FOR IMMEDIATE RELEASE

Compugen Immune Checkpoint Program Demonstrates Potential for Development of New Cancer Immunotherapy Treatments

New preclinical results for CGEN-15029 presented in late-breaking session at Annual Meeting of the Society for Immunotherapy of Cancer

HOLON, ISRAEL – November 11, 2016 – Compugen Ltd. (NASDAQ: CGEN), a leading predictive drug discovery company, today presented new data for its preclinical CGEN-15029 program demonstrating the potential for the development of new cancer immunotherapy treatments for solid tumors, including the potential for drug combination with current immune checkpoint blockers. CGEN-15029 is the internal designation for PVRIG, a novel immune checkpoint identified by Compugen utilizing its *in silico* predictive discovery infrastructure. The Company plans to file an IND in 2017 for COM701, its lead antibody targeting PVRIG.

Today's presentation, titled "Computational identification, functional characterization and antibody blockade of a new immune checkpoint in the TIGIT family of interacting molecules" was made by John Hunter, Ph.D., Site Head and Vice President, Antibody R&D, Compugen USA, Inc. The presentation included the discovery by Compugen of PVRIG and its expression pattern in the context of cancer, demonstrating that PVRIG is expressed in infiltrating immune cells in solid tumors, specifically on cells with potent anti-tumor activity, such as effector T-cells and natural killer cells. Also disclosed was the identification of PVRL2 as PVRIG's ligand, and the functional characterization and anti-tumor *in vitro* and *in vivo* efficacy of blocking antibodies developed by Compugen targeting the interaction of PVRIG with PVRL2. Binding of PVRIG to PVRL2 is of particular therapeutic interest, as it links PVRIG to the axis of a second immune checkpoint, TIGIT, which is recently gaining traction in the field of immuno-oncology.

In his presentation, Dr. Hunter presented additional data demonstrating that antibodies developed by Compugen, which block the interaction between PVRIG and PVRL2, enhance activation of the immune system by activating both primary CD4+ T-cells and tumor-derived CD8+ T-cells.

Consistent with the placement of PVRIG in the TIGIT axis, antibody blockade of both TIGIT and PVRIG had an additive effect on human T-cell stimulation, indicating the potential of the two to generate enhanced immune response against the cancer. Moreover, antibodies targeting the mouse PVRIG developed by the Company were assessed *in vivo* for effects on tumor growth inhibition in mouse models, commonly used to study immune checkpoint inhibitors. In these studies, antibodies that block the mouse PVRIG/PVRL2 interaction, similar to those generated against the human target, were shown to inhibit tumor growth when used in combination with

PD1 pathway blockade. These results were further reinforced when tumor growth was tested in knock-out (KO) mice. Tumor growth was significantly reduced in KO mice, where the PVRIG gene was removed. Consistent with the antibody combination data, this effect was even further enhanced in the KO mice when they were treated with anti-PDL1 blocking antibodies.

Collectively, the experimental data strongly suggest that PVRIG, which was initially predicted computationally by the Company to serve as a novel immune checkpoint target, presents a new opportunity for the development of cancer immunotherapy treatments, including the potential for drug combination with current immune checkpoint blockers.

In June 2016, the Company selected COM701, a high affinity antagonist antibody against PVRIG, as the lead therapeutic candidate for the program. COM701, which is currently in preclinical development by the Company, demonstrates potent and reproducible enhancement of T-cell activation, consistent with the desired mechanism-of-action required to generate anti-tumor immune responses.

Anat Cohen-Dayag, Ph.D., CEO and President of Compugen, explained, "While antibody blockade of the CTLA4 and PD1 pathways has emerged as an effective treatment modality for certain types of cancer, the majority of patients do not derive long-term benefits, suggesting a need for additional approaches such as new immune checkpoints targeting new pathways and providing new mechanisms to activate the immune response against the tumor. Employing our unique predictive infrastructure to define new immune checkpoint targets, we identified PVRIG, among other novel immune checkpoint target candidates in our target pipeline."

Dr. Cohen-Dayag continued, "We are very pleased to see the rapidly increasing amount of preclinical data demonstrating the potential utility of COM701, an antibody targeting PVRIG, as a new cancer immunotherapy treatment. These results highlight, once more, the power and uniqueness of our computational predictive approach - from computer prediction of novel drug targets to preclinical validation. This capability, along with our significantly enhanced development infrastructure, allows us now to pursue and advance a number of novel immuno-oncology programs with potentially different mechanisms-of-action, thus providing us with a diversified early-stage internal target pipeline, in addition to the two programs that are the subject of an ongoing pharma collaboration."

About PVRIG

PVRIG (designated internally as CGEN-15029) is one of the novel B7/CD28-like immune checkpoint target candidates discovered by Compugen utilizing its predictive discovery infrastructure. The CGEN-15029 target was predicted *in silico* and experimentally confirmed to be a receptor-like immune checkpoint protein expressed on immune cells. In June 2016, COM701, a high affinity antagonist antibody against CGEN-15029, was selected as the lead therapeutic candidate for the program.

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 for solid tumors, including the potential for drug combination with current immune checkpoint blockers and the potential of COM701 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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