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

Form 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of May 2012

Commission File Number 000-30902

COMPUGEN LTD.
(Translation of registrant's name into 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 of Form 20-For Form 40-F:
Form 20-F [√] Form 40-F [ ]

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): [ ]

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): [ ]

Compugen Ltd.

On May 1, 2012, Compugen Ltd. (the "Company") issued a press release reporting financial results for the first quarter ending March 31, 2012

A copy of the press release is filed as Exhibit 99.1 to this Form 6-K and incorporated by reference herein.

The information contained in this Report, including the exhibit hereto, is hereby incorporated by reference into the Company's Registration Statement on Form F-3, File No. 333-171655.

Exhibits

Exhibit Number	**Description of Exhibit**
99.1	Press release dated May 1, 2012.

Signatures

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.

Date: May 1, 2012

By: /s/ Dikla Czaczkes Axselbrad
Dikla Czaczkes Axselbrad
Chief Financial Officer

Compugen Ltd. Reports First Quarter 2012 Financial Results

Non-cash Baize arrangements charges added significantly to loss for quarter

TEL AVIV, ISRAEL –May 1, 2012 –Compugen Ltd. (NASDAQ: CGEN) today reported financial results for the first quarter ending March 31, 2012.

Anat Cohen-Dayag, Ph.D., President and CEO of Compugen, stated "We were very pleased to announce this past quarter the establishment of new operations in South San Francisco to develop monoclonal antibodies (mAbs) against mAb targets selected from Compugen's Pipeline Program. The resulting in-house combination of our novel target discovery capabilities with outstanding expertise in the generation and development of mAb therapeutics positions Compugen to become a potential world leader in mAb therapeutics, the fastest growing drug class in pharmaceuticals and a drug class which predominately addresses the therapeutic fields of immunology and oncology."

Dr. Cohen-Dayag continued, "With respect to our other biologic drug class area of focus, therapeutic proteins, representing a substantial global market, we continue to make good progress. The capabilities, both within the Company and through external collaborations with leading academic centers and service providers, that were established for CGEN-15001, are now being utilized for certain of our other novel therapeutic protein candidates, which are also based on the extracellular domains of Compugen-discovered B7/CD28-like membrane molecules. Two such additional product candidates, CGEN-15021 and CGEN-15091, are approaching the development stage of CGEN-15001 with encouraging results. Moreover, we recently announced that another two product candidates, CGEN-15031 and CGEN-15051, have demonstrated initial positive results in disease animal models supporting their predicted therapeutic utility. These Pipeline Program molecules clearly highlight one of the many advantages of our unique and broadly applicable predictive capabilities - the ability to predict and select multiple novel product candidates for each therapeutic field we target. Furthermore, we continue to see strong confirmation from others of our powerful discovery capabilities and the high potential value of our initial product candidates."

Dr. Cohen-Dayag continued, "In our ongoing commercialization discussions we are recognizing that to obtain the appropriate financial rewards for each of our multiple novel molecules in the broad therapeutic areas we are addressing, such as autoimmune diseases or oncology, in addition to demonstrating the potential for superiority over products in the market or under development by others, we will also require product differentiation among our own individual candidates in each such broad therapeutic area. Based on this understanding, as we continue these commercialization discussions, we are performing in depth studies to differentiate our product

candidates through the investigation of their modes of action and studies to allow the selection of the specific therapeutic indications for clinical development for each candidate. This includes initiating disease animal model testing in additional areas of unmet medical need in our therapeutic fields of focus."

Martin Gerstel, Compugen's Chairman of the Board, added, "Today, at a time when meaningful new drug candidates are in short supply, we are very pleased to have reached the point where our powerful predictive discovery platforms are systematically yielding numerous novel product candidates with the potential to address significant unmet medical needs. The establishment of our California mAb operations under exceptional world-recognized leadership is a key milestone in the pursuit of significantly greater financial rewards from our growing inventory of novel mAb targets, as is the expanded scope of early stage development and differentiation activities now underway with respect to our multiple, very promising B7/CD28 related therapeutic protein product candidates. We are confident that these decisions and actions mark an important value inflection point in the commercial development of the Company."

No revenues were recorded for either the first quarter of 2012 or 2011. As previously stated, the Company's initial future revenues will likely result primarily from license and research fees, and initial milestones.

The net loss for the most recent quarter was $4.1 million (including a non-cash expense of $543,000 related to stock based compensation), or $0.12 per share, compared with a net loss of $1.9 million (including a non-cash expense of $379,000 related to stock based compensation), or $0.06 per share, for the corresponding quarter of 2011. The increase in net loss for the most recent quarter resulted in large part from non-cash charges to finance expense due to the re-measurement of the embedded derivatives and exchange options components under the Baize research and development funding arrangements signed in late 2010 and 2011, and to a lesser extent, from increased research and development expenses, net.

Research and development expenses, net, for the first quarter of 2012 were $2.1 million, compared with $1.6 million for the first quarter of 2011, and remained the Company's largest expense. The growth in research and development expenses, net, reflects increasing levels of activity primarily with respect to independent investigators and service providers performing evaluation studies, an increased usage of lab materials, and expenses relating to the establishment of the Company's California-based mAb operations.

As of March 31, 2012 and 2011, the "Research and development funding arrangements" liability in the amount of $7.4 million and $4.2 million, respectively, relates to the accounting for the Baize research and development funding arrangements signed in December 2011 and December 2010. The liability balances are primarily related to the estimated fair values of the derivative instruments resulting from the right of the investor under both arrangements to waive his right to receive potential future payments in exchange for Compugen ordinary shares. After accounting for these funding arrangements, the Company reported financial expense of $1.0 million for the first quarter of 2012, compared with financial income of $294,000 for the comparable period of 2011.

As of March 31, 2012, cash and cash related accounts totaled $25.0 million, compared with $22.4 million at December 31, 2011. Both the March 31, 2012 and December 31, 2011 balances do not

include either the $6.0 million to be received during the remainder of 2012 under the December 2011 research and development funding arrangement or the market value of Compugen's holdings of Evogene shares at the end of each such period.

The March 31, 2012 cash and cash related balance includes net proceeds of $3.1 million from the at-the-market sale during the quarter by the Company of 551,000 Compugen ordinary shares at an average price of $5.93 per share. These were the first sales made by the Company under its Shelf Registration Statement filed in January, 2011, and since March 31, 2012, an additional 100,000 shares were sold at an average price of $6.12 per share, with all sales made pursuant to a sales agreement entered into with Cantor Fitzgerald & Co. in August 2011.

The Company anticipates cash usage for the remaining three calendar quarters of 2012 to be approximately $13 million. Compugen continues to have no long-term debt other than the book liability associated with the Baize research and development funding arrangements, which do not represent future cash obligations.

Conference Call and Webcast Information
Compugen will hold a conference call to discuss its first quarter 2012 results today, May 01, 2012 at 10:00 a.m. EST. To access the conference call, please dial 1-888-668-9141 from the US or +972-3-918-0609 internationally. The call will also be available via live webcast through Compugen's website, located at the following link. A replay of the conference call will be available approximately two hours after the completion of the live conference call. To access the replay, please dial 1-888-782-4291 from the US or +972-3-925-5918 internationally. The replay will be available through May 04, 2012.

(Tables to follow)

About Compugen
Compugen Ltd. is a leading therapeutic product discovery company focused on therapeutic proteins and monoclonal antibodies to address important unmet needs in the fields of immunology and oncology, either for Compugen or its partners. Unlike traditional high throughput trial and error experimental based drug candidate discovery, Compugen's discovery efforts are based on systematic and continuously improving *in silico* (by computer) product candidate prediction and selection followed by experimental validation, with selected product candidates being advanced in its Pipeline Program to the pre-IND stage. Compugen's *in silico* predictive models utilize a broad, continuously growing, infrastructure of proprietary scientific understandings and predictive platforms, algorithms, machine learning systems and other computational biology capabilities. The Company's business model primarily involves collaborations covering either the further development and commercialization of Compugen-discovered product candidates, or various forms of research and discovery arrangements, in both cases providing Compugen with potential milestone payments and royalties on product sales or other forms of revenue sharing. In 2012, Compugen established operations in California for the development of oncology and immunology monoclonal antibody drug candidates against mAb targets selected from Compugen's Pipeline Program. In 2002, Compugen spun-off an affiliate, Evogene Ltd. (www.evogene.com) (TASE: EVGN.TA), to utilize certain of the Company's *in silico* predictive discovery capabilities in

agricultural biotechnology. For additional information, please visit Compugen's corporate website at www.cgen.com.

This press release may contain “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. These statements include words such as “may”, “expects”, “anticipates”, “believes”, and “intends”, and describe opinions about future events. These forward-looking statements include, but are not limited to, statements relating to the therapeutic potential of Compugen's drug candidates, the potential positive effects of establishing mAb operations in California, and the anticipated cash usage for the remaining three quarters of 2012 and involve known and unknown risks and uncertainties that may cause the actual results, performance or achievements of Compugen to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. These and other factors are discussed in the "Risk Factors" section of Compugen’s Annual Report on Form 20-F for the year ended December 31, 2011 as filed with the Securities and Exchange Commission. In addition, any forward-looking statements represent Compugen’s views only as of the date of this release and should not be relied upon as representing its views as of any subsequent date. Compugen does not assume any obligation to update any forward-looking statements unless required by law.

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COMPUGEN LTD.
CONDENSED CONSOLIDATED STATEMENTS OF OPPERATIONS
(U.S. dollars in thousands, except for share and per-share amounts)

	Three Months Ended March 31	
	2012	**2011**
	Unaudited	**Unaudited**
Revenues	**-**	**-**
Research and development expenses	2,159	1,691
Less: governmental and other grants	(59)	(48)
Research and development expenses, net	2,100	1,643
Marketing and business development expenses	195	148
General and administrative expenses	824	643
Total operating expenses *	**3,119**	**2,434**
Operating loss	**(3,119)**	**(2,434)**
Financial income (expenses), net**	(1,000)	294
Other income	-	240
Net loss	**(4,119)**	**(1,900)**
Basic and diluted net loss per ordinary share	(0.12)	(0.06)
Weighted average number of ordinary shares outstanding	35,291,165	34,091,738

* Includes non-cash stock based compensation
** Includes non-cash expenses with respect to change in fair value of exchange option and embedded derivatives within research and development arrangements of approximately $1,247 for the period ended March 31, 2012 and $176 for the comparable period of 2011.

COMPUGEN LTD.
CONDENSED CONSOLIDATED BALANCE SHEETS DATA
(U.S. dollars, in thousands)

	March 31, 2012 Unaudited	December 31, 2011 Audited
ASSETS		
Current assets		
Cash, cash equivalents and short-term bank deposits	24,988	22,371
Restricted cash	95	92
Accounts receivable and prepaid expenses	661	546
Total current assets	**25,744**	**23,009**
Long-term investments		
Investment in Evogene	4,682	4,093
Long-term prepaid expenses	34	17
Severance pay fund	1,554	1,465
Total long-term investments	**6,270**	**5,575**
Property and equipment, net	**481**	**497**
Total assets	**32,495**	**29,081**
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities		
Accounts payable and accrued expenses	2,096	1,707
Total current liabilities	**2,096**	**1,707**
Long-term liabilities		
Research and development funding arrangements	7,375	6,150
Accrued severance pay	1,770	1,643
Total long-term liabilities	**9,145**	**7,793**
Total shareholders' equity	**21,254**	**19,581**
Total liabilities and shareholders' equity	**32,495**	**29,081**