

COMPUGEN LTD.

**ANNUAL GENERAL MEETING OF SHAREHOLDERS
JULY 22, 2015**

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS

The shareholder(s) hereby appoints Anat Cohen-Dayag, Ari Krashin and Donna Gershowitz, or any one of them, as proxies, each with the power to appoint his substitute, and hereby authorizes them to represent and to vote as designated on the reverse side of this Proxy, all of the Ordinary Shares of Compugen Ltd. that the shareholder(s) is/are entitled to vote at the Annual General Meeting of Shareholders to be held at 10:00 a.m., on July 22, 2015, at the offices of the company, 72 Pinchas Rosen Street, Tel Aviv, Israel and any adjournment or postponement thereof (the "Meeting").

Shares represented by this Proxy will be voted in favor of all the matters to be presented to the Meeting, as described below. If specification is made by a shareholder on this Proxy, the shares represented thereby will be voted in accordance with such specification.

THIS PROXY, WHEN PROPERLY EXECUTED, WILL BE VOTED AS DIRECTED BY THE SHAREHOLDER(S). IF NO SUCH DIRECTIONS ARE MADE, THIS PROXY WILL BE VOTED FOR EACH PROPOSAL, AND AS SUCH PROXIES DEEM ADVISABLE WITH DISCRETIONARY AUTHORIZATION ON SUCH OTHER BUSINESS AS MAY PROPERLY COME BEFORE THE MEETING AND ANY ADJOURNMENT OR ADJOURNMENTS THEREOF.

(Continued and to be signed on the reverse side)

ANNUAL GENERAL MEETING OF SHAREHOLDERS OF

COMPUGEN LTD.

JULY 22, 2015

Please date, sign and mail your proxy card in the envelope provided as soon as possible

THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" PROPOSALS No. 1 TO 6
PLEASE SIGN, DATE AND RETURN PROMPTLY IN THE ENCLOSED ENVELOPE.
PLEASE MARK YOUR VOTE IN BLUE OR BLACK INK AS SHOWN HERE ☒

- | | FOR | AGAINST | ABSTAIN |
|---|--------------------------|--------------------------|--------------------------|
| 1. To re-elect four directors to serve as members of the Board of Directors of the Company. | | | |
| <u>Nominees:</u> | | | |
| Ruth Arnon | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Anat Cohen-Dayag | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Martin S. Gerstel | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dov Hershberg | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. To approve an amendment to the terms of office of the Company's President and Chief Executive Officer and director, all as set forth in the Company's Proxy Statement: | | | |
| Adjustment to the gross monthly salary | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A leased car and reimbursement for the difference between the value of a leased car and the relevant travel expenses she currently receives with respect to the period between January 1, 2015 and the Meeting date | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. To approve an amendment to the terms of office of the Company's Active Chairman of the Board | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | | | |
|----|---|--|--|--|
| 4. | To approve equity awards to each of the Company's President and Chief Executive Officer and director, and the Active Chairman of the Board:
Anat Cohen-Dayag
Martin S. Gerstel
Acceleration of vesting for Martin S. Gerstel upon certain events | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| 5. | To approve amendments to the Company's Compensation Policy for Directors and Officers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | To re-appoint Kost Forer Gabbay & Kasierer (a member of Ernst and Young Global, as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2015, and until the next annual general meeting | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

PLEASE NOTE THAT BY EXECUTING AND SUBMITTING THIS PROXY CARD YOU HEREBY REPRESENT THAT YOU ARE NOT A "CONTROLLING SHAREHOLDER" AND THAT YOU DO NOT HAVE "PERSONAL INTEREST" IN THE RESOLUTION PROPOSED UNDER ITEM 5. SEE THE "REQUIRED VOTE" SECTION IN ITEM 5 OF THE PROXY STATEMENT FOR MORE INFORMATION, INCLUDING HOW TO INDICATE THAT YOU ARE A "CONTROLLING SHAREHOLDER" OR THAT YOU DO HAVE "PERSONAL INTEREST".

To change the address on your account, please check the box at right and indicate your new address in the address space above. ☐
Please note that changes to the registered name(s) on the account may not be submitted via this method.

Signature of Shareholder _____ Date _____

Signature of Shareholder _____ Date _____

NOTE: Please sign exactly as your name or names appear on this Proxy. When shares are held jointly, each holder should sign. When signing as executor, administrator, attorney, trustee or guardian, please give full title as such. If the signer is a corporation, please sign full corporate name by duly authorized officer, giving full title as such. If signer is a partnership, please sign in partnership name by authorized person.