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 of
The Securities Exchange Act of 1934

January 11, 2011

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 Form 20-F or 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):______

Indicate by check mark whether the registrant by furnishing the information contained in this form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes ☐ No ☒

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): N/A

EXPLANATORY NOTE

Compugen Ltd. (the "Registrant") is furnishing on this Form 6-K its unaudited interim consolidated financial statements for the nine months ended September 30, 2010 and September 30, 2009 and the related Operating and Financial Review and Prospects for such periods.

Attached hereto and incorporated herein are the following items:

1. Unaudited interim consolidated financial results, attached as Exhibit 1 hereto.

2. Operating and Financial Review and Prospects for the nine months ended September 30, 2010 and September 30, 2009, attached as Exhibit 2 hereto.

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.
(Registrant)

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

Date: January 11, 2011

Exhibit 1

COMPUGEN LTD. AND ITS SUBSIDIARIES

INTERIM CONSOLIDATED FINANCIAL STATEMENTS

AS OF SEPTEMBER 30, 2010

U.S. DOLLARS IN THOUSANDS

UNAUDITED

INDEX

CONSOLIDATED BALANCE SHEETS

U.S. dollars in thousands (except share and per share data)

	September 30, 2010 Unaudited	December 31, 2009
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 4,276	$ 15,139
Restricted Cash	155	161
Short-term bank deposits	17,161	500
Other accounts receivable and prepaid expenses	690	720
Receivables on account of shares	-	7,790
Total current assets	22,282	24,310
LONG-TERM INVESTMENTS:		
Investment in Evogene	5,350	3,898
Long-term lease deposits	16	18
Severance pay fund	1,392	1,224
Total long-term investments	6,758	5,140
PROPERTY AND EQUIPMENT, NET	626	735
Total assets	$ 29,666	$ 30,185
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Trade payables	$ 247	$ 199
Other accounts payable and accrued expenses	896	1,158
Deferred revenue	69	113
Total current liabilities	1,212	1,470
LONG-TERM LIABILITIES:		
Accrued severance pay	1,596	1,317
Total long-term liabilities	1,596	1,317
SHAREHOLDERS' EQUITY:		
Share capital:		
Ordinary shares of NIS 0.01 par value: 100,000,000 and 50,000,000 shares authorized at September 30, 2010 and December 31, 2009, respectively; 33,331,352 and 32,867,912 shares issued and outstanding at September 30, 2010 and December 31, 2009, respectively	90	88
Additional paid-in capital	187,704	184,523
Accumulated other comprehensive income	5,537	4,071
Accumulated deficit	(166,473)	(161,284)
Total shareholders' equity	26,858	27,398
Total liabilities and shareholders' equity	$ 29,666	$ 30,185

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENTS OF OPERATIONS

U.S. dollars in thousands (except share and per share data)

	Nine months ended September 30, 2010	Nine months ended September 30, 2009
	Unaudited	
Revenues	$ 925	$ 225
Cost of revenues	(198)	-
Gross profit	727	225
Operating expenses:		
Research and development expenses, net of Government and other grants amounted to $ 805 and $ 697 for the nine-month periods ended September 30, 2010 and 2009, respectively	3,675	3,673
Marketing and business development expenses	535	660
General and administrative expenses	2,095	1,570
Total operating expenses	6,305	5,903
Operating loss	(5,578)	(5,678)
Financial income, net	352	217
Other income, net	37	3,657
Loss from continuing operations	(5,189)	(1,804)
Income from discontinued operations	-	14
Net loss	$ (5,189)	$ (1,790)
Basic and diluted net loss per share from continuing operations	$ (0.16)	$ (0.06)
Basic and diluted net loss per share from discontinued operations	$ -	$ -
Basic and diluted net loss per share	$ (0.16)	$ (0.06)
Weighted average number of Ordinary shares used in computing basic and diluted net loss per share	33,199,059	28,526,084

*) Includes stock-based compensation.

The accompanying notes are an integral part of the consolidated financial statements.

STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

U.S. dollars in thousands (except share data)

	Ordinary shares		Additional paid-in capital	Accumulated other comprehensive income	Accumulated deficit	Total shareholders' equity	Total comprehensive loss
	Number	Amount					
Balance as of January 1, 2009	28,512,440	$ 77	$ 163,181	$ 4,198	$ (157,453)	$ 10,003	
Employee options exercised	283,772	*) -	750	-	-	750	
Issuance of shares	4,071,700	11	19,063	-	-	19,074	
Stock-based compensation relating to options and warrants issued to scientific advisory board members and consultants	-	-	225	-	-	225	
Stock-based compensation relating to options issued to employees	-	-	1,304	-	-	1,304	
Realized gain on the investment in Evogene	-	-	-	(3,721)	-	(3,721)	$ (3,721)
Unrealized gain on the investment in Evogene	-	-	-	3,594		3,594	3,594
Net loss	-	-	-	-	(3,831)	(3,831)	(3,831)
Total comprehensive loss							$ (3,958)
Balance as of December 31, 2009	32,867,912	88	184,523	4,071	(161,284)	27,398	
Employee options exercised	463,440	2	1,426	-	-	1,428	
Stock-based compensation relating to options and warrants issued to consultants	-	-	219	-	-	219	
Stock-based compensation relating to options issued to employees	-	-	1,536	-	-	1,536	
Unrealized gain on the investment in Evogene	-	-	-	1,466	-	1,466	$ 1,466
Net loss	-	-	-	-	(5,189)	(5,189)	(5,189)
Total comprehensive loss							$ (3,723)
Balance as of September 30, 2010 (unaudited)	33,331,352	$ 90	$ 187,704	$ 5,537	$ (166,473)	$ 26,858	

*) Represents an amount lower than $ 1.

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

U.S. dollars in thousands

	Nine months ended September 30, 2010	Nine months ended September 30, 2009
	Unaudited	
Cash flows from operating activities:		
Net loss	$ (5,189)	$ (1,790)
Adjustments required to reconcile net loss to net cash used in operating activities:		
Stock-based compensation relating to options and warrants issued to scientific advisory board members and consultants	219	131
Stock-based compensation relating to options issued to employees	1,536	958
Depreciation	151	252
Accrued severance pay, net	111	(44)
Capital gain from property and equipment	(25)	(78)
Gain from sale of Evogene shares	(37)	(3,723)
Payments to European communities consortium partners	-	183
Decrease in other accounts receivable and prepaid expenses	44	438
Decrease in trade payables and other accounts payable and accrued expenses	(214)	(1,650)
Decrease in deferred revenue	(44)	(38)
Net cash used in discontinued operations operating activities	-	(12)
Net cash used in operating activities	(3,448)	(5,373)
Cash flows from investing activities:		
Decrease in restricted Cash	6	-
Proceeds from redemption of deposits	500	2,598
Investment in bank deposits	(17,161)	-
Purchase of property and equipment	(42)	(23)
Decrease in long-term lease deposits	2	16
Proceeds from sale of investment in Evogene	51	3,557
Proceeds from sale of property and equipment	11	123
Net cash provided by (used in) investing activities	(16,633)	6,271
Cash flows from financing activities:		
Proceeds from issuance of shares, net	7,790	-
Proceeds from exercise of options	1,428	108
Net cash provided by financing activities	9,218	108
Increase (Decrease) in cash and cash equivalents	(10,863)	1,006
Cash and cash equivalents at the beginning of the period	15,139	4,650
Cash and cash equivalents at the end of the period	$ 4,276	$ 5,656

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

U.S. dollars in thousands

		Nine months ended September 30,	
		2010	**2009**
		Unaudited	
(a)	Non-cash activities:		
	Exercise of options	$ -	$ 15
	Sale of property and equipment on credit	$ 14	$ 63

NOTE 1:- GENERAL

a. Compugen is a drug and diagnostic discovery company that relies on unique computer-based discovery platforms to systematically predict and select novel product candidates in areas of high industry interest and unmet medical need. Following this computer based prediction and selection, the resulting *in silico* novel molecules are synthesized and then validated utilizing traditional *in vitro* and *in vivo* experimental procedures. Compugen’s business model is to provide an increasing number of these validated product candidates to pharmaceutical, biotech and diagnostic companies under licensing and other commercialization arrangements whereby the Company is entitled to receive advance fees or research revenues, milestone payments and revenue-sharing amounts from the development and commercialization by such companies of products based on its candidate molecules.

The Company's headquarters and research facilities are located in Israel.

b. Investment in Evogene:

In 1999, the Company established a division focusing on agricultural biotechnology and plant genomics called Evogene Ltd. ("Evogene"). Evogene is an Israeli corporation primarily engaged in delivering improved plant traits to the agbio industry through the use of a platform combining computational genomics, molecular biology and breeding methods. During June 2007, Evogene completed an initial public offering ("IPO") on the Tel-Aviv Stock Exchange. Prior to the IPO, the excess of losses over investment in Evogene amounted to $ 466 and was presented as a liability included in the Company's balance sheet that represents excess of losses sustained by Compugen over its investment through the deconsolidation date. In August 2008, Evogene signed a collaboration agreement involving shares equity investment with third party. In June 2009 the Company sold 1,000,000 of Evogene's Ordinary shares to a third party in a private transaction for $ 3,557, net. The basis on which the cost of a security sold or the amount reclassified out of accumulated other comprehensive income into earnings was determined is a specific identification. As a consequence of the IPO, the additional equity investment and the sale transaction the Company currently holds 1,150,000 shares representing 3.9% of Evogene outstanding Ordinary shares.

As of September 30, 2010, the investment in Evogene was accounted for as available-for-sale marketable security in accordance with ASC 320-10.

Available-for-sale securities are carried at fair value, with the recognized gains and losses reported as a separate component of shareholders' equity under accumulated other comprehensive income in the consolidated balance sheet

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES

The significant accounting policies applied in the annual financial statements of the Company as of December 31, 2009 are applied consistently in these financial statements. For further information, refer to the consolidated financial statements as of December 31, 2009.

NOTE 3:- UNAUDITED INTERIM CONSOLIDATED FINANCIAL STATEMENTS

The accompanying unaudited interim consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States for interim financial information. Accordingly, they do not include all the information and footnotes required by accounting principles generally accepted in the United States for complete financial statements. In the opinion of management, all adjustments (consisting of normal recurring accruals) considered necessary for a fair presentation have been included.

NOTE 3:- UNAUDITED INTERIM CONSOLIDATED FINANCIAL STATEMENTS (Cont.)

Operating results for the nine-month period ended September 30, 2010 are not necessarily indicative of the results that may be expected for the year ended December 31, 2010.

NOTE 4:- REVENUES

In the nine month period ended September 30, 2010 the Company recognized revenues from product candidate collaboration agreements, under which the Company performs research services.

The Company views its product candidate collaboration agreements under which it performs research services as arrangements subject to the revenue recognition criteria in ASC 605-10. Revenue is being recognized when the Company completes its performance obligation.

NOTE 5:- SHAREHOLDERS EQUITY

In July 2010, the Company adopted the Compugen Ltd. 2010 Share Incentive Plan (the "Plan"), which replaced the Compugen Share Option Plan (2000) adopted in March 2000. The plan provides for the grant of options to purchase 1,953,851 ordinary shares to employees and consultants of the Company and its subsidiaries. Any available pool under the old plans, including any additional options that may return to the pool in connection with the termination of options granted under old option plans but not exercised prior to their termination, will be made available for future grants under the Plan.

During the nine month period ended September 30, 2010, the Company's Board of Directors granted total options to purchase 1,514,000 shares of the Company's common stock. 1,318,000, 21,000 and 175,000 options were granted to employees, consultant and directors, respectively.

The exercise price for the options granted during the nine month period ended September 30, 2010 ranges $ 3.43-$ 5 per share. Options' vesting period range is up to 4 years.

The Company usually estimates the fair value of stock options granted using the Black-Scholes option pricing model. The option pricing model requires a number of assumptions, of which the most significant are the expected stock price volatility and the expected option term. Expected volatility was calculated based upon actual historical stock price movements. The expected term of options granted assumptions are based on the Company historical experience, in accordance with the guidance of ASC 718 and SAB 110. The risk-free interest rate is based on the yield from U.S. treasury bonds with an equivalent term. The Company has historically not paid dividends and has no foreseeable plans to pay dividends.

The Company used the following weighted-average assumptions for granted options for the period ended September 30, 2010: expected volatility – 79%, risk free interest rate – 2.34%, dividend yield – 0%, expected life of up to (years) – 5

During the nine month periods ended September 30, 2010 and 2009 the Company recorded share based compensation in total of $ 1,755 and $ 1,089, respectively.

U.S. dollars in thousands (except share data)

NOTE 6:- FAIR VALUE MEASURMENTS

The Company adopted ASC 820-10 effective January 1, 2008, with respect to fair value measurements of (a) nonfinancial assets and liabilities that are recognized or disclosed at fair value in the Company's financial statements on a recurring basis (at least annually) and (b) all financial assets and liabilities. The Company measures marketable securities available-for-sale at fair value. Marketable securities are classified only within Level 1 for these assets are valued using quoted market prices. Foreign currency derivative contracts are classified within Level 2 as the valuation inputs are based on quoted prices and market observable data of similar instruments. As of September 30, 2010 foreign currency derivative contracts amounted to $ 15. As of December 31, 2009 there are no foreign currency derivative contracts recorded in the Company's balance sheet.

NOTE 7:- DERIVATIVE INSTRUMENTS

None of the Company's derivatives qualify for hedge accounting under ASC 815-10. They are recognized on the balance sheet at their fair value, with changes in the fair value carried to the statements of operations and included in financial income/expenses.

In the nine month period ended September 30, 2010, the Company recorded net losses from forward contracts transactions in the amount of $ 19. In the nine month period ended September 30, 2009 the Company recorded net losses from forward contracts in the amount of $ 41.

NOTE 8:- COMMITMENTS AND CONTINGENCIES

a. The Company provided a bank guarantee in the amount of $ 100 in favor of its offices' lessor in Israel.

b. Commitments in favor of the Government of Israel and other grants:

1. As of September 30, 2010, the Company's aggregate contingent obligations for payments to Office of the Chief Scientist and BIRD, based on royalty-bearing participation received or accrued, net of royalties paid or accrued, totaled approximately to $ 7,166 and $ 500, respectively.

2. Under the BIRD royalty-bearing program, the Company is not obligated to repay any amounts received from BIRD if no income is generated from the results of the funded research program. If such income is generated, the Company is required to repay BIRD 100% of the grant that the Company received provided that the repayment to BIRD is made within the first year following expiry of the term of the project. For every year that the Company does not make these repayments, the amounts to be repaid incrementally increase up to an amount of 150% in the fifth year following expiry of the term of the project. All amounts to be repaid to BIRD are linked to the U.S. Consumer Price Index.

3. Under the OCS royalty-bearing programs, the Company is not obligated to repay any amounts received from the OCS if it does not generate any income from the results of the funded research program. If income is generated and the research program is successful, the Company is committed to pay royalties at a rate of 3% to 5% of sales of the products arising from such research program, up to a maximum of 100% of the amount received, linked to the U.S. dollar (for grants received under programs approved subsequent to January 1, 1999, the maximum to be repaid is 100% plus interest at LIBOR).

NOTE 8:- COMMITMENTS AND CONTINGENCIES (Cont.)

For the nine month period ended September 30, 2010 the Company paid or accrued royalties to the OCS in the amount of $ 32 (unaudited). For the period ended December 31, 2009 the Company had an aggregate of paid and accrued royalties to the OCS in the amount of $ 9.

NOTE 9:- SUBSEQUENT EVENTS

Subsequent to the balance sheet date the Company entered into an agreement (the “Funding Agreement”) with an investor whereby the investor agreed to provide the Company with $ 5 million in support of the Company’s Pipeline Program. In exchange, the investor received (i) with respect to five designated molecules that are currently in the Pipeline Program, the right to receive ten percent (which amount may be reduced under certain circumstances) (the “Participation Payments”) of certain cash consideration (including both development and post-marketing fees) that may be received by Compugen in the future pursuant to any licenses covering the development and commercialization of products developed from these five designated molecules, provided that, in all cases, any such Participation Payments are to reduced by certain pass-through amounts; and (ii) warrants for 500,000 Compugen ordinary shares, exercisable at $ 6.00 per share through June 30, 2013. In addition, the investor has the right, until June 30, 2013, to waive its right to receive Participation Payments, in exchange for 833,334 ordinary shares.

Exhibit 2

OPERATING AND FINANCIAL REVIEW AND PROSPECTS

RESULTS OF OPERATIONS

Nine months ended September 30, 2010 and 2009

Revenues. Revenues increased by approximately $700,000 to approximately $925,000 for the nine months ended September 30, 2010 from approximately $225,000 in the first nine months of 2009. The increase during the first nine months of 2010 is primarily due to revenue recognition under certain product candidate research and collaboration agreements.

Cost of Revenues. Cost of revenues attributable to certain product candidate research and collaboration agreements totaled approximately $198,000 for the first nine months of 2010 and zero for the first nine months of 2009.

Research and Development Expenses, Net. Research and development expenses, net, were approximately $3.7 million for the first nine months of both 2009 and 2010. Governmental and other research and development grants received by us, which are subtracted from research and development expenses in the calculation of research and development expenses, net, increased to approximately $805,000 for the first nine months of 2010 from approximately $697,000 in the first nine months of 2009. This increase was largely offset by the increase in non-cash expense related to stock based compensation, such non-cash expense was approximately $725,000 for the first nine months of 2010 compared with approximately $528,000 for the first nine months of 2009. Research and development expenses, net, as a percentage of total operating expenses, decreased to 58% for the first nine months of 2010 from 62% for the first nine months of 2009.

Marketing and Business Development Expenses. Marketing and business development expenses decreased by 19% to approximately $535,000 for the first nine months of 2010 from approximately $660,000 for the first nine months of 2009. This decrease was due to the consolidation of the company's business development activities at its corporate offices during 2009. Marketing and business development expenses, as a percentage of total operating expenses, decreased to 8% for the first nine months of 2010 from 11% for the first nine months of 2009.

General and Administrative Expenses. General and administrative expenses increased by 33% to approximately $2.1 million for the first nine months of 2010 from approximately $1.6 million for the first nine months of 2009. The increase was primarily due to non-cash expenses related to stock based compensation which totaled approximately $873,000 for the first nine months of 2010 compared with approximately $495,000 for the first nine months of 2009. Due to this increase in non-cash expenses, general and administrative expenses, as a percentage of total operating expenses, increased to 33% for the first nine months of 2010 from 27% for the first nine months of 2009.

Financial Income, Net. Financial income, net, increased by 62% to approximately $352,000 for the first nine months of 2010, from approximately $217,000 for the first nine months of 2009. This increase was primarily due to an increase in deposits of cash and cash related accounts as a result of our sale of ordinary shares in an "at the market" offering on Nasdaq during the fourth quarter of 2009.

Other Income. Other income, net, decreased to approximately $37,000 for the first nine months of 2009 from approximately $3.7 million for the first nine months of 2009. The $3.7 million reported for the first nine months of 2009 was due to a realized gain in 2009 deriving from the sale of a portion of our holdings of Evogene ordinary shares.

LIQUIDITY AND CAPITAL RESOURCES

Net Cash Used in Operating Activities

Net cash used in operating activities decreased to approximately $3.4 million in the first nine months of 2010 compared with approximately $5.4 million in the first nine months of 2009. Cash was used to fund our net losses for these periods, adjusted for non-cash expenses and changes in operating assets and liabilities, including compensation relating to stock options. The main sources of cash during the first nine months of 2010 were cash bank balances, revenues from product candidate research and collaboration agreements, governmental and other grants, and cash from the exercise of stock options.

Net Cash Used in Investing Activities

Net cash used in investing activities consisted of investments in bank deposits offset by proceeds from redemption of such deposits. Net cash used in investing activities for the first nine months of 2010 was approximately $16.6 million compared with net cash generated by investing activities of approximately $6.3 million in the first nine months of 2009. The increase in deposits in the 2010 period related to the proceeds from our “at the market” offering on Nasdaq at the end of 2009.

Net Cash Provided by Financing Activities

Net cash provided by financing activities was approximately $9.2 million in the first nine months of 2010 and approximately $108,000 in the first nine months of 2009. The principal sources of cash provided by financing activities in the first nine months of 2010 were the receipt of the remaining amounts due from the issuance of shares in an “at the market” offering on Nasdaq in December 2009 and proceeds received from the issuance of ordinary shares as a result of the exercise of stock options.

Net Liquidity

Liquidity refers to liquid financial assets available to fund our business operations and pay for near-term obligations. These liquid financial assets mostly consist of cash and cash equivalents as well as short-term deposits and marketable securities. As of September 30, 2010, we had total cash and cash equivalents as well as short-term deposits of approximately $21.4 million, not including the market value of the approximately one million shares of Evogene ordinary shares owned by the company.