
FORM 6-K
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Report of Foreign Private Issuer

Pursuant to rule 13a-16 or 15d-16 of the Securities Exchange Act of 1934
for the month of March 2010

Compugen Ltd.

(Translation of registrant's name in English)

72 Pinchas Rosen Street, Tel-Aviv 69512, Israel

(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F ☒ Form 40-F ☐

On May 5, 2011 Compugen Ltd. (the "Registrant") will hold its annual general meeting of shareholders. Compugen will begin mailing the notice and proxy statement relating to the annual general meeting on or about March 31, 2011. A copy of the notice and proxy statement is filed as Exhibit 1 to this Report on Form 6-K, which is hereby incorporated by reference herein.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Compugen Ltd.
(Registrant)

By: /s/ Ms. Dikla Czaczkes Axselbrad

Title: Chief Financial Officer

Date: March 31, 2011



**COMPUGEN LTD.
NOTICE OF ANNUAL GENERAL MEETING OF SHAREHOLDERS
TO BE HELD ON MAY 5, 2011**

Notice is hereby given that the Annual General Meeting (the "**Meeting**") of the shareholders of Compugen Ltd. (the "**Company**"), an Israeli company, will be held at the Company's offices at 72 Pinchas Rosen Street, Tel Aviv, Israel, on May 5, 2011 at 10:00 AM (Israel time) for the following purposes:

1. To elect Prof. Ruth Arnon, Mr. Martin Gerstel, Mr. Dov Hershberg and Mr. Alex Kotzer as members of the Board of Directors of the Company; and
2. To approve an extension to the exercisability of certain previously vested but not exercised options held by Mr. Alex Kotzer, a member of the Board of Directors of the Company; and
3. To approve the 2010 Share Incentive Plan and the reservation of an additional three million ordinary shares under such plan; and
4. To appoint Kost, Forer, Gabbay & Kasierer (a member of Ernst and Young Global) as the independent auditors of the Company for the 2011 fiscal year and to authorize the audit committee to determine their remuneration; and
5. To transact such other business as may properly come before the Meeting.

Shareholders of record at the close of business on March 27, 2011, are entitled to notice of, and to vote at the Meeting. All shareholders are cordially invited to attend the Meeting in person. Shareholders who do not expect to attend the Meeting in person are requested to mark, date, sign and mail the enclosed proxy as promptly as possible in the enclosed stamped envelope. In addition, beneficial owners who hold their shares through members of the Tel Aviv Stock Exchange ("**TASE**") may either vote their shares in person at the Meeting by presenting a certificate signed by a member of the TASE which complies with the Israel Companies Regulations (Proof of Ownership for Voting in General Meetings)-2000, as proof of ownership of the shares, or send such certificate along with a duly executed proxy to the Company at 72 Pinchas Rosen Street, Tel Aviv 69512, Israel, Attention: General Counsel.

The Company urges all of its shareholders to review our Annual Report on Form 20-F and our periodic reports on Form 6K, which are available on our website at www.cgen.com. However, if you wish to be mailed a copy of our Annual Report on Form 20-F or any other of our public filings, please send us a request through our website or call Investor Relations at +972-3-765-8585.

We thank you for your cooperation.

By Order of the Board of Directors,

/S/ Mr. Martin S. Gerstel

Martin S. Gerstel, Chairman of the Board
Tel Aviv, Israel
March 27, 2011

PROXY STATEMENT

COMPUGEN LTD.

72 Pinchas Rosen Street

Tel Aviv 69512, Israel

ANNUAL GENERAL MEETING OF SHAREHOLDERS

TO BE HELD ON MAY 5, 2011

The enclosed proxy is being solicited by the board of directors (the “**Board of Directors**”) of Compugen Ltd. (the “**Company**” or “**Compugen**”) for use at the Annual General Meeting of Shareholders (the “**Meeting**”) to be held on May 5, 2011, or at any postponement or adjournment thereof. The record date for determining shareholders entitled to notice of and to vote at the Meeting is established as of the close of business on March 27, 2011.

As of March 27, 2011 we had 34,155,611 ordinary shares outstanding, each of nominal value of 0.01 New Israeli Shekels (the “**Ordinary Shares**”).

We expect to solicit proxies by mail and to mail this proxy statement and the accompanying proxy card to shareholders on or about March 31, 2011. We will bear the cost of the preparation and mailing of these proxy materials and the solicitation of proxies. We will, upon request, reimburse banks, brokerage houses, other institutions, nominees, and fiduciaries for their reasonable expenses in forwarding solicitation materials to beneficial owners. Upon the receipt of a properly executed proxy in the form enclosed, the persons named as proxies therein will vote the Ordinary Shares covered thereby in accordance with the instructions of the shareholder executing the proxy. With respect to the proposals set forth in the accompanying Notice of Meeting, a shareholder may vote in favor of or against any of the proposals or may abstain from voting on any of the proposals. Shareholders should specify their choices on the accompanying proxy card. If no specific instructions are given with respect to the matters to be acted upon, the shares represented by a signed proxy will be voted FOR the proposals set forth in the accompanying Notice of Meeting. We are not currently aware of any other matters to be presented at the Meeting.

Any shareholder returning the accompanying proxy may revoke such proxy at any time prior to its exercise by: (i) giving written notice to us of such revocation at least twenty-four (24) hours before the commencement of the Meeting or adjourned Meeting; (ii) voting in person at the Meeting or requesting the return of the proxy at the Meeting; or (iii) executing and delivering to us a later-dated proxy. Written revocations and later-dated proxies should be sent to the Company at 72 Pinchas Rosen Street, Tel Aviv 69512, Israel, Attention: General Counsel. Each form of proxy which is properly executed and returned to the Company prior to the Meeting will be voted in the manner instructed by the shareholder executing it or, if no instructions are given, will be voted in favor of all of the matters to be presented at the Meeting, as described herein. In addition, the shares will be voted with respect to any other proposals in accordance with the recommendations of the Board of Directors. Subject to the provisions of the Company's Articles of Association, all proxies must be received by the Company's transfer agent or at the Company's mailing address listed above at least 24 hours prior to the Meeting to be validly included in the tally of Ordinary Shares voted at the Meeting.

Each Ordinary Share is entitled to one vote on each matter to be voted on at the Meeting. Subject to the terms of applicable law, two or more shareholders present, personally or by proxy, who hold or represent together at least 33.33% of the voting rights of our issued share capital will constitute a quorum for the Meeting. If within an hour from the time scheduled for the Meeting a quorum is not present, the Meeting shall stand adjourned for one week, to May 12, 2010, at the same hour and place, without it being necessary to notify the shareholders. If a quorum is not present at the adjourned date of the Meeting, subject to the terms of applicable law, any two shareholders present shall constitute a quorum.

Each of Proposals 1, 2, 3 and 4 to be presented at the Meeting requires the affirmative vote of shareholders present in person or by proxy and holding Ordinary Shares amounting in the aggregate to at least a majority of the votes actually cast with respect to each such proposal.

PRINCIPAL SHAREHOLDERS

The following table and notes thereto sets forth certain information, as of March 27, 2011 regarding beneficial ownership (as defined in Rule 13d-3 under the Securities Exchange Act of 1934, as amended), of our Ordinary Shares by each person who is known by us to own beneficially more than 5% of our outstanding Ordinary Shares. The voting rights of our major shareholders do not differ from the voting rights of other holders of our Ordinary Shares. On such date, 34,155,611 Ordinary Shares were issued and outstanding.

Beneficial Owner	Number of Ordinary Shares Beneficially Owned	Percent of Ownership
ClearBridge Advisors, LLC ⁽¹⁾	2,055,359	6.02%
Martin Gerstel ⁽²⁾	1,853,768	5.43%
Morgan Stanley ⁽³⁾	1,755,355	5.14%

⁽¹⁾ This disclosure is based on information disclosed by ClearBridge Advisors, LLC on Schedule 13G/A, filed with the SEC on February 11, 2011 reflecting holdings as of December 31, 2010.

⁽²⁾ Includes 550,000 shares held by Shomar Corporation, an affiliate of Mr. Martin S. Gerstel, 669,033 shares held by Merrill Lynch IRA for Martin Gerstel, of which Martin Gerstel is the beneficiary and 634,735 shares held in various brokerage accounts for the benefit of Martin Gerstel. This disclosure is based on information provided by Martin Gerstel directly to the Company on form 13D.

⁽³⁾ This disclosure is based on information disclosed by Morgan Stanley on Schedule 13G/A, filed with the SEC on February 14, 2011 reflecting shareholdings as of December 31, 2010.

MATTERS RELATING TO THE ANNUAL GENERAL MEETING

At the Meeting, the shareholders will be asked to vote on the following proposals:

PROPOSAL NO. 1

ELECTION OF DIRECTORS

Our Board of Directors is comprised of seven (7) members, three (3) of whom were elected on April 15, 2010 to be external directors and serve for a fixed term of three (3) years pursuant to the Israeli Companies Law – 1999 (the “**Companies Law**”). The additional four members of our Board of Directors that are not external directors are hereby being proposed for re-election until the next annual shareholder meeting of the Company or until their respective successors are duly elected and qualified.

Each of the nominees is currently a member of our Board of Directors and has consented to being named in this Proxy Statement. The Company is not aware of any reason why such person will not serve as a director. Information on each nominee for director is set forth below. The information is based upon the records of the Company and information provided by each nominee. If at the time of the Meeting, however, any of the below-named nominees should be unable or decline to serve as a director, the persons named as proxies herein will vote for such substitute nominee or nominees as the Board of Directors recommends, or will vote to allow the vacancy created thereby to remain open until filled by the Board of Directors.

Set forth below are the names of, and certain other information concerning, the nominees for election as directors at the Meeting:

Name	Age	Positions
Prof. Ruth Arnon	76	Director
Martin S. Gerstel	69	Director and Chairman of the Board
Dov Hershberg	71	Director
Alex Kotzer	65	Director

Prof. Ruth Arnon joined Compugen’s board of directors in May 2007. Formerly the Vice-President of the Weizmann Institute of Science (1988-1997), she is a noted immunologist, having joined the Institute in 1960. She served as Head of the Department of Chemical Immunology, Dean of the Faculty of Biology and Director of the Institute’s MacArthur Center for Molecular Biology of Tropical Diseases. Prof. Arnon has made significant contributions to the fields of vaccine development, cancer research and to the study of parasitic diseases. Along with Prof. Michael Sela, she developed Copaxone® a drug for the treatment of multiple sclerosis which is presently marketed worldwide. Prof. Arnon is a member of the Israel Academy of Sciences and presently serves as its President. She is an elected member of the European Molecular Biology Organization, served as President of the European Federation of Immunological Societies and as Secretary-General of the International Union of Immunological Societies. Her awards include the Robert Koch Prize in Medical Sciences, Spain’s Jimenez Diaz Memorial Prize, France’s Legion of Honor, the Hadassah World Organization’s Women of Distinction Award, the Wolf Prize for Medicine, the Rothschild Prize for Biology, the Israel Prize and she received an Honorary Doctorate from Ben-Gurion University. In addition, Prof. Arnon is the incumbent of the Paul Ehrlich Chair in Immunochemistry at the Weizmann Institute.

Martin S. Gerstel has served as Compugen’s Chairman of the Board of Directors since 1997, other than from February 2009 to February 2010, during which time he served as either CEO or co-CEO and, in both cases, as a member of the Board of Directors. Prior to Compugen, Mr. Gerstel was co-chairman and CEO of ALZA Corporation, which he helped found in 1968. Mr. Gerstel is the Chairman of Evogene Ltd., Keddem Bioscience, Mada Ltd., the co-founder and co-chairman of Itamar Medical, and serves as a director of Yissum Ltd., Yeda Ltd. and the U.S. Foundation for the National Medals of Science and Technology. He is a member of the Board of Governors and the Executive Committee of the Weizmann Institute of Science and the Board of Governors of The Hebrew University of Jerusalem, and is an advisor to the Burrill Life Science Funds and the board of the Israel-U.S. Binational Industrial Research and Development Foundation. Mr. Gerstel holds a B.S. from Yale University and an MBA from Stanford University.

Dov Hershberg has served as a member of the board of directors since February 2009, prior to which he served as a consultant to the board of directors. From February 2009 through February 2010, Mr. Hershberg served as Chairman of the Board. Mr. Hershberg previously managed the Israel-U.S. Binational Industrial Research and Development ("BIRD") Foundation from 1997 through 2006. He is currently a founder and executive director of Powermat, a wireless electricity company and serves on the advisory board of the Merage Foundation. Prior to joining BIRD, Mr. Hershberg held various senior management positions in software development, marketing and sales. He was the founder and CEO, with colleagues from Stanford University, of Molecular Applications Group, which created software in biomedical research. He spent 11 years at Digital Equipment Corporation in various senior management positions in product development, marketing and sales and worked as a mathematician in the Israeli Aircraft Industry. Mr. Hershberg holds graduate degrees in Mathematics, from the Hebrew University in Jerusalem, Israel and in Applied Mathematics and Operations Research from Columbia University.

Alex Kotzer joined Compugen in September 2005 and served until December 2008 as President and Chief Executive Officer and member of the board of directors. Since retiring as President and CEO, Mr. Kotzer has remained a member of the board of directors. Since February, 2010, Mr. Kotzer has served as the CEO and Chairman of the Board of RegeneraPharma. Prior to joining Compugen, he served for twelve years at Serono (currently Merck Serono), a global biotechnology leader, headquartered in Switzerland. During his tenure at Serono, Mr. Kotzer held several senior positions, most recently as Vice President of Biotechnology Manufacturing. Previously, Mr. Kotzer was President and Chief Executive Officer of InterPharm, Serono's Israeli affiliate. Before joining Serono, he held a variety of managerial positions in the food and chemical industries. Mr. Kotzer received his B.Sc. in Chemical Engineering from the Technion, Israel Institute of Technology.

Compensation for Directors

All of our non-management directors receive certain cash payments, option grants, directors and officers liability insurance coverage and indemnification from the Company in consideration for their membership in and service on the Board and committees thereof, as previously approved by the shareholders of the company.

External and Independent Directors

The Companies Law requires Israeli companies with shares that have been offered to the public either in or outside of Israel to appoint at least two external directors. No person may be appointed as an external director if that person or that person's relative, partner, employer, any person to whom that person reports, directly or indirectly, or any entity under the person's control, has or had, on or within the two years preceding the date of that person's appointment to serve as an external director, had any affiliation with the company or any entity controlling, controlled by or under common control with the company. The term affiliation includes:

- an employment relationship;
- a business or professional relationship maintained on a regular basis;
- control; and
- service as an office holder.

No person may serve as an external director if that person's position or business activities create, or may create, a conflict of interest with that person's responsibilities as an external director or may otherwise interfere with his/her ability to serve as an external director. If, at the time external directors are to be appointed, all current members of the board of directors are of the same gender, then at least one external director must be of the other gender.

The Companies Law requires that at least one external director must have financial and accounting expertise and the other external directors must possess certain professional qualifications that are promulgated by regulations to the Companies Law. These regulations provide that external directors with financial and accounting expertise must possess a high level of understanding in accounting and business matters, to the extent that they are able to read and understand financial statements in depth and to facilitate a discussion regarding the manner in which financial data is presented. An external director with professional qualifications must have an academic degree in either economics, business administration, accounting, law, public administration, or he or she must have another academic degree, or must have completed other higher education studies related to the main business of the company, or he or she must have at least five years of experience in at least two of the following: (a) a senior position in the business administration of a corporation with a significant scope of business; (b) a senior position in the public service; or (c) a senior position relating to the company's main business. Each company's board of directors must determine each external director's qualifications based on his or her education, experience and skills regarding financial matters and knowledge of financial statements in accordance with the Companies Law and Israeli securities laws.

External directors are to be elected by a majority vote at a shareholders' meeting, provided that either:

- A majority of shares voted at the meeting, including at least one-third of the shares held by non-controlling shareholders voted at the meeting, vote in favor of election of the director; abstaining votes shall not be counted in this vote, or
- The total number of shares held by non-controlling shareholders voted against the election of the director does not exceed one percent of the aggregate voting rights in the company.

The initial term of an external director is three years and such term may be extended for one, and only one, additional three years' term.

External directors may be removed only by a court, upon determination that the external directors to be so removed ceased to meet the statutory qualifications for their appointment or if they violate their duty of loyalty to the company; or by the same percentage of shareholders, acting through a shareholders' meeting, as is required for their election, or if the board of directors has determined that the external directors to be so removed ceased to meet the statutory qualifications for their appointment or if they violate their duty of loyalty to the company. Such determination by the board of directors is to be made in the first meeting of the board of directors to be convened following learning of the said cessation or violation. Each committee of a company's board of directors must include at least one external director.

An external director is entitled to compensation as provided in regulations adopted under the Companies Law and is otherwise prohibited from receiving any other compensation, directly or indirectly, in connection with service provided as an external director or any other services to the company.

In addition to the requirements of the Companies Law as described above, since our shares are listed on the Nasdaq Capital Market, a majority of our directors must be independent (as defined by the Nasdaq Stock Market Listing Rules), and our audit committee must be comprised of at least three members, all of whom must be independent (subject to limited exceptions).

Professor Yair Aharonowitz, Dr. Arie Ovadia and Professor Joshua Shemer currently serve as our external directors under Israeli law and as our independent directors under Nasdaq Stock Market Listing Rules. They all serve on our audit committee.

The Board of Directors will present the following resolution at the Meeting:

“RESOLVED that Prof. Ruth Arnon, Mr. Martin Gerstel, Mr. Dov Hershberg and Mr. Alex Kotzer are hereby elected to serve as members of the Board of Directors of the Company for a period commencing on the date of the Meeting and until the next annual meeting of the shareholders of the Company or until their respective successors are duly elected and qualified.”

The election of all director nominees requires the affirmative vote of shareholders present in person or by proxy and holding Ordinary Shares amounting in the aggregate to at least a majority of the votes actually cast with respect to such proposal.

The Board of Directors recommends that the shareholders vote “FOR” the election of each of Prof. Ruth Arnon, Mr. Martin Gerstel, Mr. Dov Hershberg and Mr. Alex Kotzer as members of the Board of Directors of the Company.

PROPOSAL NO. 2

**APPROVAL OF EXTENSION OF EXERCISABILITY OF CERTAIN PREVIOUSLY
VESTED OPTIONS HELD BY MR. ALEX KOTZER, A MEMBER OF
THE BOARD OF DIRECTORS OF THE COMPANY**

Under Israeli law, the terms of service, including all compensation, of the members of the Board of Directors of the Company (in any capacity that they have in the Company) require the approval of the Audit Committee, Board of Directors and shareholders of the Company, in such order.

In consideration of Mr. Alex Kotzer's service as a member of the Board of Directors and as the Company's former CEO, each of the Audit Committee, the Board of Directors of the Company and the Shareholders (on October 29, 2009) approved an extension through December 31, 2010 of Mr. Kotzer's right to exercise 380,000 vested options, all of which had previously vested during the time he was CEO of the Company. On October 21, 2010, the Audit Committee and Board of Directors resolved, subject to shareholder approval, to further extend the term of exercisability of such 380,000 vested options until the first to occur of (i) the 180th day following the termination for any reason of Mr. Kotzer's service as a member of the Board of Directors, or (ii) April 19, 2015. In consideration of this further extension, Mr. Kotzer has waived his right to receive options he would otherwise be entitled to receive with respect to his service as a director during any such extension period.

The Board of Directors will present the following resolution at the Meeting:

"RESOLVED that following the approval and recommendation by the Audit Committee and the Board of Directors of the Company, the right to exercise the 380,000 vested options held by Mr. Alex Kotzer shall be extended until the first to occur of (i) the 180th day following the termination for any reason of Mr. Kotzer's service as a member of the Board of Directors, or (ii) April 19, 2015."

The affirmative vote of shareholders present in person or by proxy and holding Ordinary Shares amounting in the aggregate to at least a majority of the votes actually cast with respect to such proposal, is necessary for approval of this proposal.

The Board of Directors recommends that the shareholders vote "FOR" the extension of the right to exercise certain previously vested options held by the Company's former Chief Executive Officer and director.

PROPOSAL NO. 3

**APPROVAL OF THE COMPUGEN 2010 OPTION PLAN AND THE RESERVATION OF
AN ADDITIONAL THREE MILLION ORDINARY SHARES UNDER SUCH PLAN**

The Company's ability to hire and retain its employees and officers is partially dependent on the Company's ability to provide such employees and officers with equity compensation. In order to allow the grant of equity compensation, the Board of Directors recommends that the Company adopts the Compugen 2010 Share Incentive Plan (which is a ten-year plan), in the form attached hereto as **Exhibit C**. In the previous Share Incentive Plan, a mechanism was included that automatically increased the pool of ordinary shares available for grant each year (unless the Board of Directors determined otherwise). The currently proposed 2010 Share Incentive Plan does not have such a mechanism. Therefore, the Board of Directors recommends that the Company reserve an additional three million Ordinary Shares under such plan.

The Board of Directors will present the following resolution at the Meeting:

"RESOLVED, that (i) the Company shall adopt the Compugen 2010 Share Incentive Plan, in the form attached hereto as **Exhibit C** (the "**Plan**"), (ii) the Company shall reserve an additional three million Ordinary Shares which will be available for future grants under the Plan, and (iii) any available pool of shares under prior option plans, including any additional options that may return to such pool in connection with the termination of options granted under such prior option plans but not exercised prior to their termination, will be made available for future grants under the Plan."

The affirmative vote of shareholders present in person or by proxy and holding Ordinary Shares amounting in the aggregate to at least a majority of the votes actually cast with respect to such proposal, is necessary for approval of this proposal.

The Board of Directors recommends that the shareholders vote "FOR" the adoption of the Compugen 2010 Share Incentive Plan and the increase in the pool set forth above.

PROPOSAL NO. 4

**TO APPOINT KOST, FORER, GABBAY & KASIERER (A MEMBER OF
ERNST AND YOUNG GLOBAL) AS THE INDEPENDENT AUDITORS OF THE
COMPANY FOR THE 2011 FISCAL YEAR AND TO AUTHORIZE THE AUDIT
COMMITTEE TO DETERMINE THEIR REMUNERATION.**

The audit committee of our Board of Directors has selected Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global, as our independent registered public accounting firm to perform the audit of our consolidated financial statements for the fiscal year ending December 31, 2011.

Shareholder approval of the appointment of Kost Forer Gabbay & Kasierer as our independent registered public accounting firm for the fiscal year ending December 31, 2011 is required under the Companies Law. The Audit Committee of our Board of Directors believe that such appointment is appropriate and in the best interests of the company and its shareholders. Subject to the approval of this proposal, the Audit Committee will fix the remuneration of Kost Forer Gabbay & Kasierer in accordance with the volume and nature of their services to the Company.

The Board of Directors and the Audit Committee will present the following ordinary resolution at the Meeting:

“RESOLVED, that Kost Forer Gabbay & Kasierer be appointed as the Company’s independent registered public accounting firm for the fiscal year ending December 31, 2011, and that the Company’s Audit Committee shall be authorized to determine their remuneration in accordance with the volume and nature of their services.”

The affirmative vote of shareholders present in person or by proxy and holding Ordinary Shares amounting in the aggregate to at least a majority of the votes actually cast with respect to such proposal, is necessary for approval of this proposal.

The Board of Directors recommends that the shareholders vote FOR the approval of the appointment of Kost Forer Gabbay & Kasierer as our independent registered public accounting firm for the fiscal year ending December 31, 2011, and the authorization of our audit committee to determine their remuneration in accordance with the volume and nature of their services.

OTHER BUSINESS

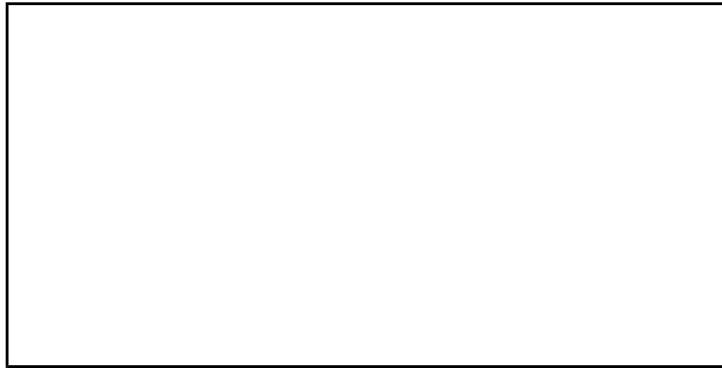
The Board of Directors will present to the Meeting the Audited Consolidated Financial Statements of the Company for the year ended December 31, 2010.

Other than as set forth above, management knows of no business to be transacted at the Meeting; but, if any other matters are properly presented to the Meeting, the persons named in the enclosed form of proxy will vote upon such matters in accordance with their best judgment.

By Order of the Board of Directors,

/S/ Martin S. Gerstel

Martin S. Gerstel
Chairman of the Board
Tel Aviv, Israel
March 27, 2011



PROXY

COMPUGEN LTD.

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS OF
COMPUGEN LTD. FOR THE ANNUAL GENERAL MEETING OF SHAREHOLDERS
TO BE HELD ON MAY 5, 2011

The undersigned, a holder of ordinary shares, par value NIS 0.01 per share ("Ordinary Shares"), of Compugen Ltd. ("Compugen" or the "Company"), acting with respect to all Ordinary Shares held by the undersigned, hereby appoints Mr. Martin Gerstel as proxy for the undersigned, with full power of substitution, to vote all Ordinary Shares that the undersigned would be entitled to vote, with all powers the undersigned would possess if personally present, at the Annual General Meeting of Shareholders (the "Meeting") of Compugen to be held on May 5, 2011, at 10:00 a.m. (Israel time) at the principal executive offices of Compugen located at 72 Pinchas Rosen Street, Tel Aviv, Israel, and at any adjournments, postponements or rescheduling thereof, on the matters set forth on the reverse side. The proxy is further authorized to vote, in his discretion, upon such other business as may properly come before the Meeting or any adjournments, postponements or rescheduling thereof.

THE SHARES REPRESENTED BY THIS PROXY, WHEN PROPERLY EXECUTED, WILL BE VOTED AS DIRECTED, OR, IF NO DIRECTION IS GIVEN, WILL BE VOTED "FOR" THE PROPOSALS IN ITEMS 1, 2, 3 AND 4.

YOUR VOTE IS IMPORTANT! PLEASE MARK, SIGN AND DATE THIS PROXY ON THE REVERSE SIDE AND RETURN IT PROMPTLY IN THE ACCOMPANYING ENVELOPE

(Continued and to be signed on the reverse side)
