FOR IMMEDIATE RELEASE

Compugen Discloses its Cancer Immunotherapy Program Targeting TIGIT Immune Checkpoint

Enhanced therapeutic effect anticipated for antibody treatment combining the targeting of both TIGIT and CGEN-15029

HOLON, ISRAEL, December 7, 2016 — Compugen Ltd. (NASDAQ: CGEN), a leading predictive drug discovery company, disclosed today CGEN-15137, its cancer immunotherapy program for TIGIT. TIGIT is an immune checkpoint in the B7/CD28 family which has recently gained broad industry interest in the field of immuno-oncology.

At the recent Annual Meeting of the Society for Immunotherapy of Cancer, the Company disclosed data demonstrating that the CGEN-15029/PVRIG immune checkpoint, discovered by Compugen represents a new inhibitory component of the known TIGIT axis. Data was also presented that strongly support combining the Company's COM701 anti-PVRIG antibody, which is now in preclinical studies, with an anti-TIGIT antibody. Compugen hypothesized that dual blockade of the two negative costimulatory arms of the axis – TIGIT and PVRIG – should result in a more robust T cell response, and therefore possibly a better anti-tumor immune response. To support this, *in vitro* studies were conducted which show that dual blockade of both TIGIT and PVRIG increases the activity of tumor infiltrating T cells (TILs) beyond the level achieved by blocking each alone. Leveraging its knowledge, Compugen initiated a therapeutic antibody program targeting TIGIT to complement its CGEN-15029 program.

Anat Cohen-Dayag, Ph.D., CEO and President of Compugen, stated, "We are excited to disclose our therapeutic program for TIGIT, an immuno-oncology target of high industry interest. Our efforts to date have demonstrated the potential enhanced efficacy of a combination treatment of a TIGIT antibody together with COM701. TIGIT and PVRIG represent two distinct arms of the same biological pathway. Based on this and our experimental data demonstrating synergistic activation of T cells, we believe there is a significant added value to developing both arms of this potential combination therapy. Currently we are in the process of developing a therapeutic antibody for CGEN-15137/TIGIT, and expect to select the lead antibody for this target by end of the first quarter of 2017."

Dr. Cohen-Dayag continued, "It is becoming clearer that more closely tailored combination therapies will be able to address, in the future, a higher percentage of cancer patients. We therefore have high expectations for our diversified portfolio of novel immune checkpoint candidates."

Internally designated as CGEN-15137, TIGIT was discovered by Compugen utilizing its *in silico* predictive discovery infrastructure and experimentally validated as an immune checkpoint. The findings were published by Compugen in the October 2009 issue of the Proceedings of National Academy of Sciences (PNAS) [i]. In the same year, two other groups also published papers disclosing the same checkpoint. Antibodies targeting TIGIT being developed by others entered Phase I clinical testing during the past few months.

Additional information regarding the CGEN-15137/TIGIT program, as well as other programs, will be provided today at the Company's R&D Day in New York City. A live webcast of the event will be available on the investors section of Compugen's website beginning at 9:00 a.m. ET today. An archived replay of the webcast will be available on the website for 30 days following the event.

About TIGIT

TIGIT is an immune checkpoint that can inhibit both T cell and NK cell activation when bound to its ligand, PVR (also known as CD155). TIGIT expression is increased on tumor infiltrating lymphocytes (TILs), and inhibition of T cell activation by TIGIT has been reported to be mediated by its ability to disrupt DNAM-1 (also known as CD226) costimulatory signals. Recent preclinical studies have shown that antibody antagonists of TIGIT can potently inhibit tumor growth in mouse cancer models when combined with PD1 pathway blockade.

About Compugen

Compugen is a leading therapeutic discovery company utilizing its broadly applicable predictive discovery infrastructure to identify novel drug targets and develop first-in-class biologics. The primary focus of the Company's current pipeline is on immune checkpoint target candidates discovered by the Company, potentially providing the basis for a next wave of therapeutics for cancer immunotherapy. Compugen's business model is based on selectively entering into collaborations for its novel target candidates and drug product candidates at various stages of research and development under revenue-sharing agreements. The Company is headquartered in Israel, with R&D facilities in Israel and South San Francisco. At the US facilities, monoclonal antibody therapeutic candidates are discovered and developed against the Company's novel target candidates. For additional information, please visit Compugen's corporate website at http://www.cgen.com.

Forward Looking Statement

This press release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements can be identified by the use of terminology such as "will," "may," "expects," "anticipates," "believes," and "intends," and describe opinions about future events, and include statements relating to the potential of the CGEN-15029 program for the development of new cancer immunotherapy treatments, including the potential of COM701 alone or combined with anti-CGEN-15137 antibody as a new cancer immunotherapy treatment. 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. Among these risks: Compugen's business model is

substantially dependent on entering into collaboration agreements with third parties, and Compugen may not be successful in generating adequate revenues or commercializing aspects of its business model. Moreover, the development and commercialization of therapeutic candidates involve many inherent risks, including failure to progress to clinical trials or, if they progress to or enter clinical trials, failure to receive regulatory approval. These and other factors are more fully discussed in the "Risk Factors" section of Compugen's most recent Annual Report on Form 20-F as filed with the Securities and Exchange Commission as well as other documents that may be subsequently filed by Compugen from time to time 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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[i] Stanieski et al. (2009) PNAS 106(42):17858-63. doi: 10.1073/pnas.0903474106.