As filed with the Securities and Exchange Commission on January 21, 2010

Registration No. 333-161241

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

POST-EFFECTIVE AMENDMENT NO. 1 TO FORM F-3 REGISTRATION STATEMENT THE SECURITIES ACT OF 1933

Compugen Ltd. (Exact name of registrant as specified in its charter)

Israel (State or other jurisdiction of incorporation or organization) Not Applicable (I.R.S. Employer Identification No.)

72 Pinchas Rosen Street, Tel Aviv, 69512 Israel 972-3-765-8585

(Address and telephone number of registrant's principal executive offices)

Dikla Czaczkes Axselbrad, Chief Financial Officer Compugen Ltd., 72 Pinchas Rosen Street, Tel Aviv, 69512 Israel Phone: +972-3-765-8585 Fax: +972-3-765-8555

(Name, address, and telephone number of agent for service)

Copies to:

Richard H. Gilden, Esq. Kramer Levin Naftalis & Frankel LLP 1177 Avenue of the Americas New York, New York 10036 Tel: 212-715-9486 Fax: 212-715-8085 Raanan Lerner, Adv. Meitar Liquornik Geva & Leshem Brandwein, Law Offices 16 Abba Hillel Rd., Ramat Gan 52506, Israel Tel: +972-3-6103655 Fax: +972-3-6103767 If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. o

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. x

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

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

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

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

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EXPLANATORY NOTE

This Post-Effective Amendment No. 1 to the Registration Statement on Form F-3 (Registration No. 333-161241), as amended (the "Registration Statement"), originally filed by Compugen Ltd. (the "Registrant") on August 11, 2009, amends the Registration Statement to deregister all securities under the Registration Statement that remain unsold. The Registrant has terminated all offerings of securities under the Registration Statement.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form F-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunder duly authorized, in the city of Tel Aviv, Israel, on January 21, 2010.

COMPUGEN LTD.

By:

/s/ ANAT COHEN-DAYAG Name: Anat Cohen-Dayag Title: President and Co-Chief Executive Officer

By:/s/ MARTIN GERSTEL Name: Martin Gerstel Title: Co-Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed below by the following persons in the capacities and on the dates indicated:

Signature	Title	Date
/s/ ANAT COHEN-DAYAG Anat Cohen-Dayag	President and Co- Chief Executive Officer (Principal Executive Officer)	January 21, 2010
/s/ MARTIN GERSTEL Martin Gerstel	Co-Chief Executive Officer and Director (Principal Executive Officer)	January 21, 2010
/s/ DIKLA CZACZKES AXSELBRAD Dikla Czaczkes Axselbrad	Chief Financial Officer (Principal Accounting Officer)	January 21, 2010

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Signature	Title	Date
/s/ ANAT COHEN-DAYAG* Dov Hershberg	Chairman of the Board of Directors	January 21, 2010
/s/ ANAT COHEN-DAYAG* Yair Aharonowitz	Director	January 21, 2010
/s/ ANAT COHEN-DAYAG* Ruth Arnon	Director	January 21, 2010
/s/ ANAT COHEN-DAYAG* Alex Kotzer	Director	January 21, 2010
/s/ ANAT COHEN-DAYAG* Arie Ovadia	Director	January 21, 2010
/s/ ANAT COHEN-DAYAG* Joshua Shemer	Director	January 21, 2010
* /s/ ANAT COHEN-DAYAG By: Anat Cohen-Dayag (Attorney-in-fact)		January 21, 2010