee with respect to Securities of such series, or any Securityholder of that series who has been a bona fide holder of a Security or Securities for at least six months may on behalf of himself and all others similarly situated, petition any such court for the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, appoint a successor trustee.
- (b) In case at any time any one of the following shall occur:
 - (1) the Trustee shall fail to comply with the provisions of Section 7.08 after written request therefor by the Company or by any Securityholder who has been a bona fide holder of a Security or Securities for at least six months; or
 - (2) the Trustee shall cease to be eligible in accordance with the provisions of Section 7.09 and shall fail to resign after written request therefor by the Company or by any such Securityholder; or
 - (3) the Trustee shall become incapable of acting, or shall be adjudged a bankrupt or insolvent, or commence a voluntary bankruptcy proceeding, or a receiver of the Trustee or of its property shall be appointed or consented to, or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation, then, in any such case, the Company may remove the Trustee with respect to all Securities and appoint a successor trustee by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the Trustee so removed and one copy to the successor trustee, or, unless the Trustee's duty to resign is stayed as provided herein, any Securityholder who has been a bona fide holder of a Security or Securities for at least six months may, on behalf of that holder and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, remove the Trustee and appoint a successor trustee.
- (c) The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding may at any time remove the Trustee with respect to such series by so notifying the Trustee and the Company and may appoint a successor Trustee for such series with the consent of the Company.
- (d) Any resignation or removal of the Trustee and appointment of a successor trustee with respect to the Securities of a series pursuant to any of the provisions of this Section shall become effective upon acceptance of appointment by the successor trustee as provided in Section 7.11.
- (e) Any successor trustee appointed pursuant to this Section may be appointed with respect to the Securities of one or more series or all of such series, and at any time there shall be only one Trustee with respect to the Securities of any particular series.

SECTION 7.11 Acceptance of Appointment By Successor.

- (a) In case of the appointment hereunder of a successor trustee with respect to all Securities, every such successor trustee so appointed shall execute, acknowledge and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on the request of the Company or the successor trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor trustee all the rights, powers, and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor trustee all property and money held by such retiring Trustee hereunder.
- (b) In case of the appointment hereunder of a successor trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee and each successor trustee with respect to the Securities of one or more series shall execute and deliver an indenture supplemental hereto wherein each successor trustee shall accept such appointment and which (1) shall contain such provisions as shall be necessary or desirable to transfer and confirm to, and to vest in, each successor trustee all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates; (2) shall contain such provisions as shall be deemed necessary or desirable to confirm that all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring shall continue to be vested in the retiring Trustee, and (3) shall add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture shall constitute such Trustees co-trustees of the same trust, that each such Trustee shall be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustee and that no Trustee shall be responsible for any act or failure to act on the part of any other Trustee hereunder; and upon the execution and delivery of such supplemental indenture the resignation or removal of the retiring Trustee shall become effective to the extent provided therein, such retiring Trustee shall with respect to the Securities of that or those series to which the appointment of such successor trustee relates have no further responsibility for the exercise of rights and powers or for the performance of the duties and obligations vested in the Trustee under this Indenture, and each such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates; but, on request of the Company or any successor trustee, such retiring Trustee shall duly assign, transfer and deliver to such successor trustee, to the extent contemplated by such supplemental indenture, the property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor trustee relates.
- (c) Upon request of any such successor trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor trustee all such rights, powers and trusts referred to in paragraph (a) or (b) of this Section, as the case may be.
- (d) No successor trustee shall accept its appointment unless at the time of such acceptance such successor trustee shall be qualified and eligible under this Article.

- (e) Upon acceptance of appointment by a successor trustee as provided in this Section, the Company shall transmit notice of the succession of such trustee hereunder by mail, first class postage prepaid, to the Securityholders, as their names and addresses appear upon the Security Register. If the Company fails to transmit such notice within ten days after acceptance of appointment by the successor trustee, the successor trustee shall cause such notice to be transmitted at the expense of the Company.

SECTION 7.12 Merger, Conversion, Consolidation or Succession to Business.

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to the corporate trust business of the Trustee, shall be the successor of the Trustee hereunder, provided that such corporation shall be qualified under the provisions of Section 7.08 and eligible under the provisions of Section 7.09, without the execution or filing of any paper or any further act on the part of any of the parties hereto, anything herein to the contrary notwithstanding. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities.

SECTION 7.13 Preferential Collection of Claims Against the Company.

The Trustee shall comply with Section 311(a) of the Trust Indenture Act, excluding any creditor relationship described in Section 311(b) of the Trust Indenture Act. A Trustee who has resigned or been removed shall be subject to Section 311(a) of the Trust Indenture Act to the extent included therein.

ARTICLE VIII

CONCERNING THE SECURITYHOLDERS

SECTION 8.01 Evidence of Action by Securityholders.

Whenever in this Indenture it is provided that the holders of a majority or specified percentage in aggregate principal amount of the Securities of a particular series may take any action (including the making of any demand or request, the giving of any notice, consent or waiver or the taking of any other action), the fact that at the time of taking any such action the holders of such majority or specified percentage of that series have joined therein may be evidenced by any instrument or any number of instruments of similar tenor executed by such holders of Securities of that series in Person or by agent or proxy appointed in writing.

If the Company shall solicit from the Securityholders of any series any request, demand, authorization, direction, notice, consent, waiver or other action, the Company may, at its option, as evidenced by an Officers' Certificate, fix in advance a record date for such series for the determination of Securityholders entitled to give such request, demand, authorization, direction, notice, consent, waiver or other action, but the Company shall have no obligation to do so. If such a record date is fixed, such request, demand, authorization, direction, notice, consent, waiver or other action may be given before or after the record date, but only the Securityholders of record at the close of business on the record date shall be deemed to be Securityholders for the purposes of determining whether Securityholders of the requisite proportion of Outstanding Securities of that series have authorized or agreed or consented to such request, demand, authorization, direction, notice, consent, waiver or other action, and for that purpose the Outstanding Securities of that series shall be computed as of the record date; provided, however, that no such authorization, agreement or consent by such Securityholders on the record date shall be deemed effective unless it shall become effective pursuant to the provisions of this Indenture not later than six months after the record date.

SECTION 8.02 Proof of Execution by Securityholders.

Subject to the provisions of Section 7.01, proof of the execution of any instrument by a Securityholder (such proof will not require notarization) or his agent or proxy and proof of the holding by any Person of any of the Securities shall be sufficient if made in the following manner:

- (a) The fact and date of the execution by any such Person of any instrument may be proved in any reasonable manner acceptable to the Trustee.
- (b) The ownership of Securities shall be proved by the Security Register of such Securities or by a certificate of the Security Registrar thereof.
- (c) The Trustee may require such additional proof of any matter referred to in this Section as it shall deem necessary.

SECTION 8.03 Who May be Deemed Owners.

Prior to the due presentment for registration of transfer of any Security, the Company, the Trustee, any paying agent and any Security Registrar may deem and treat the Person in whose name such Security shall be registered upon the books of the Company as the absolute owner of such Security (whether or not such Security shall be overdue and notwithstanding any notice of ownership or writing thereon made by anyone other than the Security Registrar) for the purpose of receiving payment of or on account of the principal of, premium, if any, and (subject to Section 2.03) interest on such Security and for all other purposes; and neither the Company nor the Trustee nor any paying agent nor any Security Registrar shall be affected by any notice to the contrary.

SECTION 8.04 Certain Securities Owned by Company Disregarded.

In determining whether the holders of the requisite aggregate principal amount of Securities of a particular series have concurred in any direction, consent or waiver under this Indenture, the Securities of that series that are owned by the Company or any other obligor on the Securities of that series or by any Person directly or indirectly controlling or controlled by or under common control with the Company or any other obligor on the Securities of that series shall be disregarded and deemed not to be Outstanding for the purpose of any such determination, except that for the purpose of determining whether the Trustee shall be protected in relying on any such direction, consent or waiver, only Securities of such series that the Trustee actually knows are so owned shall be so disregarded. The Securities so owned that have been pledged in good faith may be regarded as Outstanding for the purposes of this Section, if the pledgee shall establish to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not a Person directly or indirectly controlling or controlled by or under direct or indirect common control with the Company or any such other obligor. In case of a dispute as to such right, any decision by the Trustee taken upon the advice of counsel shall be full protection to the Trustee.

SECTION 8.05 Actions Binding on Future Securityholders.

At any time prior to (but not after) the evidencing to the Trustee, as provided in Section 8.01, of the taking of any action by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action, any holder of a Security of that series that is shown by the evidence to be included in the Securities the holders of which have consented to such action may, by filing written notice with the Trustee, and upon proof of holding as provided in Section 8.02, revoke such action so far as concerns such Security. Except as aforesaid any such action taken by the holder of any Security shall be conclusive and binding upon such holder and upon all future holders and owners of such Security, and of any Security issued in exchange therefor, on registration of transfer thereof or in place thereof, irrespective of whether or not any notation in regard thereto is made upon such Security. Any action taken by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action shall be conclusively binding upon the Company, the Trustee

and the holders of all the Securities of that series.

SECTION 8.06 Purposes for Which Meetings May Be Called.

A meeting of holders of any series of Securities may be called at any time and from time to time pursuant to this Article to make, give or take any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be made, given or taken by holders of such series of Securities.

Notwithstanding anything contained in this Article VIII, the Trustee may, during the pendency of a Default or an Event of Default, call a meeting of holders of any series of Securities in accordance with its standard practices.

SECTION 8.07 Call Notice and Place of Meetings.

- (a) The Trustee may at any time call a meeting of holders of any series of Securities for any purpose specified in Section 8.06 hereof, to be held at such time and at such place in The City of New York or Boston, Massachusetts. Notice of every meeting of holders of any series of Securities, setting forth the time and the place of such meeting, in general terms the action proposed to be taken at such meeting and the percentage of the principal amount of the Outstanding Securities of such series which shall constitute a quorum at such meeting, shall be given, in the manner provided in Section 13.04 hereof, not less than 21 nor more than 180 days prior to the date fixed for the meeting to holders of Outstanding Securities of such series.
- (b) In case at any time the Company, pursuant to a Board Resolution, or the holders of at least 10% in principal amount of the Outstanding Securities of any series shall have requested the Trustee to call a meeting of the holders of Securities of such series for any purpose specified in Section 8.06 hereof, by written request setting forth in reasonable detail the action proposed to be taken at the meeting, and the Trustee shall not have made the first publication of the notice of such meeting within 21 days after receipt of such request or shall not thereafter proceed to cause the meeting to be held as provided herein, then the Company or the holders of Securities of such series in the amount specified, as the case may be, may determine the time and the place in The City of New York or Boston, Massachusetts for such meeting and may call such meeting for such purposes by giving notice thereof as provided in paragraph (a) of this Section.

26

SECTION 8.08 Persons Entitled To Vote at Meetings.

To be entitled to vote at any meeting of holders of Securities of a given series, a Person shall be (a) a holder of one or more Outstanding Securities of such series or (b) a Person appointed by an instrument in writing as proxy for a holder or holders of one or more Outstanding Securities of such series by such holder or holders. The only Persons who shall be entitled to be present or to speak at any meeting of holders shall be the Persons entitled to vote at such meeting and their counsel, any representatives of the Trustee and its counsel and any representatives of the Company and its counsel.

SECTION 8.09 Quorum; Action.

The Persons entitled to vote a majority in aggregate principal amount of the Outstanding Securities of a given series shall constitute a quorum with respect to a meeting of holders of Outstanding Securities of such series. In the absence of a quorum within 30 minutes of the time appointed for any such meeting, the meeting shall, if convened at the request of holders of Securities of such series, be dissolved. In any other case, the meeting may be adjourned for a period of not less than 10 days as determined by the chairman of the meeting prior to the adjournment of such meeting. In the absence of a quorum at any such adjourned meeting, such adjourned meeting may be further adjourned for a period of not less than 10 days as determined by the chairman of the meeting prior to the adjournment of such adjourned meeting. Notice of the reconvening of any adjourned meeting shall be given as provided in Section 8.07(a) hereof, except that such notice need be given only once and not less than five days prior to the date on which the meeting is scheduled to be reconvened.

At a meeting or an adjourned meeting duly reconvened and at which a quorum is present as aforesaid, any resolution and all matters (except as limited by the proviso to the first paragraph of Section 9.02 hereof) shall be effectively passed and decided if passed or decided by the Persons entitled to vote not less than a majority in aggregate principal amount of Outstanding Securities of a series represented and voting at such meeting with respect to a meeting of holders of Outstanding Securities of such series.

Any resolution passed or decisions taken at any meeting of holders of Securities duly held in accordance with this Section shall be binding on all the holders of Securities of such series, whether or not present or represented at the meeting.

SECTION 8.10 Determination of Voting Rights; Conduct and Adjournment of Meetings.

- (a) Notwithstanding any other provisions of this Indenture, the Trustee may make such reasonable regulations as it may deem advisable for any meeting of holders of Securities in regard to proof of the holding of Securities and of the appointment of proxies and in regard to the appointment and duties of inspectors of votes, the submission and examination of proxies, certificates and other evidence of the right to vote, and such other matters concerning the conduct of the meeting as it shall deem appropriate.
- (b) The Trustee shall, by an instrument in writing, appoint a temporary chairman (which may be the Trustee) of the meeting, unless the meeting shall have been called by the Company or by holders of Securities of a given series as provided in Section 8.07(b) hereof, in which case the Company or the holders of Securities of such series calling the meeting, as the case may be, shall in like manner appoint a temporary chairman. A permanent chairman and a permanent secretary of the meeting shall be elected by vote of the Persons entitled to vote a majority in principal amount of the Outstanding Securities of such series represented at the meeting.
- (c) At any meeting, each holder of a Security of the series in respect of which such meeting is being held or proxy shall be entitled to one vote for each \$1,000 principal amount of Securities of such series held or represented by him; provided, however, that no vote shall be cast or counted at any meeting in respect of any Security of such series challenged as not Outstanding and ruled by the chairman of the meeting to be not Outstanding. The chairman of the meeting shall have no right to vote, except as a holder of a Security of such series or proxy.
- (d) Any meeting of holders of Securities duly called pursuant to Section 8.07 hereof at which a quorum is present may be adjourned from time to time by Persons entitled to vote a majority in principal amount of the Outstanding Securities of the series in respect of which such meeting is being held represented at the meeting, and the meeting may be held as so adjourned without further notice.

27

SECTION 8.11 Counting Votes and Recording Action of Meetings.

The vote upon any resolution submitted to any meeting of holders of Securities of a given series shall be by written ballots on which shall be subscribed the signatures of the holders of Securities of such series or of their representatives by proxy and the principal amounts and serial numbers of the Outstanding Securities of such series held or represented by them. The permanent chairman of the meeting shall appoint two inspectors of votes who shall count all votes cast at the meeting for or against any resolution and who shall make and file with the secretary of the meeting their verified written reports in duplicate of all votes cast at the meeting. A record, at least in duplicate, of the proceedings of each meeting of holders of Securities of such series shall be prepared by the secretary of the meeting and there shall be attached to said record the original

reports of the inspectors of votes on any vote by ballot taken thereat and affidavits by one or more Persons having knowledge of the facts setting forth a copy of the notice of the meeting and showing that said notice was given as provided in Section 8.07 hereof and, if applicable, Section 8.09 hereof. Each copy shall be signed and verified by the affidavits of the permanent chairman and secretary of the meeting and one such copy shall be delivered to the Company and another to the Trustee to be preserved by the Trustee, the latter to have attached thereto the ballots voted at the meeting. Any record so signed and verified shall be conclusive evidence of the matters therein stated.

ARTICLE IX

SUPPLEMENTAL INDENTURES

SECTION 9.01 Supplemental Indentures Without the Consent of Securityholders.

In addition to any supplemental indenture otherwise authorized by this Indenture, the Company and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect), without the consent of the Securityholders, for one or more of the following purposes:

- (a) cure any ambiguity, correct or supplement any provision herein which may be inconsistent with any other provision herein or which is otherwise defective, or make any other provisions with respect to matters or questions arising under this Indenture which the Company and the Trustee may deem necessary or desirable and which shall not be inconsistent with the provisions of this Indenture;
- (b) to comply with Article X;
- (c) to provide for uncertificated Securities in addition to or in place of certificated Securities;
- (d) to add to the covenants of the Company for the benefit of the holders of all or any Series of Securities (and if such covenants are to be for the benefit of less than all series of Securities, stating that such covenants are expressly being included solely for the benefit of such series) or to surrender any right or power herein conferred upon the Company;
- (e) to add to, delete from, or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication, and delivery of Securities, as herein set forth;
- (f) to make any change that does not adversely affect the rights of any Securityholder in any material respect;
- (g) to provide for the issuance of and establish the form and terms and conditions of the Securities of any series as provided in Section 2.01, to establish the form of any certifications required to be furnished pursuant to the terms of this Indenture or any series of Securities, or to add to the rights of the holders of any series of Securities; or
- (h) comply with the requirements of the Commission in order to effect or maintain the qualification of this Indenture under the Trust Indenture Act.

The Trustee is hereby authorized to join with the Company in the execution of any such supplemental indenture, and to make any further appropriate agreements and stipulations that may be therein contained, but the Trustee shall not be obligated to enter into any such supplemental indenture that affects the Trustee's own rights, duties or immunities under this Indenture or otherwise.

Any supplemental indenture authorized by the provisions of this Section may be executed by the Company and the Trustee without the consent of the holders of any of the Securities at the time Outstanding, notwithstanding any of the provisions of Section 9.02.

SECTION 9.02 Supplemental Indentures With Consent of Securityholders.

With the written consent of the holders of at least a majority in aggregate principal amount of the Outstanding Securities of any series or by action at a meeting of holders of the Securities of such series in accordance with Section 8.09, by the holders of a majority in aggregate principal amount of the Securities of such series then Outstanding represented at such meeting, the Company, when authorized by Board Resolutions, and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect) for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of any supplemental indenture or of modifying in any manner not covered by Section 9.01 the rights of the holders of the Securities of such series under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the holders of each Security then Outstanding and affected thereby, (i) extend the fixed maturity of any Securities of any series, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of interest thereon, or reduce any premium payable upon the redemption thereof, (ii) reduce the aforesaid percentage of Securities, the holders of which are required to consent to any such supplemental indenture, or any consent or waiver, (iii) reduce the principal amount of discount securities payable upon acceleration of the maturity of any Securities of any series or (iv) make the principal of or premium or interest on any Security of a series payable in currency or currency units other than that stated in the Securities of such series.

It shall not be necessary for the consent of the Securityholders of any series affected thereby under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such consent shall approve the substance thereof.

SECTION 9.03 Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture pursuant to the provisions of this Article or of Section 10.01, this Indenture shall, with respect to such series, be and be deemed to be modified and amended in accordance therewith and the respective rights, limitations of rights, obligations, duties and immunities under this Indenture of the Trustee, the Company and the holders of Securities of the series affected thereby shall thereafter be determined, exercised and enforced hereunder subject in all respects to such modifications and amendments, and all the terms and conditions of any such supplemental indenture shall be and be deemed to be part of the terms and conditions of this Indenture for any and all purposes.

SECTION 9.04 Securities Affected by Supplemental Indentures.

Securities of any series affected by a supplemental indenture, authenticated and delivered after the execution of such supplemental indenture pursuant to the provisions of this Article or of Section 10.01, may bear a notation in form approved by the Company, provided such form meets the requirements of any exchange upon which such series may be listed, as to any matter provided for in such supplemental indenture. If the Company shall so determine, new Securities of that series so modified as to conform, in the opinion of the Board of Directors of the Company, to any modification of this Indenture contained in any such supplemental indenture may be prepared by the Company, authenticated by the Trustee and delivered in exchange for the Securities of that series then Outstanding.

SECTION 9.05 Execution of Supplemental Indentures.

Upon the request of the Company, accompanied by its Board Resolutions authorizing the execution of any such supplemental indenture, and upon the filing with the

Trustee of evidence of the consent of Securityholders required to consent thereto as aforesaid, the Trustee shall join with the Company in the execution of such supplemental indenture unless such supplemental indenture affects the Trustee's own rights, duties or immunities under this Indenture or otherwise, in which case the Trustee may in its discretion but shall not be obligated to enter into such supplemental indenture. The Trustee, subject to the provisions of Section 7.01, may receive an Opinion of Counsel as conclusive evidence that any supplemental indenture executed pursuant to this Article is authorized or permitted by, and conforms to, the terms of this Article and that it is proper for the Trustee under the provisions of this Article to join in the execution thereof; provided, however, that such Opinion of Counsel need not be provided in connection with the execution of a supplemental indenture that establishes the terms of a series of Securities pursuant to Section 2.01 hereof.

Promptly after the execution by the Company and the Trustee of any supplemental indenture pursuant to the provisions of this Section, the Trustee shall transmit by mail, first class postage prepaid, a notice, setting forth in general terms the substance of such supplemental indenture, to the Securityholders of all series affected thereby as their names and addresses appear upon the Security Register. Any failure of the Trustee to mail such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such supplemental indenture.

ARTICLE X

SUCCESSOR ENTITY

SECTION 10.01 Company May Consolidate, Etc.

Nothing contained in this Indenture or in any of the Securities shall prevent any consolidation or merger of the Company with or into any other Person (whether or not affiliated with the Company) or successive consolidations or mergers in which the Company or its successor or successors shall be a party or parties, or shall prevent any sale, conveyance, transfer or other disposition of the property of the Company or its successor or successors as an entirety, or substantially as an entirety, to any other corporation (whether or not affiliated with the Company or its successor or successors) authorized to acquire and operate the same; provided, however, the Company hereby covenants and agrees that, upon any such consolidation or merger (in each case, if the Company is not the survivor of such transaction), sale, conveyance, transfer or other disposition, the due and punctual payment of the principal of (premium, if any) and interest on all of the Securities of all series in accordance with the terms of each series, according to their tenor and the due and punctual performance and observance of all the covenants and conditions of this Indenture with respect to each series or established with respect to such series pursuant to Section 2.01 to be kept or performed by the Company shall be expressly assumed, by supplemental indenture (which shall conform to the provisions of the Trust Indenture Act, as then in effect) satisfactory in form to the Trustee executed and delivered to the Trustee by the entity formed by such consolidation, or into which the Company shall have been merged, or by the entity which shall have acquired such property.

SECTION 10.02 Successor Entity Substituted.

- (a) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition and upon the assumption by the successor entity by supplemental indenture, executed and delivered to the Trustee and satisfactory in form to the Trustee, of the due and punctual payment of the principal of, premium, if any, and interest on all of the Securities of all series Outstanding and the due and punctual performance of all of the covenants and conditions of this Indenture or established with respect to each series of the Securities pursuant to Section 2.01 to be performed by the Company with respect to each series, such successor entity shall succeed to and be substituted for the Company with the same effect as if it had been named as the Company herein, and thereupon the predecessor corporation shall be relieved of all obligations and covenants under this Indenture and the Securities.
- (b) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition such changes in phraseology and form (but not in substance) may be made in the Securities thereafter to be issued as may be appropriate.
- (c) Nothing contained in this Article shall require any action by the Company in the case of a consolidation or merger of any Person into the Company where the Company is the survivor of such transaction, or the acquisition by the Company, by purchase or otherwise, of all or any part of the property of any other Person (whether or not affiliated with the Company).

SECTION 10.03 Evidence of Consolidation, Etc. to Trustee.

The Trustee, subject to the provisions of Section 7.01, may receive an Opinion of Counsel as conclusive evidence that any such consolidation, merger, sale, conveyance, transfer or other disposition, and any such assumption, comply with the provisions of this Article.

ARTICLE XI

SATISFACTION AND DISCHARGE

SECTION 11.01 Satisfaction and Discharge of Indenture.

If at any time: (a) the Company shall have delivered to the Trustee for cancellation all Securities of a series theretofore authenticated (other than any Securities that shall have been destroyed, lost or stolen and that shall have been replaced or paid as provided in Section 2.07) and Securities for whose payment money or Governmental Obligations have theretofore been deposited in trust or segregated and held in trust by the Company (and thereupon repaid to the Company or discharged from such trust, as provided in Section 11.05); or (b) all such Securities of a particular series not theretofore delivered to the Trustee for cancellation shall have become due and payable, or are by their terms to become due and payable within one year or are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption, and the Company shall deposit or cause to be deposited with the Trustee as trust funds the entire amount in moneys or Governmental Obligations sufficient or a combination thereof, sufficient (assuming that no tax liability will be imposed on the Trustee) in the opinion of a nationally recognized firm of independent public accountants expressed in a written certification thereof delivered to the Trustee, to pay at maturity or upon redemption all Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be, and if the Company shall also pay or cause to be paid all other sums payable hereunder with respect to such series by the Company then this Indenture shall thereupon cease to be of further effect with respect to such series except for the provisions of Sections 2.03, 2.05, 2.07, 4.01, 4.02, 4.03 and 7.10, that shall survive until the date of maturity or redemption date, as the case may be, and Sections 7.06 and 11.05, that shall survive to such date and thereafter, and the Trustee, on demand of the Company and at the cost and expense of the Company shall execute proper instruments acknowledging satisfaction of and discharging this Indenture with respect to such series.

SECTION 11.02 Discharge of Obligations.

If at any time all such Securities of a particular series not heretofore delivered to the Trustee for cancellation or that have not become due and payable as described in Section 11.01 shall have been paid by the Company by depositing irrevocably with the Trustee as trust funds moneys or an amount of Governmental Obligations sufficient to pay at maturity or upon redemption all such Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be, and if the Company shall also pay or cause to be paid all other sums payable hereunder by the Company with respect to such series, then after the date such moneys or Governmental Obligations, as the case may be, are deposited with the Trustee

the obligations of the Company under this Indenture with respect to such series shall cease to be of further effect except for the provisions of Sections 2.03, 2.05, 2.07, 4.01, 4.02, 4.03, 7.06, 7.10 and 11.05 hereof that shall survive until such Securities shall mature and be paid. Thereafter, Sections 7.06 and 11.05 shall survive.

SECTION 11.03 Deposited Moneys to be Held in Trust.

Subject to Section 11.05, all moneys or Governmental Obligations deposited with the Trustee pursuant to Sections 11.01 or 11.02 shall be held in trust and shall be available for payment as due, either directly or through any paying agent (including the Company acting as its own paying agent), to the holders of the particular series of Securities for the payment or redemption of which such moneys or Governmental Obligations have been deposited with the Trustee.

SECTION 11.04 Payment of Moneys Held by Paying Agents.

In connection with the satisfaction and discharge of this Indenture all moneys or Governmental Obligations then held by any paying agent under the provisions of this Indenture shall, upon demand of the Company, be paid to the Trustee and thereupon such paying agent shall be released from all further liability with respect to such moneys or Governmental Obligations.

31

SECTION 11.05 Repayment to Company.

Any moneys or Governmental Obligations deposited with any paying agent or the Trustee, or then held by the Company, in trust for payment of principal of or premium or interest on the Securities of a particular series that are not applied but remain unclaimed by the holders of such Securities for two years after the date upon which the principal of (and premium, if any) or interest on such Securities shall have respectively become due and payable, shall be repaid to the Company or (if then held by the Company) shall be discharged from such trust in each case, promptly after the end of any such two-year period or, at the request of the Company, on a later date specified by the Company; and thereupon the paying agent and the Trustee shall be released from all further liability with respect to such moneys or Governmental Obligations, and the holder of any of the Securities entitled to receive such payment shall thereafter, as an unsecured general creditor, look only to the Company for the payment thereof.

ARTICLE XII

IMMUNITY OF INCORPORATORS, SHAREHOLDERS, OFFICERS AND DIRECTORS

SECTION 12.01 No Recourse.

No recourse under or upon any obligation, covenant or agreement of this Indenture, or of any Security, or for any claim based thereon or otherwise in respect thereof, shall be had against any incorporator, shareholder, officer or director, past, present or future as such, of the Company or of any predecessor or successor Person, either directly or through the Company or any such predecessor or successor Person, whether by virtue of any constitution, statute or rule of law, or by the enforcement of any assessment or penalty or otherwise; it being expressly understood that this Indenture and the obligations issued hereunder are solely corporate obligations, and that no such personal liability whatever shall attach to, or is or shall be incurred by, the incorporators, shareholders, officers or directors as such, of the Company or of any predecessor or successor Person, or any of them, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom; and that any and all such personal liability of every name and nature, either at common law or in equity or by constitution or statute, of, and any and all such rights and claims against, every such incorporator, shareholder, officer or director as such, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom, are hereby expressly waived and released as a condition of, and as a consideration for, the execution of this Indenture and the issuance of such Securities.

ARTICLE XIII

MISCELLANEOUS PROVISIONS

SECTION 13.01 Effect on Successors and Assigns.

All the covenants, stipulations, promises and agreements in this Indenture contained by or on behalf of the Company shall bind its successors and assigns, whether so expressed or not.

SECTION 13.02 Actions by Successor.

Any act or proceeding by any provision of this Indenture authorized or required to be done or performed by any board, committee or officer of the Company shall and may be done and performed with like force and effect by the corresponding board, committee or officer of any corporation that shall at the time be the lawful successor of the Company.

SECTION 13.03 Surrender of Company Powers.

The Company by instrument in writing executed by authority of its Board of Directors and delivered to the Trustee may surrender any of the powers reserved to the Company, and thereupon such power so surrendered shall terminate both as to the Company and as to any successor Person.

32

SECTION 13.04 Notices.

Except as otherwise expressly provided herein any notice or demand that by any provision of this Indenture is required or permitted to be given or served by the Trustee or by the holders of Securities to or on the Company may be given or served by being deposited first class postage prepaid in a post-office letterbox addressed (until another address is filed in writing by the Company with the Trustee), as follows: TC Biopharm (Holdings) plc, Attn: [], Maxim 1, 2 Parklands Way, Holytonw, Motherwell, ML1 4WR, Scotland, United Kingdom. Any notice, election, request or demand by the Company or any Securityholder to or upon the Trustee shall be deemed to have been sufficiently given or made, for all purposes, if given or made in writing at the Corporate Trust Office of the Trustee. Any notice or communication to a holder shall be mailed by first-class mail to his address shown on the Security Register kept by the Security Registrar. Failure to mail a notice or communication to a holder or any defect in such notice or communication shall not affect its sufficiency with respect to other holders. If a notice or communication is mailed or sent in the manner provided above within the time prescribed, it is duly given as of the date it is mailed, whether or not the addressee receives it, except that notice to the Trustee or the Company shall only be effective upon receipt thereof by the Trustee or the Company, respectively. If the Company mails a notice or communication to holders of Securities, it shall mail a copy to the Trustee at the same time.

SECTION 13.05 Governing Law.

This Indenture and each Security shall be deemed to be a contract made under the internal laws of the State of New York, and for all purposes shall be construed in

accordance with the laws of said State.

SECTION 13.06 Treatment of Securities as Debt.

It is intended that the Securities will be treated as indebtedness and not as equity for U.S. federal income tax purposes. The provisions of this Indenture shall be interpreted to further this intention.

SECTION 13.07 Compliance Certificates and Opinions.

- (a) Upon any application or demand by the Company to the Trustee to take any action under any of the provisions of this Indenture, the Company, shall furnish to the Trustee an Officers' Certificate stating that all conditions precedent provided for in this Indenture relating to the proposed action have been complied with and an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent have been complied with, except that in the case of any such application or demand as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or demand, no additional certificate or opinion need be furnished.
- (b) Each certificate or opinion provided for in this Indenture and delivered to the Trustee with respect to compliance with a condition or covenant in this Indenture shall include (1) a statement that the Person making such certificate or opinion has read such covenant or condition; (2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based; (3) a statement that, in the opinion of such Person, he has made such examination or investigation as is necessary to enable him to express an informed opinion as to whether or not such covenant or condition has been complied with; and (4) a statement as to whether or not, in the opinion of such Person, such condition or covenant has been complied with.

SECTION 13.08 Payments on Business Days.

Except as provided pursuant to Section 2.01 pursuant to a Board Resolution, and as set forth in an Officers' Certificate, or established in one or more indentures supplemental to this Indenture, in any case where the date of maturity of interest or principal of any Security or the date of redemption of any Security shall not be a Business Day, then payment of interest or principal (and premium, if any) may be made on the next succeeding Business Day with the same force and effect as if made on the nominal date of maturity or redemption, and no interest shall accrue for the period after such nominal date.

SECTION 13.09 Conflict with Trust Indenture Act.

If and to the extent that any provision of this Indenture limits, qualifies or conflicts with the duties imposed by Sections 310 to 317, inclusive, of the Trust Indenture Act, such imposed duties shall control.

33

SECTION 13.10 Counterparts.

This Indenture may be executed in any number of counterparts, each of which shall be an original, but such counterparts shall together constitute but one and the same instrument.

SECTION 13.11 Separability.

In case any one or more of the provisions contained in this Indenture or in the Securities of any series shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Indenture or of such Securities, but this Indenture and such Securities shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein or therein.

SECTION 13.12 Assignment.

The Company will have the right at all times to assign any of its rights or obligations under this Indenture to a direct or indirect wholly-owned Subsidiary of the Company, provided that, in the event of any such assignment, the Company, will remain liable for all such obligations. Subject to the foregoing, this Indenture is binding upon and inures to the benefit of the parties thereto and their respective successors and assigns. This Indenture may not otherwise be assigned by the parties thereto.

ARTICLE XIV

SUBORDINATION OF SECURITIES

SECTION 14.01 Subordination Terms.

The payment by the Company of the principal of, premium, if any, and interest on any series of Securities issued hereunder shall be subordinated to the extent set forth in an indenture supplemental hereto relating to the Securities of such series.

34

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed all as of the day and year first above written.

TC BIOPHARM (HOLDINGS) PLC.

By: _____
Name: _____
Title: _____

[_____],
As Trustee

By: _____
Name: _____
Title: _____

35



27 November 2024

TC BioPharm (Holdings) plc (Company)

Maxim 1, 2 Parklands Way
Holytown
Motherwell
ML1 4WR
Scotland
United Kingdom

Dear Sir / Madam,

1 Background

- 1.1 We are lawyers qualified to practice law in Scotland. We have acted as counsel to the Company to provide this legal opinion in connection with the Company's registration statement on Form F-3, to which this opinion letter is attached as an exhibit (such registration statement, including the documents incorporated by reference therein, the "**Registration Statement**") to be filed by the Company with the United States Securities and Exchange Commission (the "**SEC**") on the date hereof pursuant to the United States Securities Act of 1933, as amended (the "**Securities Act**").
- 1.2 The Registration Statement relates to the issuance and sale by the Company from time to time of a currently indeterminate number of:
- (a) ordinary shares in the Company, each having a nominal value of £0.0001 ("**Offering Shares**");
 - (b) debt securities (the "**Debt Securities**");
 - (c) warrants;
 - (d) rights; and
 - (e) units;
- as may from time to time be offered and sold at currently indeterminate prices by the Company pursuant to the Registration Statement with the aggregate offering price not to exceed US \$100,000,000. The Offering Shares are to be offered or sold in the form of American Depositary Shares (the "**ADSs**"). Each ADS represents two hundred (200) Offering Shares. The Debt Securities are to be issued under the Indentures (as defined below), the forms of which will be filed as exhibits to the Registration Statement.
- 1.3 We understand that none of: (i) the Offering Shares; or (ii) the Debt Securities are, and are not intended to be, admitted to trading on any market or exchange, or otherwise listed, in the United Kingdom.

Addleshaw Goddard LLP, Cornerstone, 107 West Regent Street, Glasgow G2 2BA
Tel +44 (0)141 221 2300 Fax +44 (0)141 221 5800 DX GW120 Glasgow
www.addleshawgoddard.com

Addleshaw Goddard LLP is a limited liability partnership registered in England and Wales (with registered number OC318149) and is authorised and regulated by the Solicitors Regulation Authority (with authorisation number 440721) and the Law Society of Scotland. A list of members is open to inspection at our registered office, Milton Gate, 60 Chiswell Street, London EC1Y 4AG. The term partner refers to any individual who is a member of any Addleshaw Goddard entity or association or an employee or consultant with equivalent standing based on their experience and/or qualifications.

TC BioPharm (Holdings) plc

27 November 2024

- 1.4 We note that the Registration Statement includes a base prospectus (the "**Base Prospectus**") relating to the Offering Shares, the Debt Securities and the other securities listed therein as may from time to time be offered, issued and sold at currently indeterminate prices by the Company with the aggregate offering price not to exceed US \$100,000,000, which Base Prospectus may be supplemented in the future by one or more prospectus supplements.

2 Examination and Enquiries

- 2.1 For the purpose of giving this opinion letter, we have examined:
- (a) the Registration Statement;
 - (b) the Company's certificate of incorporation dated 25 October 2021 and the Company's certificate of incorporation on re-registration of a private company as a public company dated 10 January 2022;
 - (c) the Company's Articles of Association adopted on 15 February 2022 and amended on 14 November 2022;
 - (d) the resolutions of the shareholders of the Company passed at the shareholder meetings of the Company which took place on 14 January 2022, 3 February 2022, and 14 November 2022 ("**Shareholder Resolutions**");
 - (e) written resolutions of the board of directors of the Company passed on 25 November 2024 which resolved, inter alia, to approve the filing of the Registration Statement with the Securities and Exchange Commission ("**Board Resolutions**");
 - (f) the form of senior indenture filed as Exhibit 4.6 of the Registration Statement; and
 - (g) the form of subordinated indenture filed as Exhibit 4.7 to the Registration Statement (the "**Subordinated Indenture**", together with the Senior Indenture (the "**Indentures**")).

2.2 For the purpose of giving this opinion letter, we have:

- (a) on 25 November 2024 made an online search of the register kept by the Registrar of Companies (the “**Registrar**”) in respect of the Company for the purposes of identifying whether (i) the Company is subject to any formal insolvency proceedings, and (ii) any applications or orders have been registered by the Registrar for the dissolution or strike-off of the Company (the “**Company Search**”);
- (b) on 25 November 2024 made an email enquiry to the Petitions Department of the Court of Session with respect to the Company (the “**Winding-up Search**”, and together with the Company Search, the “**Searches**”).

3 Assumptions

3.1 In giving this opinion we have assumed, without further verification the completeness and accuracy of all documentation that we have reviewed. We have also relied upon the following assumptions, which we have not independently verified:

- (a) copies of documents, conformed copies or drafts of documents provided to us are true and complete copies of, or in the final forms of, the originals.
- (b) all signatures, initials, stamps, and seals are genuine;
- (c) that each of the individuals who signs as, or otherwise claims to be, an officer of the Company is the individual whom he or she claims to be and holds the office he or she claims to hold;
- (d) the accuracy and completeness of all factual representations expressed in or implied by the documents we have examined;

2

TC BIOPharm (Holdings) plc

27 November 2024

- (e) that all public records of the Company which we have examined are accurate and that the information disclosed by the Searches is true and complete and that such information has not since then been altered and that such searches did not fail to disclose any information which had been delivered for registration but did not appear on the public records at the date of our Searches;
- (f) that the general meetings at which the Shareholder Resolutions were passed were duly convened, constituted and held in accordance with all applicable laws and regulations and all constitutional and other applicable formalities were duly observed, and that the written resolutions referred to in paragraph 2.1(e) were duly passed in accordance with all applicable laws and regulations and all constitutional and other applicable formalities were duly observed; that in particular, but without limitation, a duly qualified number or quorum of (i) shareholders was present throughout the shareholder meeting and voted in favour of the resolutions, and (ii) directors voted in favour of the resolutions; and that, in the case of the written resolutions of the board of directors of the Company, each provision contained in the Companies Act 2006 and / or the then applicable articles of association of the Company relating to (x) the declaration of directors’ interests or the power of interested directors to vote, (y) the number of directors required to sign in writing, or confirm electronically, their agreement with such written resolutions, and (z) any delegation of authority to any directors, was duly observed;
- (g) that the Shareholder Resolutions and the written resolutions referred to in paragraph 2.1(e), have not been and will not be amended, rescinded or superseded and remain or will remain in full force and effect;
- (h) the Shareholder Resolutions remain in full force and effect and have not been revoked and that the following the issue of Offering Shares, and following the issued of shares pursuant to all other instruments to which the Company is party, the issued share capital of the Company shall not exceed £2,000,000 in nominal value;
- (i) the Company shall receive at least the nominal value of each Offering Share in cash in return for issuing any or all of the Offering Shares;
- (j) the Registration Statement, as finally amended, has become effective under the Securities Act and such effectiveness shall not be terminated or rescinded;
- (k) the Offering Shares will be sold or issued in accordance with a duly authorised, executed and delivered sales or similar agreement;
- (l) that each party to each of the Indentures (other than the Company) will have the capacity to enter into and deliver, and to exercise its rights and perform its obligations thereunder, will have taken all necessary corporate action to authorise that entry, delivery, exercise and performance, and will not be prohibited by any applicable law from that entry, delivery, exercise and performance;
- (m) an appropriate prospectus supplement with respect to each of: (i) the Offering Shares; and (ii) the Debt Securities, will be prepared, delivered and filed in compliance with the Securities Act and the rules and regulations thereunder prior to the allotment and/or issue of any such Offering Shares or Debt Securities;
- (n) that each of the Indentures will be duly executed by or on behalf of each party to it;
- (o) that the Debt Securities when issued will be accurately and properly completed, duly authorised, executed and delivered on behalf of the Company and authenticated, issued and paid for and registered in the register of holders of the Debt Securities maintained for this purpose, in each case in accordance with the relevant Indenture, the then operative articles of association of the Company and all applicable laws (for the avoidance of doubt, as in force at all relevant times);
- (p) that each Indenture and the Debt Securities, and the obligations created by them, constitute the legal, valid, binding and enforceable obligations of each of the parties to them under the laws by which they are expressed to be governed; and that the Indentures and the Debt Securities will remain in full force and effect at all relevant times and, in the case of the Indentures, in the form examined by us;

3

TC BIOPharm (Holdings) plc

27 November 2024

- (q) that the choice of laws by which the Indentures and the Debt Securities are expressed to be governed is valid under the chosen laws;
- (r) the directors of the Company, including any pricing committee or other appropriate committee appointed thereby, and appropriate officers of the Company have taken all necessary corporate action to approve the allotment and issue of the Offering Shares, the Debt Securities and related matters;
- (s) that the directors of the Company acted or will act in accordance with ss171 to 174 Companies Act 2006 in approving the resolutions recorded in the Board Resolutions and that all actions to be carried out by the Company pursuant to the Board Resolutions and Shareholder Resolutions are or will be in its commercial interests;

- (t) that the Debt Securities when issued will be accurately and properly completed, duly authorised, executed and delivered on behalf of the Company and authenticated, issued and paid for and registered in the register of holders of the Debt Securities maintained for this purpose, in each case in accordance with the relevant Indenture, the then operative articles of association of the Company and all applicable laws (for the avoidance of doubt, as in force at all relevant times);
- (u) the issue or sale of the Offering Shares and the Debt Securities does not violate the then operative articles of association of the Company, including without limitation, any borrowing limits or any limits on the granting of security imposed by such articles of association;
- (v) that no agreement, document or obligation to or by which the Company (or its assets) is a party or bound and no injunction or other court order against or affecting the Company (or its assets) would be breached or infringed by the matters contemplated by the performance of the actions to be carried out pursuant to, or any other aspect of, the Corporate Approvals, including without limitation the execution and delivery of the Indentures;
- (w) that (i) the information disclosed by the Searches was then complete, up to date and accurate in all respects and has not since been altered or added to, and (ii) the Searches did not fail to disclose any information relevant for the purposes of this opinion letter;
- (x) that there are no facts or circumstances (and no documents, agreements, instruments or correspondence) which are not apparent from the face of the documents listed in paragraph 2.1 or which have not been disclosed to us that may affect the validity or enforceability of the documents listed in paragraph 2.1 or any obligation therein or otherwise affect the opinions expressed in this opinion letter;
- (y) that the Company is and will at all relevant times remain in compliance with all applicable anti-corruption, anti-money laundering, anti-terrorism, sanctions, exchange controls and human rights laws and regulations;
- (z) that all consents, licences, approvals, authorisations, notices, filings and registrations that are necessary under any applicable laws or regulations in order to permit the performance of the actions to be carried out pursuant to the Corporate Approvals have been or will be duly made or obtained and are, or will be, in full force and effect;
- (aa) that each of the Indentures will be unconditionally delivered by all of the parties to it and not subject to any escrow or similar arrangement and that all conditions precedent to each Indenture becoming effective will have been met or waived;
- (bb) that there are no provisions of the laws of any jurisdiction outside Scotland that would have any implication for the opinions we express and that, insofar as the laws of any jurisdiction outside Scotland may be relevant to this opinion letter, such laws have been and will be complied with;

4

TC BIOPHarm (Holdings) plc

27 November 2024

- (cc) that all Offering Shares will be issued and allotted pursuant to the authority and power granted to the directors of the Company under the Shareholder Resolutions;
- (dd) that to the extent either the Company or any party to a sales agreement or similar agreement in entering into or performing its obligations under such agreement, is carrying on, or purporting to carry on, any relevant regulated activity in the United Kingdom, it has the appropriate authorisation to carry on that regulated activity under the Financial Services and Markets Act 2000 ("FSMA"), and any sales agreement or similar agreement was entered into, and no Offering Shares, ADSs or Debt Securities are purchased (or being purchased), as a consequence of a communication made in breach of s21(1) FSMA or of any other applicable Scottish laws or regulations relating to offers or invitations to subscribe for, or to acquire rights to subscribe for or otherwise acquire, shares or other securities;
- (ee) that the issue and allotment of the Offering Shares, ADSs or Debt Securities does not involve the making of an offer of transferable securities to the public in the United Kingdom (other than an offer falling within s86 FSMA);
- (ff) that no application has been or will be made for any Offering Shares, ADSs or Debt Securities to be listed or admitted to trading on a regulated market (which for the avoidance of doubt does not include AIM, a market operated by London Stock Exchange plc) situated or operating in the United Kingdom;
- (gg) that the Company is able to pay its debts (within the meaning of section 123 of the Insolvency Act 1986) at the time of entering into the Registration Statement, any prospectus supplement and any sales agreement or similar agreement and will not become unable to pay its debts as a result of doing so; and
- (hh) that the Company has not passed a resolution for its winding-up which is not revealed by the enquiry referred to in paragraph 2.2 or dissolution, and no proceedings have been commenced or steps taken for the winding-up of the Company or for the appointment of an administrator, an administrative receiver or receiver or manager in relation to the Company or any of its assets or revenue, and that no analogous procedure or step has been taken in any jurisdiction in relation to the Company;

4 Opinion

- 4.1 Based upon, and subject to, the foregoing assumptions and the qualifications set out in section 4 below, and having regard to such legal considerations as we consider relevant, we are of the opinion that:
 - (a) the Company is a public limited company duly incorporated under Scots law, noting that the Searches revealed no order or resolution for the winding-up of the Company and no notice of the appointment of a receiver, administrative receiver, or administrator in respect of it or any of its assets.
 - (b) the Offering Shares will, when the names of the holders of such Offering Shares are entered into the register of members of the Company and subject to the receipt by the Company in cash of the aggregate issue price in respect of all the Offering Shares (such sum being not less than the nominal value of such shares), be validly issued, fully paid and no further amount may be called thereon;
 - (c) the Company has the corporate capacity to enter into and deliver the Indentures.
- 4.2 This opinion is strictly limited to the matters expressly stated in this paragraph 4 and is not to be construed as extending by implication to any other matter.

5

TC BIOPHarm (Holdings) plc

27 November 2024

5 Qualifications

The opinions expressed above are subject to the following qualifications:

- 5.1 for the purposes of giving this opinion letter, we have only examined and relied on those documents and enquiries referred to in paragraphs 2.1 and 2.2 respectively and made the Searches. We have made no further enquiries concerning the Company of any other person or any other matter in connection with the giving of this opinion letter;
- 5.2 we have made no enquiry, and express no opinion, as to any matter of fact. As to matters of fact which are material to this opinion letter, we have relied entirely and without further enquiry on statements made in the documents listed in paragraph 2.1;
- 5.3 we express no opinion as to any agreement, instrument or other document other than as specified in this letter or as to any liability to tax which may arise or be suffered as a result of or in connection with the Registration Statement or the transactions contemplated thereby;
- 5.4 this opinion letter only applies to those facts and circumstances which exist as at today's date and we assume no obligation or responsibility to update or supplement this letter to reflect any facts or circumstances which may subsequently come to our attention, any changes in laws which may occur after today, or to inform the addressee of any change in circumstances happening after the date of this letter which would alter our opinion
- 5.5 the Company Search is not conclusively capable of revealing whether or not:
- (a) a winding-up order has been made or a resolution passed for the winding up of a company;
 - (b) an administration petition or order has been presented or made;
 - (c) a receiver, administrative receiver, administrator or liquidator has been appointed, a company voluntary arrangement proposed or approved or any other insolvency proceeding commenced;
- as notice of these matters may not be filed with the Registrar of Companies immediately and, when filed, may not be entered on the public microfiche of the relevant company immediately. In addition, the Company Search is not capable of revealing, prior to the making of the relevant order, whether or not a winding-up petition or an application for an administration order has been presented;
- 5.6 the Winding-up Search relates only to a compulsory winding-up and is not conclusively capable of revealing whether or not a winding-up petition in respect of a compulsory winding-up has been presented since details of the petition may not have been entered on the relevant records or entered on such records at all, and the response to an enquiry only relates to the period of six months prior to the date when the enquiry was made;
- 5.7 we make no comment with regard to any references to foreign law or statutes in the Registration Statement;
- 5.8 it should be understood that we have not been responsible for investigating or verifying the accuracy of the facts, including statements of foreign law, or the reasonableness of any statements of opinion, contained in the Registration Statement, or that no material facts have been omitted from it.

6 Law

- 6.1 This opinion letter and any non-contractual obligations arising out of or in connection with this opinion letter shall be governed by, and construed in accordance with, Scots law as at the date of this opinion letter. Such choice of governing law is without prejudice to the requirements of the Securities Act

6

TC BIOPharm (Holdings) plc

27 November 2024

- 6.2 This opinion letter relates only to Scots law (being for these purposes Scottish domestic law on the assumption that Scottish domestic law applies to all relevant issues and thus excluding the laws of any foreign jurisdiction to the extent that the Scottish courts might apply the same pursuant to any relevant Scottish conflict of law rule or principle) as applied by the Scottish courts as at today's date.
- 6.3 We express no opinion as to, and we have not investigated for the purposes of this opinion letter, the laws of any jurisdiction (including without limitation the laws of the European Union or the State of New York) other than Scotland. It is assumed that no foreign law which may apply to the matters contemplated by the Registration Statement, the Company, any document or any other matter contemplated by any document would or might affect this opinion letter.
- 6.4 This opinion letter takes no account of any changes in Scots law that may occur after today's date. We do not undertake or accept any obligation to update this opinion letter to reflect subsequent changes in Scots law.

7 Disclosure and reliance

- 7.1 This opinion letter is addressed to you in connection with the Registration Statement. We hereby consent to the filing of this opinion letter as an exhibit to the Registration Statement and to the reference to this firm under the caption "Legal Matters" of the prospectus contained in Part I of the Registration Statement. In giving such consent, we do not admit that we are in the category of persons whose consent is required under section 7 of the Securities Act or the Rules.
- 7.2 Other than for the purpose set out above in paragraph 7.1, this opinion letter may not be relied upon, or assigned, for any purpose, without our prior written consent, which may be granted or withheld in our discretion.
- 7.3 This opinion letter is given by Addleshaw Goddard LLP and no partner, member or employee assumes any personal responsibility for it nor shall owe any duty of care in respect of it.

Yours faithfully,



**Partner, for and on behalf of
Addleshaw Goddard LLP**

Direct line +44 (0)141 574 2371
Email murray.jack@addleshawgoddard.com



Sheppard, Mullin, Richter & Hampton LLP
 30 Rockefeller Plaza
 New York, New York 10112-0015
 212.653.8700 main
 212.653.8701 fax
 www.sheppardmullin.com

November 27, 2024

VIA ELECTRONIC MAIL

TC Biopharm (Holdings) PLC
 Maxim 1, 2 Parklands Way
 Holytown, Motherwell, ML1 4WR
 Scotland, United Kingdom

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to TC Biopharm (Holdings) PLC, a public limited company incorporated in Scotland pursuant to the Companies Act 2006, as amended (the "Company"), in connection with the Registration Statement on Form F-3 (as amended, the "Registration Statement"), filed by the Company on November 27, 2024 with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"). The Registration Statement relates to the proposed issuance and sale from time to time pursuant to Rule 415 under the Securities Act, as set forth in the Registration Statement, the prospectus contained therein (the "Base Prospectus") and one or more supplements to the Base Prospectus (each, a "Prospectus Supplement") and any free-writing prospectus(es) of up to \$100,000,000 in aggregate offering proceeds, of the following securities of the Company (collectively, the "Securities");

- ordinary shares, nominal value £0.0001 per share (the "Ordinary Shares"), represented by American Depositary Shares (the "ADSS");
- debt securities, in one or more series (the "Debt Securities"), which may be issued pursuant to an indenture to be dated on or about the date of the first issuance of Debt Securities thereunder, but which may not be guaranteed by any affiliates of the Company or any other person, by and between a trustee to be selected by the Company (the "Trustee") and the Company, in the form filed as Exhibit 4.6 or Exhibit 4.7 to the Registration Statement (the "Indenture");
- warrants to purchase Ordinary Shares represented by ADSSs, and/or Debt Securities (the "Warrants"), which may be issued under warrant agreements (each, a "Warrant Agreement"), to be dated on or about the date of the first issuance of the applicable Warrants thereunder, by and between the Company and a warrant agent to be selected by the Company (the "Warrant Agent");
- rights to purchase Ordinary Shares represented by ADSSs, and/or Debt Securities or other securities of the Company (the "Rights"), which may be issued under one or more rights agreements (each, a "Rights Agreement") to be entered into by and between the Company and a bank, trust company or other rights agent to be named therein (the "Rights Agent"); and
- units consisting of one or more Ordinary Shares represented by ADSSs, Debt Securities, and/or Warrants (the "Units"), which may be issued under unit agreements (each, a "Unit Agreement"), to be dated on or about the date of the first issuance of the applicable Units thereunder, by and between the Company and the other parties thereto (the "Unit Parties").



November 27, 2024

Page 2

We are delivering this opinion pursuant to the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act.

In connection with this opinion, we have examined and relied upon originals, or copies certified to our satisfaction, of such records, documents, certificates, opinions, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. As to certain factual matters, we have relied upon certificates of officers of the Company and have not independently sought to verify such matters.

In rendering this opinion, we have assumed (i) the genuineness and authenticity of all signatures on original documents; (ii) the authenticity of all documents submitted to us as originals; (iii) the conformity to originals of all documents submitted to us as copies; (iv) the accuracy, completeness and authenticity of certificates of public officials; (v) the due authorization, execution and delivery of all documents where authorization, execution and delivery are prerequisites to the effectiveness of such documents; (vi) that the Registration Statement and any required post-effective amendment thereto have all become effective under the Securities Act and the Base Prospectus, any and all Prospectus Supplement(s) required by applicable laws and any and all free-writing prospectus(es) related to the offer and sale of the Securities have been delivered and filed as required by such laws; (vii) that the issuance and sale of the Securities do not violate any applicable law, are in conformity with the Company's then operative Articles of Association, as amended (the "Charter"), and do not result in a default under or breach of any agreement or instrument binding upon the Company and comply with any applicable requirement or restriction imposed by any court or governmental body having jurisdiction over the Company or its properties or assets; (viii) a Prospectus Supplement will have been prepared and filed with the Commission describing the Securities offered thereby; (ix) a definitive purchase, underwriting or similar agreement with respect to any Securities offered will have been duly authorized and validly executed and delivered by the Company and the other parties thereto, as applicable; and (x) if the holders of the Debt Securities are granted rights to inspect corporate books and records and to vote in the election of directors or any matters on which stockholders of the Company may vote, such rights will be set forth in the Charter or the Charter grants to the Company's Board of Directors the power to confer such voting or inspection rights and the Company's Board of Directors will have conferred such rights. It is understood that this opinion is to be used only in connection with the offer and sale of Securities while the Registration Statement is effective under the Securities Act.



November 27, 2024

Page 3

With respect to our opinion as to the ADSSs or other Securities convertible into, exercisable for, or including ADSSs, we have been advised by the Company and for purposes of

this opinion we have assumed that, at the time of issuance and sale, a sufficient number of ADSs are authorized and available for issuance and that the consideration for the issuance and sale of the ADSs (or Debt Securities convertible into ADSs, or for Warrants or Rights exercisable for ADSs, or Units consisting of or including ADSs) is in an amount that is not less than the par value of the ADSs. We have also assumed with respect to the Debt Securities offered under the Registration Statement and the related Indenture, that such Debt Securities will be executed in the form filed as an exhibit to the Registration Statement and that the Trustee under the Indenture shall have been qualified pursuant to the Trust Indenture Act of 1939 at the time the Debt Securities are offered or issued (or such later time as may be permitted pursuant to the rules, regulations, interpretations or positions of the Commission). We have also assumed that with respect to any Securities being issued upon conversion of any convertible Debt Securities or upon exercise of any Warrants or Rights or relating to any Units, the applicable convertible Debt Securities or Warrants or Rights or Units will be valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms, except as enforcement may be limited by applicable bankruptcy, insolvency, reorganization, arrangement, moratorium or other similar laws affecting creditors' rights, and subject to general equity principles and to limitations on availability of equitable relief, including specific performance. We have also assumed with respect to the Warrants offered under the Registration Statement, that (a) such Warrants will be issued pursuant to a Warrant Agreement, (b) the Warrant Agreement will be filed either as an exhibit to an amendment to the Registration Statement to be filed after the date of this opinion or as an exhibit to a Current Report on Form 6-K to be filed after the Registration Statement has become effective, and (c) the particular terms of any series of Warrants will be set forth in a supplement to the prospectus forming a part of the Registration Statement. We have also assumed with respect to the Rights offered under the Registration Statement, that (a) such Rights will be issued pursuant to a Rights Agreement, (b) the Rights Agreement will be filed either as an exhibit to an amendment to the Registration Statement to be filed after the date of this opinion or as an exhibit to a Current Report on Form 6-K to be filed after the Registration Statement has become effective, and (c) the particular terms of any series of Rights will be set forth in a supplement to the prospectus forming a part of the Registration Statement. We have also assumed with respect to the Units offered under the Registration Statement, that (a) such Units will be issued pursuant to a Unit Agreement, (b) the Unit Agreement will be filed either as an exhibit to an amendment to the Registration Statement to be filed after the date of this opinion or as an exhibit to a Current Report on Form 6-K to be filed after the Registration Statement has become effective, and (c) the particular terms of any series of Units will be set forth in a supplement to the prospectus forming a part of the Registration Statement.

We express no opinion as to any provision of the Debt Securities that: (a) relates to the subject matter jurisdiction of any federal court of the United States of America or any federal appellate court to adjudicate any controversy related to the Debt Securities or (b) contains a waiver of an inconvenient forum. We express no opinion as to whether the laws of any jurisdiction are applicable to the subject matter hereof. We are not rendering any opinion as to compliance with any federal or state law, rule or regulation relating to securities, or to the sale or issuance thereof. We express no opinions concerning (i) the validity or enforceability of any provisions contained in Indentures that purport to waive or not give effect to rights to notices, defenses, subrogation or other rights or benefits that cannot be effectively waived under applicable law; or (ii) the validity or enforceability of any provisions contained in Warrant Agreements, Rights Agreements or Unit Agreements that purport to waive or not give effect to rights to notices, defenses, subrogation or other rights or benefits that cannot be effectively waived under applicable law.

Our opinion is limited to the laws of the State of New York. Without limiting the generality of the foregoing, we express no opinion with respect to (i) the qualification of the Ordinary Shares or ADSs under the securities or blue sky laws of any state or any foreign jurisdiction or (ii) the compliance with any federal or state law, rule or regulation relating to securities, or to the sale or issuance thereof. Various matters concerning the laws of Scotland are addressed in the opinion of Addleshaw Goodard LLP, separately provided to you.

-3-

SheppardMullin

November 27, 2024

Page 4

On the basis of the foregoing and in reliance thereon, and subject to the qualifications herein stated, we are of the opinion that:

1. With respect to any series of the Debt Securities issued under the Indenture and offered under the Registration Statement, provided that (i) the Indenture has been duly authorized by the Company and the Trustee by all necessary corporate action; (ii) the Indenture in substantially the form filed as an exhibit to the Registration Statement, has been duly executed and delivered by the Company and the Trustee; (iii) the terms of the Debt Securities and of their issuance and sale have been duly authorized by the Company by all necessary corporate action; (iv) the terms of the Debt Securities and of their issuance and sale have been duly established in conformity with the Indenture; and (v) the Debt Securities have been duly executed and delivered by the Company and authenticated by the Trustee pursuant to the Indenture and delivered against the requisite payment therefor, which the Company has received, then the Debt Securities, when issued and sold in accordance with the Indenture and as contemplated by the Registration Statement, the Base Prospectus and the related Prospectus Supplement(s), and a duly authorized, executed and delivered purchase, underwriting or similar agreement, will be valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms.

2. With respect to the Warrants issued under a Warrant Agreement and offered under the Registration Statement, provided that (i) the Warrant Agreement has been duly authorized by the Company and the Warrant Agent by all necessary corporate action; (ii) the Warrant Agreement has been duly executed and delivered by the Company and the Warrant Agent as described in the Registration Statement, the Base Prospectus and the related Prospectus Supplement(s); (iii) the issuance and terms of the Warrants have been duly authorized by the Company by all necessary corporate action; and (iv) the Warrants have been duly executed and delivered by the Company and authenticated by the Warrant Agent pursuant to the Warrant Agreement and delivered against the requisite payment therefor, which the Company has received, and assuming that the Warrants are then issued and sold as contemplated in the Registration Statement, the Base Prospectus and the Prospectus Supplement(s), then the Warrants, when issued and sold in accordance with the Warrant Agreement and a duly authorized, executed and delivered purchase, underwriting or similar agreement, will be valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms.

3. With respect to the Rights issued under a Rights Agreement and offered under the Registration Statement, provided that (i) the Rights Agreement has been duly authorized by the Company and the Rights Agent by all necessary corporate action; (ii) the Rights Agreement has been duly executed and delivered by the Company and the Rights Agent as described in the Registration Statement, the Base Prospectus and the related Prospectus Supplement(s); (iii) the issuance and terms of the Rights have been duly authorized by the Company by all necessary corporate action; and (iv) the Rights have been duly executed and delivered by the Company and authenticated by the Rights Agent pursuant to the Rights Agreement and delivered against the requisite payment therefor, which the Company has received, and assuming that the Rights are then issued and sold as contemplated in the Registration Statement, the Base Prospectus and the Prospectus Supplement(s), then the Rights, when issued and sold in accordance with the Rights Agreement and a duly authorized, executed and delivered purchase, underwriting or similar agreement, will be valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms.

4. With respect to the Units issued under a Unit Agreement and offered under the Registration Statement, provided that (i) the Unit Agreement has been duly authorized by the Company and the Unit Parties by all necessary corporate action; (ii) the Unit Agreement has been duly executed and delivered by the Company and the Unit Parties as described in the Registration Statement, the Base Prospectus and the related Prospectus Supplement(s); (iii) the issuance and terms of the Units have been duly authorized by the Company by all necessary corporate action; and (iv) the Units have been duly executed and delivered by the Company and authenticated by the Unit Parties pursuant to the Unit Agreement and delivered against the requisite payment therefor, which the Company has received, and assuming that the Units are then issued and sold as contemplated in the Registration Statement, the Base Prospectus and the Prospectus Supplement(s), then the Units, when issued and sold in accordance with the Unit Agreement and a duly authorized, executed and delivered purchase, underwriting or similar agreement, will constitute valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms.

-4-

Our opinions are subject to: (i) the effect of bankruptcy, insolvency, reorganization, preference, fraudulent transfer, moratorium or other similar laws relating to or affecting the rights and remedies of creditors; (ii) (a) the effect of general principles of equity, whether considered in a proceeding in equity or at law (including the possible unavailability of specific performance or injunctive relief), (b) concepts of materiality, reasonableness, good faith and fair dealing, and (c) the discretion of the court before which a proceeding is brought; and (iii) the invalidity under certain circumstances under law or court decisions of provisions providing for the indemnification of or contribution to a party with respect to a liability where such indemnification or contribution is contrary to public policy. We express no opinion as to (a) any provision for liquidated damages, late charges, monetary penalties, make-whole premiums or other economic remedies to the extent such provisions are deemed to constitute a penalty, (b) consents to, or restrictions upon, governing law, jurisdiction, venue, arbitration, remedies, or judicial relief, (c) waivers of rights or defenses, (d) any provision requiring the payment of attorneys' fees, where such payment is contrary to law or public policy, (e) advance waivers of claims, defenses, rights granted by law, or notice, opportunity for hearing, evidentiary requirements, statutes of limitation, trial by jury or at law, or other procedural rights, (f) waivers of broadly or vaguely stated rights, (g) provisions for exclusivity, election or cumulation of rights or remedies, (h) provisions authorizing or validating conclusive or discretionary determinations, (k) grants of setoff rights, (i) proxies, powers and trusts, (j) provisions prohibiting, restricting, or requiring consent to assignment or transfer of any right or property, (k) any provision to the extent it requires that a claim with respect to a security denominated in other than U.S. dollars (or a judgment in respect of such a claim) be converted into U.S. dollars at a rate of exchange at a particular date, to the extent applicable law otherwise provides, and (l) the severability, if invalid, of provisions to the foregoing effect.

With your consent, we have assumed (a) that each of the Warrants, Rights and Units and the applicable Warrant Agreements, Subscription Agreements and Unit Agreements governing such Securities (collectively, the "Documents") will be governed by the internal laws of the State of New York, (b) that each of the Documents has been or will be duly authorized, executed and delivered by the parties thereto, (c) that each of the Documents constitutes or will constitute legally valid and binding obligations of the parties thereto other than the Company, enforceable against each of them in accordance with their respective terms, and (d) that the status of each of the Documents as legally valid and binding obligations of the parties will not be affected by any (i) breaches of, or defaults under, agreements or instruments, (ii) violations of statutes, rules, regulations or court or governmental orders, or (iii) failures to obtain required consents, approvals or authorizations from, or to make required registrations, declarations or filings with, governmental authorities.

-5-

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. The Securities may be issued from time to time on a delayed or continuous basis, but this opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the filing of this opinion as an exhibit to the above-referenced Registration Statement and to the use of our name wherever it appears in the Registration Statement, the Base Prospectus, and any Prospectus Supplement. In giving such consent, we do not believe that we are "experts" within the meaning of such term as used in the Securities Act or the rules and regulations of the Commission issued thereunder with respect to any part of the Registration Statement, including this opinion as an exhibit or otherwise.

This opinion is expressed as of the date hereof unless otherwise expressly stated, and we disclaim any undertaking to advise you of any subsequent changes in the facts stated or assumed herein or of any subsequent changes in applicable laws.

Very truly yours,

/s/ Sheppard, Mullin, Richter & Hampton, LLP
Sheppard, Mullin, Richter & Hampton, LLP

-6-

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in this Registration Statement of TC BioPharm (Holdings) plc on Form F-3 of our report dated April 1, 2024, which includes an explanatory paragraph as to the Company's ability to continue as a going concern, with respect to our audits of the consolidated financial statements of TC BioPharm (Holdings) plc as of December 31, 2023 and 2022 and for the years ended December 31, 2023 and 2022 appearing in the Annual Report on Form 10-K of TC BioPharm (Holdings) plc for the year ended December 31, 2023. Our report on the consolidated financial statements refers to a change in reporting framework from International Financial Reporting Standards as issued by the International Accounting Standards Board to accounting principles generally accepted in the United States of America. We also consent to the reference to our firm under the heading "Experts" in the Prospectus, which is part of this Registration Statement.

/s/ Marcum llp

Marcum llp
New York, NY
November 27, 2024

Calculation of Filing Fee Tables
Form F-3
TC Biopharm (Holdings) plc
(Exact Name of Registrant as Specified in its Charter)
Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Fees to Be Paid	Equity	Ordinary Shares, par value £0.0001 per share (1)						
Fees to Be Paid	Debt	Debt Securities						
Fees to Be Paid	Equity	Warrants						
Fees to Be Paid	Equity	Rights						
Fees to Be Paid	Equity	Units						
Fees to Be Paid	Unallocated (Universal) Shelf	Unallocated (Universal) Shelf	Rule 457(o)	(2)	(3)	\$ 100,000,000(4)	0.00015310	\$ 15,310
Total Offering Amounts						\$ 100,000,000		\$ 15,310
Total Fees Previously Paid								
Total Fee Offsets								
Net Fee due								

- (1) These ordinary shares are represented by American Depositary Shares (“ADSs”), each of which represents two hundred (200) ordinary shares of the registrant. ADSs issuable on deposit of the ordinary shares registered hereby have been registered pursuant to a separate registration statement on Form F-6, as amended (File No.: 333-262149).
- (2) There are being registered hereunder such indeterminate number of the securities of each identified class being registered as may be sold by the registrant from time to time at indeterminate prices, with the maximum aggregate offering price not to exceed \$100,000,000. If any debt securities are issued at an original issue discount, then the offering price of such debt securities shall be in such greater principal amount as shall result in an aggregate offering price not to exceed \$100,000,000, less the aggregate dollar amount of all securities previously issued hereunder. Any securities registered hereunder may be sold separately or as units with other securities registered hereunder. The proposed maximum initial offering price per unit will be determined, from time to time, by the registrant in connection with the issuance by the registrant of the securities registered hereunder. The securities registered also include such indeterminate number of ordinary shares represented by ADSs and the amount of debt securities as may be issued upon conversion of or exchange for debt securities that provide for conversion or exchange, upon exercise of warrants or rights or pursuant to the anti-dilution provisions of any such securities. In addition, pursuant to Rule 416 under the Securities Act of 1933, as amended (“Securities Act”), the ordinary shares represented by ADSs being registered hereunder include such indeterminate number of ordinary shares as may be issuable with respect to the ordinary shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.
- (3) The proposed maximum aggregate offering price per unit of class of security will be determined from time to time by the registrant in connection with the issuance by the registrant of the securities registered hereunder and is not specified as to each class of security pursuant to Instructions to the Calculation of Filing Fee Tables and Related Disclosure (2)(A)(iii)(b) of Form F-3 under the Securities Act.
- (4) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act. In no event will the aggregate offering price of all securities sold by the registrant from time to time pursuant to this registration statement exceed \$100,000,000.