

COMPUGEN LTD
 Form 424B5
 February 27, 2014

The information in this prospectus supplement is not complete and may be changed. This prospectus supplement and the accompanying prospectus are not offers to sell these securities, and we are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED FEBRUARY 27, 2014

Filed Pursuant to Rule 424(b)(5)
 Registration No. 333-185910

PROSPECTUS SUPPLEMENT
 (to Prospectus dated January 16, 2013)

shares

Ordinary Shares

We are offering _____ ordinary shares. Our ordinary shares are traded on The NASDAQ Global Market and on the Tel Aviv Stock Exchange (TASE) under the symbol "CGEN." The closing sale price of our ordinary shares on The NASDAQ Global Market and on the TASE on February 26, 2014, was \$13.00 and \$13.36 per share, respectively. The currency in which our stock is traded on the TASE is the New Israeli Shekel, or NIS. The above closing price on the TASE represents a conversion from NIS to U.S. dollar amounts in accordance with the U.S. dollar - NIS conversion rate reported by the Bank of Israel as of such date.

Investing in our ordinary shares involves a high degree of risk. Please read "Risk Factors" beginning on page S-4 of this prospectus supplement and in the documents incorporated by reference into this prospectus supplement.

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

| | Per share | Total |
|--|-----------|-------|
| Public Offering Price | \$ | \$ |
| Underwriting Discounts and Commissions | \$ | \$ |
| Proceeds to Compugen, before expenses | \$ | \$ |

Delivery of the ordinary shares is expected to be made on or about March _____, 2014. We have granted the underwriters an option for a period of 30 days to purchase up to an additional _____ ordinary shares. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be \$ _____ and the total proceeds to us, before expenses, will be \$ _____.

Sole Book-Running Manager
Jefferies

JMP Securities Co-Managers
 Oppenheimer & Co. Chardan Capital Markets

Prospectus Supplement dated , 2014

TABLE OF CONTENTS

| | |
|---|------|
| Prospectus Supplement | Page |
| <u>About This Prospectus Supplement</u> | ii |
| <u>Prospectus Supplement Summary</u> | S-1 |
| <u>The Offering</u> | S-3 |
| <u>Risk Factors</u> | S-4 |
| <u>Cautionary Note Regarding Forward-Looking Statements</u> | S-4 |
| <u>Capitalization and Indebtedness</u> | S-6 |
| <u>Use of Proceeds</u> | S-7 |
| <u>Dilution</u> | S-8 |
| <u>Underwriting</u> | S-9 |
| <u>Notice to Investors</u> | S-13 |
| <u>Legal Matters</u> | S-16 |
| <u>Experts</u> | S-16 |
| <u>Expenses</u> | S-16 |
| <u>Where You Can Find More Information</u> | S-17 |
| <u>Incorporation of Certain Documents by Reference</u> | S-17 |
| Prospectus | Page |
| <u>About This Prospectus</u> | i |
| <u>Prospectus Summary</u> | 1 |
| <u>Risk Factors</u> | 3 |
| <u>Note Regarding Forward-Looking Statements</u> | 3 |
| <u>Offer Statistics and Expected Timetable</u> | 3 |
| <u>Capitalization and Indebtedness</u> | 4 |
| <u>Price Range of Our Ordinary Shares</u> | 4 |
| <u>Reasons for the Offer and Use of Proceeds</u> | 5 |
| <u>Description of Securities</u> | 6 |
| <u>Description of Ordinary Shares</u> | 6 |
| <u>Description of Debt Securities</u> | 12 |
| <u>Description of Rights</u> | 16 |
| <u>Description of Warrants</u> | 18 |
| <u>Description of Units</u> | 18 |
| <u>Plan of Distribution</u> | 18 |
| <u>Legal Matters</u> | 20 |
| <u>Experts</u> | 20 |

| | |
|--|----|
| <u>Expenses</u> | 21 |
| <u>Incorporation of Certain Information by Reference</u> | 21 |
| <u>Where You Can Find Additional Information</u> | 22 |
| <u>Enforceability of Civil Liabilities</u> | 22 |
| <u>Indemnification for Securities Act Liabilities</u> | 23 |

You should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus or any free writing prospectus that we have authorized for use in connection with this offering. Neither we nor the underwriters have authorized anyone to provide you with information different from that contained in this prospectus supplement, the accompanying prospectus or any accompanying free writing prospectus. We are offering to sell, and seeking offers to buy, ordinary shares only in jurisdictions where offers and sales are permitted. If anyone provides you with different or inconsistent information, you should not rely on it. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The information contained in this prospectus supplement, the accompanying prospectus and any accompanying free writing prospectus is accurate only as of the date of this prospectus supplement, the accompanying prospectus and any such accompanying free writing prospectus, regardless of the time of delivery of this prospectus supplement, the accompanying prospectus, any such accompanying free writing prospectus or of any sale of our ordinary shares. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections of this prospectus supplement entitled "Where You Can Find More Information" and "Incorporation of Certain Documents by Reference."

We are offering to sell, and seeking offers to buy, our ordinary shares only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement, the accompanying prospectus or any free writing prospectus and the offering of the ordinary shares in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement, the accompanying prospectus or any free writing prospectus must inform themselves about, and observe any restrictions relating to, the offering of the ordinary shares and the distribution of this prospectus supplement, the accompanying prospectus and any free writing prospectus outside the United States. This prospectus supplement, the accompanying prospectus and any free writing prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement, the accompanying prospectus or any free writing prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

About this Prospectus Supplement

On January 7, 2013, we filed with the Securities and Exchange Commission, or SEC, a registration statement on Form F-3 (File No. 333-185910) utilizing a shelf registration process relating to the securities described in this prospectus supplement, which registration statement became effective on January 16, 2013. Under this shelf registration process, we may, from time to time, sell ordinary shares and other securities, of which this offering is a part.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into the prospectus. The second part, the accompanying prospectus, gives more general information, some of which does not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined.

If the description of the offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information contained in this prospectus supplement. However, if any statement in one of these documents is inconsistent with a statement in another document having a later date — for example, a document incorporated by reference in the accompanying prospectus — the statement in the document having the later date modifies or supersedes the earlier statement.

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 the prospectus supplement or the accompanying 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.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information contained elsewhere or incorporated by reference in this prospectus supplement and the accompanying prospectus. This summary may not contain all the information that you should consider before investing in our securities. You should read the entire prospectus supplement and the accompanying prospectus carefully, including the “Risk Factors” section contained in this prospectus supplement, the accompanying prospectus, the documents incorporated herein by reference, and in any free writing prospectus that we have authorized for use in connection with this offering, before making an investment decision. This prospectus supplement may add to, update or change information contained in or incorporated by reference in the accompanying prospectus.

Unless we have indicated otherwise, or the context otherwise requires, references in this prospectus supplement to “Compugen,” “the company,” “we,” “us” and “our” refer to Compugen Ltd. and its subsidiaries.

Compugen Ltd.

Overview

We are a drug discovery and development company utilizing a broadly applicable proprietary infrastructure for the in silico (by computer) prediction and selection of human therapeutic product candidates, which are then advanced in our Pipeline Program. The initial fields of focus selected by us are monoclonal antibodies, or mAbs, and therapeutic proteins to address major unmet needs in the fields of oncology and immunology. Beginning in late 2010, we established the Pipeline Program, consisting of targets and product candidates for applications in oncology and immunology, based largely on novel immune checkpoint regulator candidates discovered by us during our first focused discovery program. Our business model includes entering into collaborations covering the further development and commercialization of product candidates at various stages from our Pipeline Program and various forms of research and discovery agreements, in both cases providing us with potential fees, research revenues, milestones, royalties and other revenue sharing payments.

Our Predictive Discovery Infrastructure

Our continuously growing discovery infrastructure, established over more than a decade of pioneering research with respect to key biological phenomena, consists of a multi-dimensional platform integrating proprietary scientific understandings and predictive models, algorithms, machine learning systems and other computational biology capabilities.

Our Initial Fields of Focus

Oncology and immunology are both areas of complex and challenging diseases with significant unmet medical needs. Therefore, these are areas of high industry interest with numerous efforts to identify novel therapeutic solutions. Our science-driven predictive capabilities are well suited for the identification of novel therapeutic candidates for these complex, multi-factorial and challenging therapeutic fields.

Our Pipeline Program

Our Pipeline Program consists of therapeutic product candidates at various stages ranging from target validation to pre-clinical studies. The aim of the Pipeline Program is to advance in our validation pipeline mAb targets and mAbs against such targets, and Fc fusion protein therapeutics, in each case discovered by us, in the fields of oncology and immunology and to further advance selected molecules beyond their animal proof of concept stage. The newly discovered candidates enter the Pipeline Program when they begin experimental evaluation following their in silico prediction and selection. These candidates then undergo in vitro and in vivo experimental validation, with selected candidates eventually being advanced toward pre-clinical, and, in selected cases, possibly future clinical activities. The experimental validation studies are conducted at our facilities, or at expert laboratories, selected specifically for each relevant field. In the case of drug targets for mAbs, target functional characterization and other validation studies, selected based on the nature of the target, confirming the target's therapeutic potential are undertaken, followed by the generation of a therapeutic mAb to be used for in vitro and in vivo proof of concept studies in disease animal models. mAb candidates, either humanized or fully-human, selected to be advanced to pre-IND studies, will then enter the stage of lead

candidate selection and optimization. For specific candidates we may choose to continue development into further clinical activities. With respect to therapeutic protein product candidates that have either been or will be successfully validated in vitro, these candidates are further advanced to in vivo proof of concept studies in disease animal models and to mechanism of action studies to explore their novel biology, followed by the selection of the final therapeutic form of the molecule to be used at later development stages.

S - 1

Bayer Collaboration

In August 2013, we entered into a Research and Development Collaboration and License Agreement with BayerPharma AG (Bayer) for the research, development, and commercialization of antibody-based therapeutics against two novel, Compugen-discovered immune checkpoint regulators in our Pipeline Program, CGEN 15001T and CGEN 15022. Under this agreement, we received an upfront payment of \$10 million, and we are eligible to receive an aggregate of over \$500 million in potential milestone payments for both programs, not including aggregate preclinical milestone payments of up to \$30 million during the research programs.

Additionally, we are eligible to receive mid- to high single digit royalties on global net sales of any approved products under the collaboration. We and Bayer will jointly pursue a preclinical research program with respect to each of the two immune checkpoint regulators. A joint steering committee consisting of representatives from each party will be responsible for overseeing and directing each such research program pursuant to an agreed upon workplan. Following each such research program, Bayer will have full control over further clinical development of any cancer therapeutic product candidates targeting the Compugen-discovered immune checkpoint regulators and will have worldwide commercialization rights for any approved products.

Corporate Information

Our legal and commercial name is Compugen Ltd. We were incorporated on February 10, 1993 as an Israeli corporation. The legislative framework within which Compugen Ltd. now operates is the Israeli Companies Law, 5759-1999, as amended (the “Companies Law”), which originally became effective on February 1, 2000, and the Israeli Companies Ordinance (New Version) 1983, as amended.

We have a wholly owned subsidiary, Compugen USA, Inc., which was incorporated in Delaware in March 1997 and is qualified to do business in California.

Our principal executive offices are located at 72 Pinchas Rosen Street, Tel Aviv, Israel 6951294. Our telephone number is +972-3-765-8585 and our website address is

www.cgen.com. The information on our website is not incorporated by reference into this prospectus, is not considered a part of this prospectus and should not be relied upon with respect to this offering.

S - 2

THE OFFERING

| | | |
|--|-------|--------------------|
| Ordinary shares offered by us: | | shares |
| Underwriters' option to purchase additional shares: | Up to | additional shares. |
| Ordinary shares to be outstanding immediately after this offering: | | shares |

Use of proceeds: We intend to use the net proceeds from this offering for development of our Pipeline Program product candidates and for other general corporate purposes, including, but not limited to, repayment of any future indebtedness, working capital, intellectual property protection and enforcement, capital expenditures, investments, acquisitions or collaborations, research and development and product development. See "Use of Proceeds" on page S-7 of this prospectus supplement.

Risk factors: Investing in our ordinary shares involves significant risks. See "Risk Factors" on page S-4 of this prospectus supplement and on page 3 of the accompanying prospectus and the documents incorporated by reference herein.

Trading markets: Our ordinary shares are traded on The NASDAQ Global Market and on the Tel Aviv Stock Exchange (TASE) under the symbol "CGEN."

The number of ordinary shares to be outstanding immediately after this offering as shown above is based on 41,407,305 shares outstanding as of February 1, 2014, and excludes as of that date:

- 6,003,051 ordinary shares issuable upon the exercise of outstanding options to purchase ordinary shares, having a weighted average exercise price of \$3.86 per share;
- 500,000 ordinary shares issuable upon the exercise of warrants at an exercise price of \$7.50 per share;
- ordinary shares potentially issuable under our funding agreement with Baize Investments (Israel) Ltd.; and
- an aggregate of 1,828,885 ordinary shares reserved for future issuance under our equity incentive plans.

Except as otherwise indicated, all information in this prospectus supplement assumes no exercise by the underwriters of their option to purchase up to an additional shares.

RISK FACTORS

An investment in our ordinary shares involves a high degree of risk. Before deciding whether to invest in our ordinary shares, you should consider carefully the risks described below and discussed under the section captioned “Item 3. – Key Information – Risk Factors” contained in our Annual Report on Form 20-F for the year ended December 31, 2013, as filed with the SEC on February 18, 2014, which is incorporated by reference in the prospectus supplement and the accompanying prospectus in their entirety, together with other information in this prospectus supplement, the accompanying prospectus, the information and documents incorporated by reference, and in any free writing prospectus that we have authorized for use in connection with this offering. If any of these risks actually occurs, our business, financial condition, results of operation or cash flow could be seriously harmed. This could cause the trading price of our ordinary shares to decline, resulting in a loss of all or part of your investment.

Risks Related to our Ordinary Shares and this Offering

Our management will have broad discretion in the use of the net proceeds we receive in this offering and might not apply the proceeds in ways that increase the value of your investment.

Our management will have broad discretion over the use of our net proceeds from this offering, and you will be relying on the judgment of our management regarding the application of these proceeds. Our management might not apply our net proceeds in ways that ultimately increase the value of your investment and we might not be able to yield a significant return, if any, on any investment of these net proceeds. Our failure to apply these funds effectively could have a material adverse effect on our business, delay the development of our products and cause the price of our ordinary shares to decline.

Investors in this offering will experience immediate and substantial dilution.

The public offering price of the shares offered pursuant to this prospectus supplement is substantially higher than the net tangible book value per share of our ordinary shares. Therefore, if you purchase securities in this offering, you will incur immediate and substantial dilution in the net tangible book value per share from the price per share that you pay. If the holders of outstanding options, warrants or other rights to acquire shares exercise those options, warrants or rights at prices below the public offering price, you will incur further dilution. See the section entitled “Dilution” herein for a more detailed discussion of the dilution associated with this offering.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

We have included or incorporated by reference into this prospectus supplement, the accompanying prospectus, the documents incorporated by reference herein and in any free writing prospectus that we have authorized for use in connection with this offering, statements that may constitute “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 Securities Exchange Act of 1934, as amended, or the Exchange Act. Forward-looking statements may be identified by words including “believe,” “anticipate,” “should,” “intend,” “plan,” “will,” “expect,” “estimate,” “project,” “positioned,” “strategy,” and expressions. Such statements are based on our management’s current expectations and involve risks and uncertainties. Our actual results and performance could differ materially from those projected in the forward-looking statements as a result of many factors, including those discussed in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference herein and in any free writing prospectus that we have authorized for use in connection with this offering. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. While we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus supplement, the accompanying prospectus, the

documents incorporated by reference herein and in any free writing prospectus that we have authorized for use in connection with this offering, we caution you that these statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain.

S - 4

In addition, you should refer to the “Risk Factors” section of this prospectus supplement and the accompanying prospectus and the documents incorporated by reference herein for a discussion of other important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. As a result of these and other factors, we cannot assure you that the forward-looking statements in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference herein or in any free writing prospectus that we have authorized for use in connection with this offering will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this prospectus supplement. You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference herein and in any free writing prospectus that we have authorized for use in connection with this offering completely and with the understanding that our actual future results may be materially different from what we expect.

We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. You are advised, however, to consult any further disclosures we make on related subjects in the reports we file with the Securities and Exchange Commission.

CAPITALIZATION AND INDEBTEDNESS

The table below sets forth our capitalization and indebtedness as of December 31, 2013:

• on an actual basis;

• on a pro forma basis to give effect to the sale and issuance of an aggregate of 363,090 ordinary shares for gross proceeds of \$3.9 million under the sales agreement with Cantor Fitzgerald & Co. since December 31, 2013; and

• on a pro forma as adjusted basis to give additional effect to the sale and issuance of _____ ordinary shares in this offering, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

| | As of December 31, 2013 | | |
|---|---|--------------|-----------------------|
| | Actual | Pro Forma | Pro Forma As Adjusted |
| | (in thousands, except share and per share data) | | |
| Indebtedness: | | | |
| Research and development funding arrangements | \$ 13,189 | \$ 13,189 | |
| Total indebtedness | 13,189 | 13,189 | |
| Shareholder's equity: | | | |
| Ordinary Shares, NIS 0.01 nominal value: 100,000,000 shares authorized; 41,002,113 shares issued and outstanding, actual; 41,365,203 shares issued and outstanding, pro forma; and _____ shares issued and outstanding, pro forma as adjusted | | | |
| | 111 | 112 | |
| Additional paid in capital | 235,351 | 239,269 | |
| Accumulated other comprehensive income | 4,628 | 4,628 | |
| Accumulated deficit | \$(208,202) | \$(208,202) | |
| Total shareholders' equity | \$31,888 | \$35,807 | |

The number of outstanding ordinary shares set forth above excludes, as of December 31, 2013:

- 6,045,153 ordinary shares issuable upon the exercise of outstanding options to purchase ordinary shares, having a weighted average exercise price of \$3.86 per share;
 - 500,000 ordinary shares issuable upon the exercise of warrants at an exercise price of \$7.50 per share;
 - ordinary shares potentially issuable under our funding agreement with Baize Investments (Israel) Ltd.; and
 - an aggregate of 1,828,885 ordinary shares reserved for future issuance under our equity incentive plans.

USE OF PROCEEDS

We expect to receive approximately \$ million in net proceeds from this offering (or approximately \$ million in net proceeds from this offering if the underwriters' option to purchase additional shares is exercised in full). "Net proceeds" is what we expect to receive after paying underwriting discounts and commissions, as described in "Underwriting" below, and other estimated offering expenses payable by us, which include legal, accounting and printing fees.

We intend to use the net proceeds from this offering for development of our Pipeline Program product candidates and for other general corporate purposes, including, but not limited to, repayment of any future indebtedness, working capital, intellectual property protection and enforcement, capital expenditures, investments, acquisitions or collaborations, research and development and product development. We have not determined the amount of net proceeds to be used specifically for the foregoing purposes. As a result, our management will have broad discretion in the allocation of the net proceeds. Pending use of the net proceeds, we intend to invest any proceeds in a variety of capital preservation instruments, including short-term, investment-grade, interest-bearing instruments.

S - 7

DILUTION

If you invest in our ordinary shares in this offering, your ownership interest will be immediately diluted to the extent of the difference between the initial public offering price per share and the net tangible book value per ordinary share after this offering. Net tangible book value per ordinary share is calculated by subtracting our total liabilities from our total tangible assets, which is total assets less intangible assets, and dividing this amount by the number of ordinary shares outstanding. Our net tangible book value as of December 31, 2013 was \$31.9 million, or \$0.78 per ordinary share. Our pro forma net tangible book value as of December 31, 2013, after giving effect to the sale and issuance of an aggregate of 363,090 ordinary shares for gross proceeds of \$3.9 million under the sales agreement with Cantor Fitzgerald & Co. since December 31, 2013, was approximately \$35.8 million, or \$0.87 per ordinary share.

After giving effect to the sale of _____ ordinary shares in this offering at a public offering price of \$ _____ per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of December 31, 2013 would have been \$ _____ million, or \$ _____ per ordinary share. This represents an immediate increase in the net tangible book value of \$ _____ per ordinary share to our existing shareholders and an immediate and substantial dilution in net tangible book value of \$ _____ per ordinary share to new investors. The following table illustrates this per share dilution:

| | | |
|---|---------|----|
| Public offering price per share | | \$ |
| Pro forma net tangible book value per share as of December 31, 2013 | \$ 0.87 | |
| Increase in pro forma net tangible book value per share attributable to new investors | | |
| Pro forma as adjusted net tangible book value per share after this offering | | |
| Net dilution per share to new investors | | \$ |

If the underwriters exercise their option to purchase additional shares in full, our pro forma as adjusted net tangible book value per ordinary share will be \$ _____ representing an immediate increase in net tangible book value per share attributable to this offering of \$ _____ to our existing investors and an immediate dilution per share to new investors in this offering of \$ _____.

The information above is based on 41,002,113 ordinary shares outstanding as of December 31, 2013, and does not include the following as of December 31, 2013:

- 6,045,153 ordinary shares issuable upon the exercise of outstanding options to purchase ordinary shares, having a weighted average exercise price of \$3.86 per share;
 - 500,000 ordinary shares issuable upon the exercise of warrants at an exercise price of \$7.50 per share;
 - _____ ordinary shares potentially issuable under our agreement with Baize Investments (Israel) Ltd.; and
 - an aggregate of 1,828,885 ordinary shares reserved for future issuance under our equity incentive plans.

To the extent that outstanding options or warrants outstanding as of December 31, 2013 have been or may be exercised, investors purchasing our securities in this offering may experience further dilution.

UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement, dated February , 2014, between us and Jefferies LLC, as the representative of the underwriters named below and the sole book-running manager of this offering, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the respective number of ordinary shares shown opposite its name below:

| Underwriter | Number of Ordinary Shares |
|------------------------------|---------------------------------|
| Jefferies LLC | |
| JMP Securities LLC | |
| Oppenheimer & Co. Inc. | |
| Chardan Capital Markets, LLC | |
| Total | |

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriting agreement provides that the underwriters will purchase all of the ordinary shares if any of them are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

The underwriters have advised us that, following the completion of this offering, they currently intend to make a market in the ordinary shares as permitted by applicable laws and regulations. However, the underwriters are not obligated to do so, and the underwriters may discontinue any market-making activities at any time without notice in their sole discretion. Accordingly, no assurance can be given as to the liquidity of the trading market for the ordinary shares, that you will be able to sell any of the ordinary shares held by you at a particular time or that the prices that you receive when you sell will be favorable.

The underwriters are offering the ordinary shares subject to their acceptance of the ordinary shares from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commission and Expenses

The underwriters have advised us that they propose to offer the ordinary shares to the public at the initial public offering price set forth on the cover page of this prospectus supplement and to certain dealers, which may include the underwriters, at that price less a concession not in excess of \$ per ordinary share. After the offering, the initial public offering price, concession and reallowance to dealers may be reduced by the representative. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus.

The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such amounts are shown

assuming both no exercise and full exercise of the underwriters' option to purchase additional ordinary shares.

S - 9

| | Per Share | | Total | |
|---|--|---|--|---|
| | Without Option to Purchase Additional Shares | With Option to Purchase Additional Shares | Without Option to Purchase Additional Shares | With Option to Purchase Additional Shares |
| Public offering price | \$ | \$ | \$ | \$ |
| Underwriting discounts and commissions paid by us | \$ | \$ | \$ | \$ |
| Proceeds to us, before expenses | \$ | \$ | \$ | \$ |

In addition, upon the closing of this offering, we will pay to Torrey Capital, or Torrey, a financial advisory fee equal to 1% of the gross proceeds we receive in this offering (the "Advisor's Fee"). Torrey is not acting as an underwriter in connection with this offering. We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions and the Advisor's Fee referred to above, will be approximately \$250,000. We have agreed to reimburse the underwriters a maximum of \$10,000 for their FINRA counsel fee. In accordance with FINRA Rule 5110, this reimbursed fee is deemed underwriting compensation for this offering. The underwriters have also agreed to reimburse us for certain of our expenses.

Listing

Our ordinary shares are listed on The NASDAQ Global Market and the Tel Aviv Stock Exchange under the trading symbol "CGEN".

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase, from time to time, in whole or in part, up to an aggregate of _____ ordinary shares from us at the public offering price set forth on the cover page of this prospectus, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to specified conditions, to purchase a number of additional ordinary shares proportionate to that underwriter's initial purchase commitment as indicated in the table above. This option may be exercised only if the underwriters sell more shares than the total number set forth on the cover page of this prospectus.

No Sales of Similar Securities

We and our officers and directors have agreed, subject to specified exceptions, not to directly or indirectly:

- sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open "put equivalent position" within the meaning of Rule 16a-1(h) under the Securities Exchange Act of 1934, as amended, or
- otherwise dispose of any ordinary shares, options or warrants to acquire ordinary shares, or securities exchangeable or exercisable for or convertible into ordinary shares currently or hereafter owned either of record or beneficially, or
- publicly announce an intention to do any of the foregoing for a period of 90 days after the date of this prospectus supplement without the prior written consent of Jefferies LLC.

This restriction terminates 90 days after the date of this prospectus supplement. However, subject to certain exceptions, in the event that either:

• during the last 17 days of the 90-day restricted period, we issue an earnings release or material news or a material event relating to us occurs, or

• prior to the expiration of the 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 90-day restricted period,

then in either case the expiration of the 90-day restricted period will be extended until the expiration of the 18-day period beginning on the date of the issuance of an earnings release or the occurrence of the material news or event, as applicable, unless Jefferies LLC waives, in writing, such an extension.

Jefferies LLC may, in its sole discretion and at any time or from time to time before the termination of the 90-day period, without public notice, release all or any portion of the securities subject to lock-up agreements. There are no existing agreements between the underwriters and any of our shareholders who will execute a lock-up agreement, providing consent to the sale of shares prior to the expiration of the lock-up period.

Stabilization

The underwriters have advised us that they, pursuant to Regulation M under the Securities Exchange Act of 1934, as amended, and certain persons participating in the offering may engage in short sale transactions, stabilizing transactions, syndicate covering transactions or the imposition of penalty bids in connection with this offering. These activities may have the effect of stabilizing or maintaining the market price of the ordinary shares at a level above that which might otherwise prevail in the open market. Establishing short sales positions may involve either "covered" short sales or "naked" short sales.

"Covered" short sales are sales made in an amount not greater than the underwriters' option to purchase additional ordinary shares in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing our ordinary shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional shares.

"Naked" short sales are sales in excess of the option to purchase additional ordinary shares. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of our ordinary shares in the open market after pricing that could adversely affect investors who purchase in this offering.

A stabilizing bid is a bid for the purchase of ordinary shares on behalf of the underwriters for the purpose of fixing or maintaining the price of the ordinary shares. A syndicate covering transaction is the bid for or the purchase of ordinary shares on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. Similar to other purchase transactions, the underwriter's purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our ordinary shares or preventing or retarding a decline in the market price of our ordinary shares. As a result, the price of our ordinary shares may be higher than the price that might otherwise exist in the open market. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the ordinary shares originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member.

S - 11

Neither we, nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our ordinary shares. The underwriters are not obligated to engage in these activities and, if commenced, any of the activities may be discontinued at any time.

The underwriters may also engage in passive market making transactions in our ordinary shares on The NASDAQ Global Market in accordance with Rule 103 of Regulation M during a period before the commencement of offers or sales of our ordinary shares in this offering and extending through the completion of distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specified purchase limits are exceeded.

Electronic Distribution

A prospectus in electronic format may be made available by e-mail or on the web sites or through online services maintained by one or more of the underwriters or their affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of ordinary shares for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than the prospectus in electronic format, the information on the underwriters' web sites and any information contained in any other web site maintained by any of the underwriters is not part of this prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors.

Other Activities and Relationships

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriters and certain of their affiliates have, from time to time, performed, and may in the future perform, various commercial and investment banking and financial advisory services for us and our affiliates, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriters and certain of their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments issued by us and our affiliates. If the underwriters or their respective affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The underwriters and their respective affiliates may hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the ordinary shares offered hereby. Any such short positions could adversely affect future trading prices of the ordinary shares offered hereby. The underwriters and certain of their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

NOTICE TO INVESTORS

Australia

This prospectus is not a disclosure document for the purposes of Australia's Corporations Act 2001 (Cth) of Australia, or Corporations Act, has not been lodged with the Australian Securities & Investments Commission and is only directed to the categories of exempt persons set out below. Accordingly, if you receive this prospectus in Australia:

You confirm and warrant that you are either:

- a "sophisticated investor" under section 708(8)(a) or (b) of the Corporations Act;
- a "sophisticated investor" under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant's certificate to the company which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made; or
- a "professional investor" within the meaning of section 708(11)(a) or (b) of the Corporations Act.

To the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor or professional investor under the Corporations Act any offer made to you under this prospectus is void and incapable of acceptance.

You warrant and agree that you will not offer any of the shares issued to you pursuant to this prospectus for resale in Australia within 12 months of those shares being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

European Economic Area

In relation to each member state of the European Economic Area which has implemented the Prospectus Directive, each referred to herein as a Relevant Member State, with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, referred to herein as the Relevant Implementation Date, no offer of any securities which are the subject of the offering contemplated by this prospectus has been or will be made to the public in that Relevant Member State other than any offer where a prospectus has been or will be published in relation to such securities that has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the relevant competent authority in that Relevant Member State in accordance with the Prospectus Directive, except that with effect from and including the Relevant Implementation Date, an offer of such securities may be made to the public in that Relevant Member State:

- to any legal entity which is a "qualified investor" as defined in the Prospectus Directive;
- to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representative of the underwriters for any such offer; or
- in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of securities shall require the Company or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to the public" in relation to any securities in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe the securities, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State and the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

Hong Kong

No securities have been offered or sold, and no securities may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32) of Hong Kong. No document, invitation or advertisement relating to the securities has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance.

This prospectus has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus may not be issued, circulated or distributed in Hong Kong, and the securities may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the securities will be required, and is deemed by the acquisition of the securities, to confirm that he is aware of the restriction on offers of the securities described in this prospectus and the relevant offering documents and that he is not acquiring, and has not been offered any securities in circumstances that contravene any such restrictions.

Israel

This document does not constitute a prospectus under the Israeli Securities Law, 5728-1968, and has not been filed with or approved by the Israel Securities Authority. Any offer of the ordinary shares in the State of Israel and this prospectus will be directed only to, and this prospectus will be distributed only to, investors listed in the first addendum, or the Addendum, to the Israeli Securities Law, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange, underwriters, venture capital funds, entities with equity in excess of NIS 50 million and "qualified individuals", each as defined in the Addendum (as it may be amended from time to time), collectively referred to as qualified investors (in each case purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified investors will be required to submit written confirmation that they fall within the scope of the Addendum before making any purchase of shares in this offering.

Japan

The offering has not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948 of Japan, as amended), or FIEL, and the Initial Purchaser will not offer or sell any securities, directly

or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means, unless otherwise provided herein, any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the FIEL and any other applicable laws, regulations and ministerial guidelines of Japan.

S - 14

Singapore

This prospectus has not been and will not be lodged or registered with the Monetary Authority of Singapore.

Accordingly, this prospectus and any other document or material in connection with the offer or sale, or the invitation for subscription or purchase of the securities may not be issued, circulated or distributed, nor may the securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to the public or any member of the public in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA, (ii) to a relevant person as defined under Section 275(2), or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions, specified in Section 275 of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of any other applicable provision of the SFA.

Where the securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- a corporation (which is not an accredited investor as defined under Section 4A of the SFA) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor,

shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for six months after that corporation or that trust has acquired the Offer Shares under Section 275 of the SFA except:

- to an institutional investor under Section 274 of the SFA or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of shares and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than \$200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions, specified in Section 275 of the SFA;
- where no consideration is given for the transfer; or
- where the transfer is by operation of law.

Switzerland

The securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This prospectus has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this prospectus nor any other offering or marketing material relating to the offering, the Company or the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this prospectus will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA, or FINMA, and the offer of securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of securities.

United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, referred to herein as the Order, and/or (ii) high net worth entities falling within Article 49(2)(a) to (d) of the Order and other persons to whom it may lawfully be communicated. Each such person is referred to herein as a Relevant Person.

This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a Relevant Person should not act or rely on this document or any of its contents.

LEGAL MATTERS

Certain legal matters with respect to the validity of the issuance of the securities offered by this prospectus supplement will be passed upon for us by Tulchinsky Stern Marciano Cohen Levitski & Co., Tel Aviv, Israel. Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts, is acting as our U.S. counsel in connection with this offering. The underwriters are being represented in connection with this offering by Goodwin Procter LLP, New York, New York, and Gornitzky & Co., Tel Aviv, Israel.

EXPERTS

The consolidated financial statements of Compugen Ltd. appearing in the Annual Report (Form 20-F) for the year ended December 31, 2013 and the effectiveness of Compugen Ltd. internal control over financial reporting as of December 31, 2013, have been audited by Kost Forer Gabbay & Kasierer, a Member of Ernst & Young Global, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such consolidated financial statements and Company management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2013 are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

EXPENSES

We estimate that the total expenses of this offering payable by us, excluding the underwriting discounts and commissions and reimbursement of underwriter expenses and the Advisor's Fee, will be approximately \$250,000 as follows:

| | |
|--|----------|
| T r a n s f e r a g e n t f e e s a n d expenses | \$ 5,000 |
| Printer fees and expenses | 10,000 |
| Legal fees and expenses | 150,000 |
| Accounting fees and expenses | 80,000 |

| | |
|---------------|------------|
| Miscellaneous | 5,000 |
| Total | \$ 250,000 |

S - 16

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement is part of a registration statement on Form F-3 that we filed with the SEC relating to the securities offered by this prospectus supplement, which includes additional information. You should refer to the registration statement and its exhibits for additional information. Whenever we make reference in this prospectus supplement to any of our contracts, agreements or other documents, the references are not necessarily complete and you should refer to the exhibits attached to the registration statement for copies of the actual contract, agreements or other document.

We are subject to the informational requirements of the Exchange Act applicable to foreign private issuers. We, as a “foreign private issuer,” are exempt from the rules under the Exchange Act prescribing certain disclosure and procedural requirements for proxy solicitations, 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, with respect to their purchases and sales of shares. In addition, we are not required to file annual, quarterly and current reports and financial statements with the SEC as frequently or as promptly as U.S. companies whose securities are registered under the Exchange Act.

You may read and copy any materials we file or furnish with the SEC at the SEC’s Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street, N.E., Washington, DC 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. You can review our SEC filings and the registration statement by accessing the SEC’s internet site at <http://www.sec.gov>.

We also maintain a website at www.cgen.com, through which you can access certain SEC filings. The information set forth on our website is not part of this prospectus supplement.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to “incorporate by reference” the information we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus supplement and information we file later with the SEC will automatically update and supersede this information. The documents we are incorporating by reference as of their respective dates of filing are:

- Annual Report on Form 20-F for the year ended December 31, 2013, filed on February 18, 2014 (File No. 000-30902);
- Reports on Form 6-K filed on January 7, 2014, January 23, 2014, February 11, 2014 and February 11, 2014; and
- the description of our ordinary shares contained in our Form 8-A filed on August 2, 2000 (File No. 000-30902).

All subsequent annual reports on Form 20-F, Form 40-F or Form 10-K filed by us, all subsequent filings on Forms 10-Q and 8-K filed by us, and all subsequent reports on Form 6-K filed by us that are identified by us as being incorporated by reference shall be deemed to be incorporated by reference into this prospectus supplement and deemed to be a part hereof after the date of this prospectus supplement but before the termination of the offering by this prospectus supplement.

Any statement contained in a document incorporated by reference herein shall be deemed to be modified or superseded for all purposes to the extent that a statement contained in this prospectus supplement, or in any other subsequently filed document which is also incorporated or deemed to be incorporated by reference, modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or

superseded, to constitute a part of this prospectus supplement.

S - 17

You may request, orally or in writing, a copy of these documents, which will be provided to you at no cost, by contacting:

Tami Fishman Jutkowitz
General Counsel
Compugen Ltd.
72 Pinchas Rosen Street
Tel Aviv, 69512 Israel
Phone: +972-3-765-8585
Fax: +972-3-765-8555

S - 18

Prospectus

\$100,000,000

Ordinary Shares
Debt Securities
Rights
Warrants
Units

We may offer and sell from time to time in one or more offerings our ordinary shares, debt securities, rights, warrants and units having an aggregate offering price up to \$100,000,000.

Each time we sell securities pursuant to this prospectus, we will provide in a supplement to this prospectus the price and any other material terms of any such offering and the securities offered. Any prospectus supplement may also add, update or change information contained in the prospectus. You should read this prospectus and any applicable prospectus supplement, as well as the documents incorporated by reference or deemed incorporated by reference into this prospectus, carefully before you invest in any securities.

Our ordinary shares are traded on The NASDAQ Capital Market and on the Tel Aviv Stock Exchange under the symbol "CGEN." The closing sale price of our ordinary shares on The NASDAQ Capital Market and on the Tel Aviv Stock Exchange Ltd. (the "TASE") on January 15, 2013, was \$5.52 and \$5.65 per share, respectively. The currency in which our stock is traded on the TASE is the New Israeli Shekel, or NIS. The above closing price on the TASE represents a conversion from NIS to dollar amounts in accordance with the dollar - NIS conversion rate as of such date.

AN INVESTMENT IN OUR SECURITIES INVOLVES RISKS. SEE THE SECTION ENTITLED "RISK FACTORS" BEGINNING ON PAGE 3.

Neither the Securities and Exchange Commission nor any state or other securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

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

The date of this prospectus is January 16, 2013

TABLE OF CONTENTS

| | |
|--|----|
| <u>ABOUT THIS PROSPECTUS</u> | i |
| <u>PROSPECTUS SUMMARY</u> | 1 |
| <u>RISK FACTORS</u> | 3 |
| <u>NOTE REGARDING FORWARD-LOOKING STATEMENTS</u> | 3 |
| <u>OFFER STATISTICS AND EXPECTED TIMETABLE</u> | 3 |
| <u>CAPITALIZATION AND INDEBTEDNESS</u> | 4 |
| <u>PRICE RANGE OF OUR ORDINARY SHARES</u> | 4 |
| <u>REASONS FOR THE OFFER AND USE OF PROCEEDS</u> | 5 |
| <u>DESCRIPTION OF SECURITIES</u> | 6 |
| <u>DESCRIPTION OF ORDINARY SHARES</u> | 6 |
| <u>DESCRIPTION OF DEBT SECURITIES</u> | 12 |
| <u>DESCRIPTION OF RIGHTS</u> | 16 |
| <u>DESCRIPTION OF WARRANTS</u> | 18 |
| <u>DESCRIPTION OF UNITS</u> | 18 |
| <u>PLAN OF DISTRIBUTION</u> | 18 |
| <u>LEGAL MATTERS</u> | 20 |
| <u>EXPERTS</u> | 20 |
| <u>EXPENSES</u> | 21 |
| <u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u> | 21 |
| <u>WHERE YOU CAN FIND ADDITIONAL INFORMATION</u> | 22 |
| <u>ENFORCEABILITY OF CIVIL LIABILITIES</u> | 22 |
| <u>INDEMNIFICATION FOR SECURITIES ACT LIABILITIES</u> | 23 |

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf registration process, we may from time to time sell ordinary shares, debt securities, rights, warrants or units, or any combination of these securities, in one or more offerings up to a total dollar amount of \$100,000,000. We have provided to you in this prospectus a general description of the securities we may offer. Each time we sell securities, we will, to the extent required by law, provide a prospectus supplement that will contain specific information about the terms of the offering. We may also add, update or change in any accompanying prospectus supplement or any free writing prospectus we may authorize to be delivered to you any of the information contained in this prospectus. To the extent there is a conflict between the information contained in this prospectus and the prospectus supplement, you should rely on the information in the prospectus supplement, provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in this prospectus or any prospectus supplement—the statement in the document having the later date modifies or supersedes the earlier statement. This prospectus, together with any accompanying prospectus supplement and any free writing prospectus we may authorize to be delivered to you, includes all material information relating to the offering of our securities.

As permitted by the rules and regulations of the SEC, the registration statement, of which this prospectus forms a part, includes additional information not contained in this prospectus. You may read the registration statement and the other reports we file with the SEC at the SEC's web site or at the SEC's offices described below under the heading "Where You Can Find Additional Information."

In this prospectus, unless otherwise stated or the context otherwise requires, references to "Compugen," "the Company," "we," "us", "our" and similar references refer to Compugen Ltd. and our subsidiaries.

i

You should rely only on the information contained or incorporated by reference in this prospectus, any accompanying prospectus supplement or any “free writing prospectus” we may authorize to be delivered to you. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. You should assume that the information appearing in this prospectus, any prospectus supplement and the documents incorporated by reference herein and therein are accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed since those dates.

Neither this prospectus nor any accompanying prospectus supplement shall constitute an offer or solicitation by anyone in any jurisdiction in which such 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.

PROSPECTUS SUMMARY

This summary highlights only some of the information included or incorporated by reference in this prospectus. You should carefully read this prospectus together with the additional information about us described in the sections entitled “Where You Can Find Additional Information” and “Incorporation of Certain Information by Reference” before purchasing our securities.

Compugen Ltd.

Compugen is a leading drug discovery company focused on therapeutic proteins and monoclonal antibodies (“mAbs”) to address important unmet needs in the fields of immunology and oncology. We utilize a broad and continuously growing integrated infrastructure of proprietary scientific understandings and predictive platforms, algorithms, machine learning systems and other computational biology capabilities for the in silico (by computer) prediction and selection of novel drug targets and drug candidates. Selected candidates are then incorporated to our Pipeline Program for in vitro and/or in vivo validation testing and preclinical drug development studies. Our business model includes collaborations covering the further development and commercialization of selected candidates from our Pipeline Program and various forms of research and discovery agreements, in both cases providing Compugen with potential milestone payments and royalties on product sales or other forms of revenue sharing. In 2012, we established operations in California to develop oncology and immunology mAb drug candidates against certain drug targets already discovered, and others expected to be discovered in the future, by the Company.

Research and Discovery

For over a decade, most of our R&D efforts were directed towards establishing a unique predictive discovery infrastructure that would enable accurate and broadly applicable in silico drug, drug target, and diagnostic candidate prediction and selection. An important aspect of our infrastructure development was the creation of our core infrastructure platforms, LEADS, MED and NexGen, which integrate our scientific understandings and predictive models. LEADS provides a comprehensive predictive view of the human transcriptome and proteome and enables the discovery of novel genes and proteins. MED provides a broad analysis of the expression levels of genes across a wide variety of tissues and disease states; and NexGen is designed to efficiently and accurately integrate and analyze a vast amount of Next Generation Sequencing data. We believe these infrastructure platforms, together with our other computational biology capabilities and platforms, now provide us with substantial advantages in the predictive discovery of potential targeted medicines. Following the establishment of an integrated “critical mass” of capabilities for predictive discovery, an increasing portion of our R&D activities has been committed to utilizing these capabilities for the discovery of such targeted medicines, while continuing to expand and enhance our discovery infrastructure.

Pipeline Program

During 2010, we broadened our approach to drug target and drug discovery, moving from a “technology driven” individual platform capability approach to a “market-need driven” approach. In this “market-need driven” approach we harness all of our relevant platforms and other capabilities towards a selected unmet need in order to predict and validate novel molecules that we believe have the highest probability of leading to successful targeted medicines for that need. At the same time we chose, as a focus for our discovery efforts, the therapeutic fields of oncology and immunology, both highly complex areas with major unmet needs. Within these fields, we elected to primarily pursue therapeutic proteins and mAbs which represent the fastest growing segment in therapeutics. Based on these changes, in late 2010 we initiated our Pipeline Program, pursuant to which we have both (i) accelerated the number of predicted and selected product candidates being evaluated by us, primarily in our fields of focus, and (ii) taken selected product candidates further beyond their proof of concept into preclinical activities.

Our first “market-need driven” discovery effort within our chosen fields of focus was aimed at the discovery of immune checkpoint regulatory proteins, and this effort has successfully yielded a significant number of such proteins which were previously unknown. In general, each of these novel immune checkpoint proteins has the potential to serve as (i) a drug target for monoclonal antibodies for cancer immunotherapy, and (ii) the basis for Fc fusion proteins for the treatment of autoimmune diseases, both areas of very high interest to the medical community and biopharma industry:

At present, among the product candidates included in our Pipeline Program are the following molecules, which are at various stages from and validation to preclinical studies:

- CGEN-15001 - a novel fusion protein which has shown potential for the treatment of autoimmune diseases;
- CGEN-15021 - a novel fusion protein which has shown potential for the treatment of autoimmune diseases;
- CGEN-15091 - a novel fusion protein which has shown potential for the treatment of multiple sclerosis;
 - CGEN-15001T - a novel mAb drug target candidate for cancer immunotherapy;
 - CGEN-15022 – a novel mAb drug target candidate for cancer immunotherapy;
 - CGEN-671 – a novel mAb drug target candidate for treatment of multiple epithelial tumors;
 - CGEN-928 – a novel mAb drug target candidate for the treatment of multiple myeloma;
 - CGEN 15092 - a novel mAb drug target candidate for cancer immunotherapy.

Consistent with the initiation of our Pipeline Program, in 2010 we began to build in-house preclinical development capabilities that would allow us to further advance our drug candidates prior to entering into collaborations for their final development and commercialization. Our initial efforts resulted in the establishment of capabilities to advance therapeutic proteins at Compugen Ltd. More recently, in March 2012, we established operations in South San Francisco, California for the development of oncology and immunology monoclonal antibody drug candidates against novel mAb drug targets discovered and validated by us.

Opportunities in Non-focus Areas

In view of the wide applicability of our predictive biology capabilities, we have in the past formed, or participated in the formation, of companies to utilize certain of these capabilities in other fields, and have entered into other arrangements for the further development and commercialization of various non-focus specific discoveries of interest, most of which resulted from our infrastructure development and validation activities. In all such cases, these arrangements provide the potential for future financial gain to Compugen without any further financial commitment for either development or commercialization from us. Two such arrangements were concluded during 2012: (i) the joint establishment of a new Israeli company, Neviah Genomics Ltd., with Merck Serono, a division of Merck, Darmstadt, Germany, in the field of toxicity biomarkers, and (ii) a financing arrangement with a United States investment company to allow the further development of Keddem Bioscience Ltd., previously a wholly owned, but inactive, subsidiary of Compugen, in the field of small molecule drugs.

Corporate Information

We were incorporated under the laws of the State of Israel on February 10, 1993 as Compugen Ltd, which is both our legal and commercial name. We have operated under the laws of the State of Israel since 1993 and in particular the Israeli Companies Ordinance (New Version) 1983, as amended, which was largely replaced by the Israeli Companies Law, 5759-1999, as amended (the “Companies Law”). Compugen Inc., a wholly owned subsidiary, was incorporated in Delaware in March 1997 and is qualified to do business in California.

Our principal executive offices are located at 72 Pinchas Rosen Street, Tel Aviv, Israel 69512. Our telephone number is +972-3-765-8585 and our website address is www.cgen.com. The information on our website is not incorporated by reference into this prospectus, is not considered a part of this prospectus and should not be relied upon with respect

to any offering.

2

RISK FACTORS

Investing in our securities involves risks. Before making an investment decision, you should carefully consider the risks described under “Risk Factors” in the applicable prospectus supplement and in our most recent Annual Report on Form 20-F, or any updates in our Reports on Form 6-K, together with all of the other information appearing in this prospectus or incorporated by reference into this prospectus and any applicable prospectus supplement, in light of your particular investment objectives and financial circumstances. The risks so described are not the only risks facing our company. Additional risks not presently known to us or that we currently deem immaterial may also impair our business operations. Our business, financial condition and results of operations could be materially adversely affected by any of these risks. The trading price of our securities could decline due to any of these risks, and you may lose part or all of your investment.

NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains, and any accompanying prospectus supplement will contain, 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 Securities Exchange Act of 1934, as amended, or the Exchange Act, and the Private Securities Litigation Reform Act of 1995. Also, documents that we incorporate by reference into this prospectus, including documents that we subsequently file with the Commission, and any “free writing prospectus” that may be provided by us, will contain forward-looking statements. Forward-looking statements are those that predict or describe future events or trends and that do not relate solely to historical matters. You can generally identify forward-looking statements as statements containing the words “may,” “will,” “could,” “should,” “might,” “expect,” “anticipate,” “objective,” “goal,” “intend,” “estimate,” “project,” “plan,” “assume” or other similar expressions, or negatives of those expressions, although not all forward-looking statements contain these identifying words. All statements contained or incorporated by reference in this prospectus and any prospectus supplement or in any “free writing prospectus” regarding our future strategy, future operations, timing of possible future events, projected financial position, proposed products, anticipated collaborations, estimated future revenues, projected costs, future prospects, the future of our industry and results that might be obtained by pursuing management’s current plans and objectives are forward-looking statements.

You should not place undue reliance on our forward-looking statements because the matters they describe are subject to certain risks, uncertainties and assumptions, including in many cases decisions or actions by third parties, that are difficult to predict. Our forward-looking statements are based on the information currently available to us and speak only as of the date on the cover of this prospectus, the date of any prospectus supplement, or, in the case of forward-looking statements incorporated by reference, the date of the filing that includes the statement. Over time, our actual results, performance or achievements may differ from those expressed or implied by our forward-looking statements, and such difference might be significant and materially adverse to our security holders. We undertake no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

We have identified some of the important factors that could cause future events to differ from our current expectations and they are described in this prospectus and supplements to this prospectus under the caption “Risk Factors,” as well as in our most recent Annual Report on Form 20-F, including without limitation under the captions “Risk Factors” and “Operating and Financial Review and Prospects,” and in other documents that we may file with the Commission, all of which you should review carefully. Please consider our forward-looking statements in light of those risks as you read this prospectus and any prospectus supplement.

OFFER STATISTICS AND EXPECTED TIMETABLE

We may sell from time to time pursuant to this prospectus (as may be detailed in prospectus supplements) an indeterminate number of securities as shall have a maximum aggregate offering price of \$100,000,000. The actual number of securities and price of the securities that we will offer pursuant hereto will depend on a number of factors that may be relevant as of the time of offer (see “Plan of Distribution” below).

CAPITALIZATION AND INDEBTEDNESS

The table below sets forth our unaudited capitalization and indebtedness as of September 30, 2012.

| | September 30, 2012 (in thousands, except share and per share data) |
|--|---|
| Indebtedness: | |
| Research and development funding arrangements | \$5,811 |
| Total Indebtedness | 5,811 |
| Shareholder's Equity: | |
| Ordinary Shares, NIS 0.01 nominal value: | |
| 100,000,000 shares authorized and 35,995,311 shares issued and outstanding (1) | 97 |
| Additional paid in capital | 202,916 |
| Accumulated other comprehensive income | 4,424 |
| Accumulated deficit | (188,746) |
| Total Shareholders' Equity | \$18,691 |

(1) Does not include as of September 30, 2012 (i) outstanding options to purchase a total of 6,592,211 ordinary shares, at a weighted average exercise price of \$3.31 per share, (ii) outstanding warrants to purchase a total of 500,000 ordinary shares at an exercise price of \$6.00 per share; (iii) 833,334 shares issuable upon the possible forfeiture by Baize of its rights to receive future research and development payments under the funding agreement entered into on December 31, 2010; and, (iv) ordinary shares issuable upon the possible forfeiture by Baize of its right to receive future research and development payments under the funding agreement entered into on December 20, 2011 and amended on July 24, 2012 and December 27, 2012.

PRICE RANGE OF OUR ORDINARY SHARES

Our ordinary shares were listed on The NASDAQ Global Market from August 15, 2000 through June 16, 2009. On June 17, 2009, we transferred the listing of our ordinary shares from The NASDAQ Global Market to The NASDAQ Capital Market. The high and low sales prices per share of our ordinary shares for the periods indicated are set forth below:

| Year Ended | High* | Low* |
|----------------------|--------|--------|
| December 31, 2008 | \$2.80 | \$0.34 |
| December 31, 2009 | \$5.86 | \$0.39 |
| December 31, 2010 | \$5.32 | \$3.04 |
| December 31, 2011 | \$5.80 | \$3.32 |
| December 31, 2012 | \$6.47 | \$2.96 |
| Quarter Ended | | |

| | | |
|--------------------|--------|--------|
| March 31, 2011 | \$5.80 | \$4.64 |
| June 30, 2011 | \$5.15 | \$3.75 |
| September 30, 2011 | \$4.67 | \$3.32 |
| December 31, 2011 | \$5.35 | \$3.78 |
| March 31, 2012 | \$6.47 | \$4.96 |
| June 30, 2012 | \$6.19 | \$3.33 |
| September 30, 2012 | \$4.50 | \$2.96 |
| December 31, 2012 | \$5.86 | \$3.53 |
| Month Ended | | |
| July 31, 2012 | \$3.99 | \$3.08 |
| August 31, 2012 | \$3.82 | \$2.96 |
| September 30, 2012 | \$4.50 | \$3.45 |
| October 31, 2012 | \$4.43 | \$3.53 |
| November 30, 2012 | \$4.60 | \$3.59 |
| December 31, 2012 | \$5.86 | \$4.50 |

On January 15, 2013, the closing price of our ordinary shares on The NASDAQ Capital Market was \$5.52.

The high and low sales prices per share of our ordinary shares on the Tel Aviv Stock Exchange for the periods indicated are set forth below. The currency in which our stock is traded on the Tel Aviv Stock Exchange is the New Israeli Shekel, or NIS. The below dollar amounts represent a conversion from NIS to dollar amounts in accordance with the dollar - NIS conversion rate as of the relevant date of trade.

| Year Ended | High* | Low* |
|--------------------|--------|--------|
| December 31, 2008 | \$2.81 | \$0.41 |
| December 31, 2009 | \$6.06 | \$0.42 |
| December 31, 2010 | \$5.64 | \$3.08 |
| December 31, 2011 | \$5.92 | \$3.27 |
| December 31, 2012 | \$6.35 | \$3.03 |
| Quarter Ended | | |
| March 31, 2011 | \$5.92 | \$4.64 |
| June 30, 2011 | \$5.21 | \$3.80 |
| September 30, 2011 | \$4.71 | \$3.27 |
| December 31, 2011 | \$5.23 | \$3.76 |
| March 31, 2012 | \$6.25 | \$4.95 |
| June 30, 2012 | \$6.35 | \$3.30 |
| September 30, 2012 | \$4.47 | \$3.03 |
| December 31, 2012 | \$5.81 | \$3.59 |
| Month Ended | | |
| July 31, 2012 | \$4.02 | \$3.18 |
| August 31, 2012 | \$3.75 | \$3.03 |
| September 30, 2012 | \$4.47 | \$3.41 |
| October 31, 2012 | \$4.38 | \$3.59 |
| November 30, 2012 | \$4.66 | \$3.62 |
| December 31, 2012 | \$5.81 | \$4.57 |

On January 15, 2013, the closing price of our ordinary shares on the Tel-Aviv Stock Exchange was \$5.65.

REASONS FOR THE OFFER AND USE OF PROCEEDS

We cannot assure you that we will receive any proceeds in connection with securities offered pursuant to this prospectus. Unless otherwise indicated in the applicable prospectus supplement, we intend to use any net proceeds from any sale of securities under this prospectus for our operations and for other general corporate purposes, including, but not limited to, repayment or refinancing of indebtedness or other corporate borrowings, working capital, intellectual property protection and enforcement, capital expenditures, investments, acquisitions or collaborations, research and development and product development. We may set forth additional information on the use of proceeds from the sale of securities we may offer under this prospectus in a prospectus supplement relating to the specific offering. We have not determined the amount of any net proceeds to be used specifically for the foregoing purposes. As a result, our management will have broad discretion in the allocation of any net proceeds. Pending their use, we would expect to invest any proceeds in a variety of capital preservation instruments, including short-term, investment-grade, interest-bearing instruments.

DESCRIPTION OF SECURITIES

Under this prospectus, we may sell from time to time, in one or more offerings, ordinary shares, debt securities, rights, warrants to purchase any such securities and units. In this prospectus, we refer to all of the preceding collectively as “securities”. The total dollar amount of all securities that we may issue under this prospectus will not exceed \$100,000,000.

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplements, summarize the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we so indicate in the applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below.

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

DESCRIPTION OF ORDINARY SHARES

Our authorized share capital consists of 100,000,000 ordinary shares, par value NIS 0.01 per share. As of January 4, 2013, 36,608,779 ordinary shares were issued and outstanding. As of January 4, 2013, there were approximately 72 shareholders of record of our ordinary shares. Holders of ordinary shares have one vote per share, and are entitled to participate equally in the payment of dividends and share distributions and, in the event of our liquidation, in the distribution of assets after satisfaction of liabilities to creditors. No preferred shares are currently authorized. All outstanding ordinary shares are validly issued and fully paid.

Transfer of Shares

Fully paid ordinary shares of the Company are issued in registered form and may be freely transferred under our Articles of Association unless the transfer is restricted or prohibited by another instrument or by applicable securities law.

Voting Rights

Our ordinary shares do not have cumulative voting rights in the election of directors. As a result, the holders of the majority of the shares present and voting at a shareholders meeting generally have the power to elect all of our directors, except the external directors whose election requires a special majority as required under the Companies Law.

Subject to the provisions of our Articles of Association, holders of our ordinary shares have one vote for each ordinary share held by such shareholder on all matters submitted to a vote of shareholders. Shareholders may vote in person, by proxy or by proxy card. These voting rights may be affected by the grant of any special voting rights to the holders of a class of shares with preferential rights that may be authorized in the future.

Under the Companies Law, unless otherwise provided in the articles of association or by applicable law, all resolutions of the shareholders require a simple majority. Pursuant to the Companies Law and regulations promulgated thereunder shareholders' meetings generally require prior notice of not less than 21 days. Our Articles of Association provide that, except with respect to matters which require the approval of a special majority under the Companies Law, all resolutions of the shareholders shall be deemed adopted if approved by the holders of a simple majority of the voting power represented at the meeting, in person, by proxy or by proxy card, and voting thereon.

Annual and Special General Meetings

Our annual general meeting is held once in every calendar year at such time (within a period of not more than 15 months after the last preceding annual general meeting), at a time and place determined by our board of directors. The board of directors may, in its discretion, convene additional shareholder meetings and, pursuant to the Companies Law, must convene a meeting upon the demand of two directors or one quarter of the directors in office or upon the demand of the holder or holders of five percent of the Company's issued share capital and one percent of its voting rights or upon the demand of the holder or holders of five percent of the Company's voting rights. Pursuant to the Companies Law, the holder or holders of one percent of the Company's voting rights may request the inclusion of an item on the agenda of a future shareholder meeting, provided the item is appropriate for discussion at a shareholder meeting. The agenda for a shareholder meeting is determined by the board of directors and must include matters in respect of which the convening of a shareholder meeting was demanded and any matter requested to be included by holder(s) of one percent of the Company's voting rights, as detailed above.

Pursuant to our Articles, the quorum required for a meeting of shareholders consists of at least two shareholders, present in person or by proxy or by proxy card and holding shares conferring in the aggregate 33.3% or more of the voting power of our Company. If within an hour from the time appointed for the meeting a quorum is not present, the meeting, if convened upon the requisition of shareholders or upon the demand of less than 50% of the directors then in office as detailed above, shall be dissolved, but in any other case it shall stand adjourned to the same day in the following week at the same time and place or any time and place as the chairman may determine with the consent of the holders of a majority of the voting power represented at the meeting in person or by proxy and voting on the question of adjournment. At the adjourned meeting, the required quorum consists of any two shareholders present, in person, by proxy or by proxy card.

Limitations on the Rights to Own Securities

Our Articles and Israeli law do not restrict the ownership or voting of ordinary shares by non-residents or persons who are not citizens of Israel except with respect of nationals of countries which are in a state of war with the State of Israel.

Approval of Certain Transactions

An “office holder” is defined in the Companies Law as a managing director, chief executive officer, executive vice president, vice president, any other person fulfilling or assuming any of the foregoing positions without regard to such person’s title, as well as a director or a manager directly subordinate to the managing director.

Fiduciary Duties of Office Holders

The Companies Law imposes on all office holders of a company fiduciary duties which consist of a duty of care and a duty of loyalty. The duty of care requires an office holder to act with the standard of skills with which a reasonable office holder in the same position would have acted under the same circumstances.

The duty of care includes a duty to use reasonable means to obtain: (i) information regarding the business advisability of a given action brought for the office holder’s approval or performed by the office holder by virtue of his or her position; and (ii) all other information of importance pertaining to the aforesaid actions.

The duty of loyalty requires an office holder to act in good faith and for the benefit of the company and includes the duty to: (i) refrain from any act involving a conflict of interest between the fulfillment of his or her position in the company and the fulfillment of any other position or his or her personal affairs; (ii) refrain from any act that is competitive with the business of the company; (iii) refrain from exploiting any business opportunity of the company with the aim of obtaining a personal gain for himself or herself or for others, and (iv) disclose to the company all information and provide it with all documents relating to the company's affairs which the office holder obtained due to his or her position in the company.

Approval of Related Party Transactions

The Companies Law requires that transactions between a company and its office holders or that benefit its office holders be approved as provided for in the Companies Law and the company’s articles of association. The approval of a majority of the disinterested members of the audit committee and of the board of directors is generally required and, in some circumstances, shareholder approval may also be required.

Pursuant to a recent amendment to the Companies Law, which became effective on December 12, 2012, the Companies Law further requires that any arrangement between a company and an office holder as to such office

holder's terms of office and employment, including the grant of exculpation, indemnification or insurance, any grant, payment, remuneration, compensation, or other benefit provided in affiliation to such office holder's termination of service, and any benefit, other payment or undertaking to provide any such payment, be approved as provided for in the Companies Law and the company's articles of association and generally requires the approval of the compensation committee and the board of directors and, in some circumstances, shareholder approval may also be required.

7

Disclosure by Office Holders

The Companies Law requires that an office holder of a company promptly disclose to the company any personal interest that the office holder may have in an existing or proposed transaction by the company. The office holder must also disclose related material information and documents that the office holder has about the existing or proposed transaction. The office holder must further disclose the interests of any entity in which he or she is a 5% or greater shareholder, director or general manager, or in which the office holder has the power to appoint one or more directors or the general manager. If the transaction is an extraordinary transaction, the office holder must also disclose any personal interest of his or her spouse, siblings, parents, grandparents, descendants, spouse's descendants, siblings and parents and the spouses of any of these people. This disclosure must be made no later than the first meeting of the board of directors at which the transaction is discussed. The disclosure is made to the board of directors and to the audit committee if it must approve the transaction. In those circumstances in which shareholder approval is also required, shareholders have the right to review any documents in the company's possession related to the proposed transaction. However, the company may prohibit a shareholder from reviewing the documents if the company believes the request was made in bad faith, the documents include trade secrets or patents or their disclosure could otherwise harm the company's interests.

After the office holder complies with these disclosure requirements, the company may approve the transaction under the provisions of applicable law and its articles of association. If the transaction is with an office holder or with a third party in which the office holder has a personal interest, the approval must confirm that the transaction is not adverse to the company's interest. If the transaction is an extraordinary transaction, it must be approved as required by the articles of association and must also be approved by the audit committee and the board of directors. An extraordinary transaction is a transaction: (i) other than in the ordinary course of business; (ii) on terms other than on market terms; or (iii) that is likely to have a material impact on the company's profitability, assets or liabilities

In some circumstances, shareholder approval is required. A person with a personal interest in any matter may not generally be present at any audit committee or board of directors meeting where the matter is being considered, and if a member of the committee or a director, may not generally vote on the matter. Although the Companies Law does not apply this limitation on participation on discussions at the compensation committee, the Company intends, as part of its good corporate governance practice, to adopt similar limitations with respect to the discussions of its compensation committee.

Transactions with controlling shareholders

The Companies Law extends the disclosure requirements applicable to an office holder to a controlling shareholder in a public company. A shareholder that holds 25% or more of the voting rights in a company would be considered a controlling shareholder for the purposes of these disclosure requirements if no other shareholder holds more than 50% of the voting rights. If two or more shareholders are interested parties in the same transaction, their shareholdings are combined for the purposes of calculating percentages. Extraordinary transactions of a public company with a controlling shareholder or in which a controlling shareholder has a personal interest, as well as any engagement by a public company of a controlling shareholder or of such controlling shareholder's relative, directly or indirectly, with respect to the provision of services to the company, and, if such person is also an office holder of such company, with respect to such person's terms of service and employment as an office holder, and if such person is an employee of the company but not an office holder, with respect to such person's employment by the company, generally require the approval of the audit committee (or with respect to terms of office and employment - the compensation committee), the board of directors and the shareholders of the company. If required, shareholder approval must include at least a majority of the shareholders who do not have a personal interest in the transaction and are present and voting at the meeting. Alternatively, the total shareholdings of the disinterested shareholders who vote against the transaction must not represent more than two percent of the voting rights in the company. The Israeli Minister of Justice may determine

a different percentage. Transactions that are for a period of more than three years generally need to be brought for approval in accordance with the above procedure every three years.

Under the Companies Law, a shareholder of an Israeli company has a duty to act in good faith towards the company and other shareholders and refrain from abusing his, her or its power in the company, including, among other things, in voting at the general meeting of shareholders on certain matters. Israeli law provides that these duties are applicable to shareholder votes on, among other things,:

- amendments to a company's Articles of Association;
- increases in a company's authorized share capital;
- mergers; and
- interested party transactions requiring shareholder approval.

In addition a shareholder who knows that it possesses the power to determine the outcome of a shareholders' vote or to appoint or prevent the appointment of an office holder, has a duty of fairness towards the company. However, Israeli law does not define the substance of this duty of fairness. Because Israeli corporate law has undergone extensive revisions in recent years, there is little case law available to assist in understanding the implications of these provisions that govern shareholder behavior.

Dividend and Liquidation Rights

Our Articles of Association provide that our board of directors, may, subject to the applicable provisions of the Companies Law, from time to time, declare and cause the Company to pay such dividends as may appear to the board of directors to be justified by the profits of our Company. Subject to the rights of the holders of shares with preferential special or deferred rights that may be authorized in the future, holders of ordinary shares are entitled to receive dividends according to their rights and interests in our profits. Dividends, to the extent declared, are distributed according to the proportion of the nominal (par) value paid up on account of the shares held at the date so appointed by the Company, without regard to the premium paid in excess of the nominal (par) value, if any. Under the Companies Law, a company may distribute a dividend only if the distribution does not create a reasonable concern that the company will be unable to meet its existing and anticipated obligations as they become due. A company may only distribute a dividend out of its profits, as defined under the Companies Law. If the company does not meet the profit requirement, a court may nevertheless allow the company to distribute a dividend, as long as the court is convinced that there is no reasonable concern that such distribution might prevent the company from being able to meet its existing and anticipated obligations as they become due. However, pursuant to our Articles of Association, no dividend shall be paid otherwise than out of the profits of the company. Under the Companies Law, the declaration of a dividend does not require the approval of the shareholders of the company, unless the company's Articles of Association require otherwise. Our Articles of Association provide that the board of directors may declare and distribute dividends without the approval of the shareholders. In the event of our liquidation, winding up or dissolution, subject to applicable law, after satisfaction of liabilities to creditors, our assets available for distribution among the shareholders shall be distributed to the holders of our ordinary shares in proportion to the nominal value of their shareholdings. This right may be affected by the grant of preferential dividends or distribution rights to the holders of a class of shares with preferential rights that may be authorized in the future. Pursuant to Israel's securities laws, a company registering its shares for trade on the Tel Aviv Stock Exchange may not have more than one class of shares for a period of one year following registration, after which it is permitted to issue shares having preferred rights to receive divide. To date, we have not declared or distributed any dividend.

Anti-Takeover Provisions under Israeli Law

Under the Companies Law, a merger is generally required to be approved by the shareholders and board of directors of each of the merging companies. If the share capital of the company that will not be the surviving company is divided into different classes of shares, the approval of each class is also required, unless determined otherwise by the court. Similarly, unless an Israeli court determines otherwise, a merger will not be approved if it is objected to by shareholders holding a majority of the voting rights participating and voting at the meeting, after excluding the shares held by the other party to the merger, by any person who holds 25% or more of the other party to the merger or by anyone on their behalf, including by the relatives of or corporations controlled by these persons. In addition, upon the request of a creditor of either party to the proposed merger, an Israeli court may delay or prevent the merger if it concludes that there exists a reasonable concern that, as a result of the merger, the surviving company will be unable to satisfy the obligations of any of the parties to the merger. Further, a merger can be completed only after all approvals have been submitted to the Israeli Companies Registrar and 30 days have passed from the time that shareholder resolutions were adopted in each of the merging companies and 50 days have passed from the time that a proposal for approval of the merger was filed with the Israeli Companies Registrar. In addition, subject to certain exceptions, an acquisition of shares in a public company must be made by means of a tender offer to the extent that as a result of such acquisition the acquirer will hold 25% or more of the voting rights in the company if there is no other holder of 25% or more of the company's voting rights, or hold more than 45% of the voting rights in the company if there is no other holder of more than 45% of the company's voting rights. These tender offer requirements do not apply to companies whose shares are listed for trading outside of Israel if, under local law or the rules of the stock exchange on which their shares are traded, there is a limitation on the percentage of control which may be acquired or the purchaser is required to make a tender offer to the public.

Under the Companies Law, a person may not acquire shares in a public company if, after the acquisition, he will hold more than 90% of the shares or more than 90% of any class of shares of that company, unless a tender offer is made to purchase all of the shares or all of the shares of the particular class. The Companies Law also provides (subject to certain exceptions with respect to shareholders who held more than 90% of a company's shares or of a class of its shares as of February 1, 2000) that as long as a shareholder in a public company holds more than 90% of the company's shares or of a class of shares, that shareholder shall be precluded from purchasing any additional shares. In order that all of the shares that the purchaser offered to purchase be transferred to him by operation of law, one of the following needs to have occurred: (i) the shareholders who declined or did not respond to the tender offer hold less than 5% of the company's outstanding share capital or of the relevant class of shares and the majority of offerees who do not have a personal interest in accepting the tender offer accepted the offer, or (ii) the shareholders who declined or did not respond to the tender offer hold less than 2% of the company's outstanding share capital or of the relevant class of shares

A shareholder that had his or her shares so transferred, whether he or she accepted the tender offer or not, has the right, within six months from the date of acceptance of the tender offer, to petition the court to determine that the tender offer was for less than fair value and that the fair value should be paid as determined by the court. However, the purchaser may provide in its offer that shareholders who accept the tender offer will not be entitled to such right.

If the conditions set forth above are not met, the purchaser may not acquire additional shares of the company from shareholders who accepted the tender offer to the extent that following such acquisition, the purchaser would own more than 90% of the company's shares or of a class of shares. The above restrictions apply, in addition to the acquisition of shares, to the acquisition of voting power.

In addition, Israeli tax law treats some acquisitions, including stock-for-stock swaps between an Israeli company and a foreign company, less favorably than U.S. tax law. Israeli tax law may, for instance, subject a shareholder who exchanges ordinary shares for shares in a non-Israeli corporation to immediate taxation.

Transfer Agent and Registrar

The transfer agent and registrar for our ordinary shares is American Stock Transfer & Trust Company, LLC.

The NASDAQ Capital Market and the TASE

Our ordinary shares are listed on The NASDAQ Capital Market and the TASE under the symbol "CGEN".

Warrants

As of January 4, 2013, we had the following warrants outstanding:

- Warrants issued to Baize Investments (Israel) Ltd. ("Baize"). In connection with a funding agreement we entered into on December 29, 2010, we issued to Baize warrants to purchase 500,000 ordinary shares at an exercise price of \$6.00 per share through June 30, 2013.

Share History

The following is a summary of the history of our share capital for the last three years.

Ordinary Share Issuances

- Stock Options. Since January 1, 2010, we have issued 2,540,198 ordinary shares upon the exercise of stock options.
- Cantor Sales Agreement. On August 30, 2011, we entered into a sales agreement with Cantor Fitzgerald & Co pursuant to an effective shelf registration filed on Form F-3 (File No. 333-171655) filed with the SEC on January 11, 2011 and declared effective on January 21, 2011. The sales agreement with Cantor (the “Cantor Sales Agreement”) enables us to offer and sell an aggregate of up to 6,000,000 of our ordinary shares, from time to time through Cantor Fitzgerald & Co., as our sales agent. The gross proceeds from all sales made pursuant to the Cantor Sales Agreement may not exceed \$40 million in the aggregate as per the above mentioned registration statement. Sales of our ordinary shares under the registration statement and the accompanying prospectus are made in sales deemed to be “at-the-market” equity offerings as defined in Rule 415 promulgated under the Securities Act of 1933, as amended. Cantor Fitzgerald & Co. is entitled to receive a commission rate of 3.0% of gross sales in connection with the sale of our ordinary shares on our behalf. No sales were made under the registration statement prior to January 10, 2012. During the period from January 10, 2012 to January 4, 2013, we sold through the Cantor Sales Agreement an aggregate of 1,200,669 of our ordinary shares, and received gross proceeds of approximately \$6.7 million, before deducting issuance expenses. The average sale price of shares sold through the Cantor Sales Agreement was \$5.54

Authorized Share Capital

On April 15, 2010 our shareholders approved an increase to our authorized share capital of NIS 500,000, divided into 50,000,000 ordinary shares with a par (nominal) value of NIS 0.01 each. Following such increase, our authorized share capital is NIS 1,000,000 divided into 100,000,000 ordinary shares with a par (nominal) value of NIS 0.01 each.

DESCRIPTION OF DEBT SECURITIES

The following description, together with the additional information we include in any applicable prospectus supplement, 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, 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 we offer under that prospectus supplement may differ from the terms we describe below.

We will issue senior notes under a senior indenture that we will enter into with a trustee to be named in the senior indenture. We will issue subordinated notes under a subordinated indenture that 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 forms a part. We will describe changes to the indentures in connection with an offering of debt securities in a prospectus supplement. We use the term “indentures” to refer to both the senior indenture and the subordinated indenture. The indentures will be qualified under the Trust Indenture Act of 1939, or the Trust Indenture Act. We use the term “trustee” to refer to either the trustee under the senior indenture or the trustee under the subordinated indenture, as applicable.

The following summaries of material provisions of senior notes, subordinated notes and the indentures are subject to, and qualified in their entirety by reference to, the provisions of the indenture applicable to a particular series of debt securities. Except as we may otherwise indicate, the terms of the senior indenture and the subordinated indenture are identical.

General

If we decide to issue any senior notes or subordinated notes pursuant to this prospectus, we will describe in a prospectus supplement the terms of the series of notes, including the following:

the title of the notes;

any limit on the amount that may be issued;

whether or not we will issue the series of notes in global form, the terms and who the depository will be;

the maturity date;

the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

If the notes are guaranteed the name of the guarantor and a brief outline of the contract of guarantee;

whether or not the notes will be secured or unsecured, and the terms of any secured debt;

whether or not the notes will be senior or subordinated;

the terms of the subordination of any series of subordinated debt;

the terms on which the notes may be convertible into or exchangeable for ordinary shares or other securities of ours, including provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option and provisions pursuant to which the number of ordinary shares or other securities of ours that the holders of the series of debt securities receive would be subject to adjustment;

- the place where payments will be payable and the currency in which the debt is 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 notes 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, any series of notes which are not convertible into or exchangeable for our 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 Israeli and U.S. federal income tax considerations;
- the denominations in which we will issue the series of notes, if other than denominations of \$1,000 and any integral multiple thereof;
 - the definition and consequences of events of default under the indentures; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities.

Subordination of Subordinated Notes

Subordinated notes will be unsecured and will be subordinate and junior in priority of payment to certain indebtedness to which we may be subject to the extent described in a prospectus supplement. The subordinated indenture does not limit the amount of subordinated notes that we may issue. It also does not limit us from issuing any other secured or unsecured debt.

Form, Exchange and Transfer

We will issue the notes 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 notes 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, New York, New York, or DTC, 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 notes of any series can exchange the notes for other notes of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indentures and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders of the notes may present the notes 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 notes that the holder presents for transfer or exchange, we will not require any payment 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 notes. 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 notes of each series.

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

- reissue, register the transfer of, or exchange any notes 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 notes 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 notes so selected for redemption, in whole or in part, except the unredeemed portion of any notes we are redeeming in part.

Consolidation, Merger or Sale

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 notes, as appropriate.

Events of Default Under the Indentures

The following are events of default under the indentures with respect to any series of notes 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 contained in the notes or the indentures, other than a covenant specifically relating to another series of notes, and our failure continues for 90 days after we receive notice from the trustee or holders of at least 25% in aggregate principal amount of the outstanding notes of the applicable series; and
- if we experience specified events of bankruptcy, insolvency or reorganization.

If an event of default with respect to notes of any series occurs and is continuing, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding notes of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal of, or premium, if any, on and accrued interest, if any, on the notes due and payable immediately.

The holders of a majority in principal amount of the outstanding notes of an affected series may waive any default or event of default with respect to the series and its consequences, except uncured defaults or events of default regarding payment of principal, or premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture. Any waiver shall cure the default or event of default.

Subject to the terms of the indentures, if an event of default under an indenture shall occur and be continuing, the 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 notes, unless such holders have offered the trustee reasonable indemnity. In such event, the holders of a majority in principal amount of the outstanding notes of any series will 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 the notes 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 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 notes 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:

- the holder has given written notice to the trustee of a continuing event of default with respect to that series;
- the holders of at least 25% in aggregate principal amount of the outstanding notes of that series have made written request, and such holders have offered reasonable indemnity to the trustee to institute the proceeding as trustee; and
- the trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding notes of that series other conflicting directions within 60 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of notes if we default in the payment of the principal of, or the premium, if any, or interest on, the notes.

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indentures.

Discharge

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

- register 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, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, any premium, if any, and interest on, the debt securities of the series on the dates

payments are due.

15

Modification of Indenture; Waiver

We and the trustee may change an indenture without the consent of any holders with respect to specific matters, including:

- to fix any ambiguity, defect or inconsistency in the indenture; or
- to change anything that does not materially adversely affect the interests of any holder of notes or any series.

In addition, under the indentures, we and the trustee may change the rights of holders of a series of notes with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding notes of each series that is affected. However, we and the trustee may only make the following changes with the consent of each holder of any outstanding notes affected:

- extending the fixed maturity of the series of notes;
- reducing the principal amount, the rate of interest or any premium payable upon the redemption of any notes; or
- reducing the minimum percentage of notes, the holders of which are required to consent to any amendment.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an 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 trustee must use the same degree of care and skill as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the trustee is under no obligation to exercise any of the powers given to it by the indentures at the request of any holder of notes 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 notes on any interest payment date to the person in whose name the notes, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest payment.

We will pay principal of and any premium and interest on the notes 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 trustee as our sole paying agent for payments with respect to notes of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the notes of a particular series. We will maintain a paying agent in each place of payment for the notes of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of or any premium or interest on any notes 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.

DESCRIPTION OF RIGHTS

General

We may issue rights to purchase any of our securities or any combination thereof. Rights may be issued independently or together with any other offered security and may or may not be transferable by the person purchasing or receiving the rights. In connection with any rights offering to our shareholders, we may enter into a standby underwriting arrangement with one or more underwriters pursuant to which such underwriters will purchase any offered securities remaining unsubscribed for after such rights offering. We may also appoint a rights agent that may act solely as our agent in connection with the rights that are sold. Any such agent will not assume any obligation or relationship of agency or trust with any of the holders of the rights. In connection with a rights offering to our shareholders, we will distribute certificates evidencing the rights and a prospectus supplement to our shareholders on the record date that we set for receiving rights in such rights offering.

The applicable prospectus supplement will describe the following terms of rights in respect of which this prospectus is being delivered:

the title of such rights;

the securities for which such rights are exercisable;

the exercise price for such rights;

the number of such rights issued with respect to each ordinary share;

the extent to which such rights are transferable;

- if applicable, a discussion of the material Israeli and U.S. income tax considerations applicable to the issuance or exercise of such rights;
- the date on which the right to exercise such rights shall commence, and the date on which such rights shall expire (subject to any extension);
- the extent to which such rights include an over-subscription privilege with respect to unsubscribed securities;
- if applicable, the material terms of any standby underwriting or other purchase arrangement, or any agency agreement, that we may enter into in connection with the rights offering; and
- any other terms of such rights, including terms, procedures and limitations relating to the exchange and exercise of such rights.

Exercise of Rights

Each right will entitle the holder of the right to purchase for cash such securities or any combination thereof at such exercise price as shall in each case be set forth in, or be determinable as set forth in, the prospectus supplement relating to the rights offered thereby. Rights may be exercised at any time up to the close of business on the expiration date for such rights set forth in the prospectus supplement. After the close of business on the expiration date, all unexercised rights will become void.

Rights may be exercised as set forth in the prospectus supplement relating to the rights offered thereby. 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 forward, as soon as practicable, the securities purchasable upon such exercise. We may determine to offer any unsubscribed offered 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 underwriting arrangements, as set forth in the applicable prospectus supplement.

DESCRIPTION OF WARRANTS

We may issue warrants to purchase any of our securities. We may issue warrants independently or together with any other securities offered by any prospectus supplement and the warrants may be attached to or separate from those securities. Any series of warrants may be issued under a separate warrant agreement, which may be entered into between us and a warrant agent specified in a prospectus supplement. Any such warrant agent will act solely as our agent in connection with the warrants of such series and will not assume any obligation or relationship of agency or trust with any of the holders of the warrants. We will set forth further terms of the warrants and any applicable warrant agreements in the applicable prospectus supplement relating to the issuance of any warrants, including, where applicable, the following:

- the title of the warrants;
- the aggregate number of the warrants;
- the number and type of securities purchasable upon exercise of the warrants;
- the designation and terms of the securities, if any, with which the warrants are issued and the number of the warrants issued with each such offered security;
- the date, if any, on and after which the warrants and the related securities will be separately transferable;
- the price at which, and form of consideration for which, each security purchasable upon exercise of the warrants may be purchased;
- the date on which the right to exercise the warrants will commence and the date on which the right will expire;
- the minimum or maximum amount of the warrants which may be exercised at any one time;
- any circumstances that will cause the warrants to be deemed to be automatically exercised; and
- any other material terms of the warrants.

DESCRIPTION OF UNITS

As specified in the applicable prospectus supplement, we may issue units consisting of our ordinary shares, rights, warrants or any combination of such securities. The applicable prospectus supplement will describe:

- the terms of the units and of the ordinary shares, rights and/or warrants comprising the units, including whether and under what circumstances the securities comprising the units may be traded separately;
- a description of the terms of any unit agreement governing the units or any arrangement with an agent that may act on our behalf in connection with the unit offering; and
- a description of the provisions for the payment, settlement, transfer or exchange of the units.

PLAN OF DISTRIBUTION

We may sell the offered securities on a negotiated or competitive bid basis to or through underwriters or dealers. We may also sell the securities directly to corporate partners in various programs of the Company, institutional investors or other purchasers or through agents. We will identify any underwriter, dealer, or agent involved in the offer and sale of the securities, and any applicable commissions, discounts and other terms constituting compensation to such underwriters, dealers or agents, in a prospectus supplement.

We may distribute our securities from time to time in one or more transactions:

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

Only underwriters named in the prospectus supplement are underwriters of our securities offered by the prospectus supplement.

If underwriters are used in the sale of our securities, such securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Unless stated otherwise in a prospectus supplement, the obligation of any underwriters to purchase our securities will be subject to certain conditions and the underwriters will be obligated to purchase all of the applicable securities if any are purchased. If a dealer is used in a sale, we may sell our 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. In effecting sales, dealers engaged by us may arrange for other dealers to participate in the resales.

We or our agents may solicit offers to purchase securities from time to time. Unless stated otherwise in a prospectus supplement, any agent will be acting on a best efforts basis for the period of its appointment. In addition, we may enter into derivative, sale or forward sale transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement indicates, in connection with such transaction, the third parties may, pursuant to this prospectus and the applicable prospectus supplement, sell securities covered by this prospectus and the applicable prospectus supplement. If so, the third party may use securities borrowed from us or others to settle such sales and may use securities received from us or others to close out any related short positions. We may also loan or pledge securities covered by this prospectus and the applicable prospectus supplement to third parties, who may sell the loaned securities or, in the event of default in the case of a pledge, sell the pledged securities pursuant to this prospectus and the applicable prospectus supplement. The third party in such transactions will be an underwriter and will be identified in the applicable prospectus supplement or in a post-effective amendment.

In connection with the sale of our securities, underwriters or agents may receive compensation (in the form of discounts, concessions or commissions) from us or from purchasers of securities for whom they may act as agents. Underwriters may sell securities to or through dealers, and such dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they may act as agents. Underwriters, dealers and agents that participate in the distribution of our securities may be deemed to be “underwriters” as that term is defined in the Securities Act of 1933, or the Securities Act, and any discounts or commissions received by them from us and any profits on the resale of the shares by them may be deemed to be underwriting discounts and commissions under the Securities Act. Compensation as to a particular underwriter, dealer or agent might be in excess of customary commissions and will be in amounts to be negotiated in connection with transaction involving our securities. We will identify any such underwriter or agent, and we will describe any such compensation paid, in the related prospectus supplement. Maximum compensation to any underwriters, dealers or agents will not exceed any applicable FINRA limitations.

Underwriters, dealers and agents may be entitled, under agreements with us, to indemnification against and contribution toward certain civil liabilities, including liabilities under the Securities Act.

If stated in a prospectus supplement, we will authorize agents and underwriters to solicit offers by certain specified institutions or other persons to purchase our securities at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specific date in the future. Institutions with whom such contracts may be made include commercial 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. Such contracts will be subject only to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth the commission payable for solicitation of such contracts. The obligations of any purchase under any such contract will be subject to the condition that the purchase of the securities shall not be prohibited at the time of delivery under the laws of the jurisdiction to which the purchaser is subject. The underwriters and other agents will not have any responsibility in respect of the validity or performance of such contracts.

If underwriters or dealers are used in the sale, until the distribution of our securities is completed, Commission rules may limit the ability of any such underwriters and selling group members to bid for and purchase the securities. As an exception to these rules, representatives of any underwriters are permitted to engage in certain transactions that stabilize the price of the securities. Such transactions may consist of bids or purchases for the purpose of pegging, fixing or maintaining the price of the securities. If the underwriters create a short position in the securities in connection with the offering (in other words, if they sell more shares than are set forth on the cover page of the prospectus supplement), the representatives of the underwriters may reduce that short position by purchasing securities in the open market. The representatives of the underwriters also may elect to reduce any short position by exercising all or part of any over-allotment option we may grant to the underwriters, as described in the prospectus supplement. In addition, the representatives of the underwriters may impose a penalty bid on certain underwriters and selling group members. This means that if the representatives purchase securities in the open market to reduce the underwriters' short position or to stabilize the price of our securities, they may reclaim the amount of the selling concession from the underwriters and selling group members who sold those securities as part of the offering. In general, purchases of a security for the purpose of stabilizing or to reduce a short position could cause the price of the security to be higher than it might be in the absence of such purchases. The imposition of a penalty bid might also have the effect of causing the price of the securities to be higher than it would otherwise be. If commenced, the representatives of the underwriters may discontinue any of the transactions at any time. These transactions may be effected on any exchange on which our securities are traded, in the over-the-counter market, or otherwise.

Certain of the underwriters or agents and their associates may engage in transactions with and perform services for us or our affiliates in the ordinary course of their respective businesses.

LEGAL MATTERS

Certain legal matters with respect to the validity of the issuance of the ordinary shares offered by this prospectus will be passed upon for us by Tulchinsky Stern Marciano Cohen Levitski & Co.

EXPERTS

The consolidated financial statements of Compugen Ltd. appearing in the Annual Report on Form 20-F for the year ended December 31, 2011 and the effectiveness of Compugen Ltd. internal control over financial reporting as of December 31, 2011, as filed with the SEC on March 14, 2012, have been audited by Kost Forer Gabbay & Kasierer (a Member of Ernst & Young Global), independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports pertaining such consolidated financial statements and the effectiveness of Compugen Ltd. internal control over financial reporting as of the respective dates, given on the authority of such firm as experts in accounting and auditing. The address of Kost Forer Gabbay & Kasierer is 3 Aminadav St., Tel-Aviv, Israel 67067.

EXPENSES

The following are the estimated expenses related to the filing of the registration statement of which this prospectus forms a part, all of which will be paid by us. In addition, we anticipate incurring additional expenses in the future in connection with any offering of our securities pursuant to this prospectus. Any such additional expenses will be disclosed in a prospectus supplement.

| | |
|--|----------|
| S E C r e g i s t r a t i o n fee | \$13,640 |
| FINRA review | 15,500 |
| L e g a l f e e s a n d expenses* | 25,000 |
| A c c o u n t i n g f e e s a n d expenses* | 5,000 |
| Miscellaneous* | 5,860 |
| Total* | \$65,000 |

*Estimated

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” the information we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus and information we file later with the SEC will automatically update and supersede this information. The documents we are incorporating by reference as of their respective dates of filing are:

- Annual Report on Form 20-F for the year ended December 31, 2011, filed on March 14, 2012 (File No. 000-30902);
- Reports on Form 6-K filed on February 7, 2012, March 28, 2012, May 1, 2012, May 22, 2012, June 25, 2012, July 9, 2012, July 25, 2012, October 11, 2012 (Form 6-K/A), November 5, 2012 and December 27, 2012 (File Nos. 000-30902); and
- the description of our ordinary shares contained in our Form 8-A filed on August 2, 2000 (File No. 000-30902).

All subsequent annual reports on Form 20-F, Form 40-F or Form 10-K filed by us, all subsequent filings on Forms 10-Q and 8-K filed by us, and all subsequent reports on Form 6-K filed by us that are identified by us as being incorporated by reference shall be deemed to be incorporated by reference into this prospectus and deemed to be a part hereof after the date of this prospectus but before the termination of the offering by this prospectus.

Any statement contained in a document incorporated by reference herein shall be deemed to be modified or superseded for all purposes to the extent that a statement contained in this prospectus, or in any other subsequently filed document which is also incorporated or deemed to be incorporated by reference, modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You may request, orally or in writing, a copy of these documents, which will be provided to you at no cost, by contacting:

Tami Fishman

General Counsel
Compugen Ltd.
72 Pinchas Rosen Street
Tel Aviv, 69512 Israel
Phone: +972-3-765-8585
Fax: +972-3-765-8555

WHERE YOU CAN FIND ADDITIONAL INFORMATION

This prospectus is part of a registration statement on Form F-3 that we filed with the SEC relating to the securities offered by this prospectus, which includes additional information. You should refer to the registration statement and its exhibits for additional information. Whenever we make reference in this prospectus to any of our contracts, agreements or other documents, the references are not necessarily complete and you should refer to the exhibits attached to the registration statement for copies of the actual contract, agreements or other document.

We are subject to the informational requirements of the Exchange Act applicable to foreign private issuers. We, as a “foreign private issuer,” are exempt from the rules under the Exchange Act prescribing certain disclosure and procedural requirements for proxy solicitations, 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, with respect to their purchases and sales of shares. In addition, we are not required to file annual, quarterly and current reports and financial statements with the SEC as frequently or as promptly as U.S. companies whose securities are registered under the Exchange Act.

You may read and copy any materials we file or furnish with the SEC at the SEC’s Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street, N.E., Washington, DC 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. You can review our SEC filings and the registration statement by accessing the SEC’s internet site at <http://www.sec.gov>.

We also maintain a website at www.cgen.com, through which you can access certain SEC filings. The information set forth on our website is not part of this prospectus.

ENFORCEABILITY OF CIVIL LIABILITIES

We are incorporated under the laws of the State of Israel. Service of process upon us and upon our directors and officers, substantially all of whom reside outside the United States, may be difficult to effect in the United States. Furthermore, because a substantial portion of our assets are located outside the United States, any judgment obtained in the United States against us or any of our directors and officers may not be collectible within the United States.

Under Israeli law, subject to various time limitations, an Israeli court may declare a judgment rendered by a foreign court in a civil matter, including judgments awarding monetary or other damages in non civil matters, enforceable if it finds that

· the judgment was rendered by a court which was, according to the foreign country's laws, competent to render the judgment;

· the judgment is no longer appealable;

· the obligation in the judgment is enforceable according to the rules relating to the enforceability of judgments in Israel and the substance of the judgment is not contrary to public policy in Israel; and

· the judgment can be executed in the state in which it was given.

A foreign judgment will not be declared enforceable by Israeli courts if:

·

the judgment was given in a state, the laws of which do not provide for the enforcement of judgments of Israeli courts (subject to exceptional cases); or

- the enforcement of the judgment is likely to prejudice the sovereignty or security of the State of Israel.

An Israeli court also will not declare a foreign judgment enforceable if it is proven to the Israeli court that:

- the judgment was obtained by fraud;

There was no due process;

- the judgment was rendered by a court not competent to render it according to the rules of private international law in Israel;
- the judgment conflicts with another judgment that was given in the same matter between the same parties and which is still valid; or
- at the time the action was brought in the foreign court, a claim in the same matter and between the same parties was pending before a court or tribunal in Israel.

A foreign judgment that was declared enforceable by an Israeli court will generally be payable in Israeli currency according to the applicable exchange rate on the payment date.

INDEMNIFICATION FOR SECURITIES ACT LIABILITIES

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling, 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.

Ordinary Shares

PROSPECTUS SUPPLEMENT

, 2014

Sole Book-Running Manager
Jefferies

Co-Managers
JMP Securities
Oppenheimer & Co.
Chardan Capital Markets