

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 May 2009

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 X

Form 40-F

On May 14, 2009 Compugen Ltd. (the "Registrant") issued a Press Release, 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: Ms. Dikla Czaczkes Axselbrad
Title: Chief Financial Officer
Date: May 14, 2009



Compugen Announces In Vivo Confirmation of Cardiovascular Therapeutic Potential for Two Novel Peptides

Recent results demonstrate cardioprotective and anti-hypertensive effects;
CGEN-856 and CGEN-857 discovered using GPCR peptide ligand discovery platform

Tel Aviv, Israel, May 14, 2009 --- Compugen Ltd. (NASDAQ: CGEN) announced today follow-on positive in-vivo results for CGEN-856 and CGEN-857, two novel peptide agonists of the MAS G-protein coupled receptor (GPCR), the discovery of which was disclosed by the Company last year. These results, obtained from a series of recently completed studies, demonstrate both the cardioprotective and anti-hypertensive effects of these two product candidates.

In an animal model of myocardial infarction, both CGEN-856 and CGEN-857 afforded cardioprotection, as manifested by reduction of infarct size and cardiac function. This effect was similar to that obtained with Captopril, a known ACE inhibitor drug. In another study, acute administration of CGEN-856 to normotensive or hypertensive rats resulted in a dose-dependent decrease in blood pressure, which was significantly more pronounced in the hypertensive rats. The anti-hypertensive effect of CGEN-856 was maintained for more than one hour post infusion, suggesting that its in-vivo stability is higher than that of Ang(1-7), the known ligand of the MAS receptor.

CGEN-856 and CGEN-857 were predicted and selected *in silico* through the use of the Company's GPCR peptide ligand discovery platform, following which initial validation studies indicated potential vasodilating, anti-arrhythmogenic and cardioprotective effects. The results of the recent studies being reported today provide further confirmation that CGEN-856 and CGEN-857 have the potential to be developed as cardioprotective and anti-hypertensive therapeutic agents.

Compugen vice president for R&D Dr. Anat Cohen Dayag said, "All of our product candidates, including CGEN-856 and 857, begin purely as computer generated theoretical predictions. Thus we are extremely pleased by the rapidly growing amount of experimental validation supporting the validity of our in silico predictions, both in terms of breadth of applications and depth of confirmation. This increasing body of evidence not only validates the specific platforms and products involved, but more importantly demonstrates the commercial potential resulting from our very successful decade long research focus on gaining predictive understandings of key physiological processes at the molecular level."

About MAS GPCR and the Renin-Angiotensin System

The MAS GPCR is a component of the renin-angiotensin system (RAS), which is considered to be one of the most important regulatory systems for cardiovascular health. The RAS, which was originally considered to be a linear system, is now known to have two major counter-regulatory arms. The first and well studied arm is the ACE-angiotensin II axis, and existing drugs that inhibit RAS. These include ACE inhibitors and angiotensin II receptor blockers (ARBs). The more recently discovered counter regulatory arm is the ACE2 – angiotensin(1-7)-MAS axis, which includes the MAS receptor which CGEN-856 and CGEN-857 have been shown to activate. Recent studies indicate that activation of the MAS axis exerts cardioprotective effects, including prevention of detrimental cardiac remodeling following ischemia, improvement of cardiac function, attenuation of renal abnormalities associated with hypertension and reduction of the

duration of cardiac arrhythmias in response to reperfusion injury, thus pointing to this axis as a potential target for cardiovascular drug development.

About Compugen

Compugen is a leading drug and diagnostic product candidate discovery company. Unlike traditional high throughput trial and error experimental based discovery, Compugen's discovery efforts are based on *in-silico* (by computer) prediction and selection utilizing a growing number of field focused proprietary discovery platforms accurately modeling biological processes at the molecular level. The resulting product candidates are then validated through *in vitro* and *in vivo* experimental studies and out-licensed for further development and commercialization under various forms of revenue sharing agreements. Compugen's current collaborations include Biosite, Medarex, Inc., Merck & Co., Inc., Merck Serono, Ortho-Clinical Diagnostics (a Johnson & Johnson company), Roche, Siemens Healthcare Diagnostics, Inc., and Teva Pharmaceutical Industries. In 2002, Compugen established 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 Web site 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 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. Some of these risks are: changes in relationships with collaborators; the impact of competitive products and technological changes; risks relating to the development of new products; and the ability to implement technological improvements. These and other factors are identified and more fully explained under the heading "Risk Factors" in Compugen's annual reports filed with the Securities and Exchange Commission.

Company contact:

Marjie Hadad
Global Media Liaison
Compugen Ltd.
Email: marjie@cgen.com
Tel: +972-54-536-5220