FOR IMMEDIATE RELEASE

Compugen Doses First Patient in Phase 1 Combination Study of COM902 and COM701 in Patients with Advanced Malignancies

- Combination study evaluates dual blockade of PVRIG and TIGIT, parallel and distinct DNAM axis checkpoint pathways

- Phase 1 COM902 monotherapy dose escalation study is complete with initial results on track for Q4 2021

HOLON, ISRAEL – July 15, 2021 – Compugen Ltd. (Nasdaq: CGEN), a clinical-stage cancer immunotherapy company and a leader in predictive target discovery today announced that the first patient has been dosed in its Phase 1 clinical study evaluating the dual combination of COM902, the Company's potential best-in-class, high-affinity anti-TIGIT antibody and COM701, Compugen's first-in-class anti-PVRIG antibody in patients with advanced malignancies who have exhausted all available standard therapies.

"This Phase 1 combination study is an important component in our clinical strategy, evaluating the dual blockade of DNAM axis members PVRIG and TIGIT," said Anat Cohen-Dayag, Ph.D., President and CEO of Compugen. "Our belief is that dual blockade of these distinct checkpoint pathways has the potential to expand the number of patients who respond to treatment with immunotherapy. We continue to move forward as leaders in the DNAM axis space with ongoing single, dual and triple combination clinical studies. We look forward to initial results of the COM902 monotherapy dose escalation study expected in Q4 2021".

The COM902 monotherapy dose escalation arm of this Phase 1 open-label study is complete. The Phase 1 study is designed to assess the safety, tolerability, pharmacokinetics, pharmacodynamics, and preliminary antitumor activity of COM902 alone and in combination with COM701 in patients with advanced malignancies who have exhausted all available standard therapies. The COM902 monotherapy dose expansion study, will be in subjects with select tumor types, preferably multiple myeloma. The COM902 in combination with COM701 dose expansion arm is expected

to be in select tumor types, PD1 refractory or relapsing HNSCC, NSCLC and CRC (MSS). The study is being conducted in multiple leading oncology clinical centers in the United States with an estimated enrolment of 90 participants across all arms. (NCT04354246).

About COM902

COM902 is a high affinity, fully human antibody that blocks the interaction of TIGIT with PVR, its ligand, and consequently enhances T cell function. Data suggests that COM902 has in vitro activity comparable or superior to TIGIT antibodies in clinical development. It is currently being evaluated in a Phase 1 clinical studies in patients with advanced malignancies who have exhausted all available standard therapies. Compugen has demonstrated in preclinical studies that simultaneous inhibition of TIGIT and PVRIG, the two coinhibitory arms of the DNAM axis, can increase antitumor immune responses, which may be further enhanced with the addition of PD-1 blockade. These data suggest that treatment with COM701 and COM902, targeting PVRIG and TIGIT, respectively, alone or in combination with a PD-1 inhibitor, has the potential to expand immuno-oncology treatment to patient populations who are non-responsive or refractory to existing immunotherapies. The discovery of TIGIT, using the Company's computational discovery platform, was published by Compugen in October 2009 in the Proceedings of the National Academy of Sciences (PNAS).

About COM701

COM701 is a humanized antibody that binds with high affinity to PVRIG, a novel immune checkpoint discovered computationally by Compugen, blocking the interaction with its ligand, PVRL2. Blockade of PVRIG by COM701 has demonstrated in preclinical studies potent, reproducible enhancement of T cell activation, consistent with the desired mechanism of action of activating T cells in the tumor microenvironment to generate anti-tumor immune responses. PVRIG and TIGIT, also discovered by Compugen's computational discovery platform in 2009, constitute parallel immune checkpoint pathways that counteract DNAM, a costimulatory molecule on T cells and NK cells. As such, preclinical data suggest that the inhibition of PVRIG together with TIGIT and/or PD-1 has the potential to further enhance anti-tumor immune response and improve patient outcomes in a broad variety of tumor types.

About Compugen

Compugen is a clinical-stage therapeutic discovery and development company utilizing its broadly applicable, predictive computational discovery platforms to identify novel drug targets and develop therapeutics in the field of cancer immunotherapy. Compugen's lead product candidate, COM701, a first-in-class anti-PVRIG antibody, for the treatment of solid tumors, is undergoing Phase 1 single, dual and triple combination studies. In

addition, COM902, Compugen's antibody targeting TIGIT, is in a Phase 1 clinical study. Compugen's therapeutic pipeline also includes early stage immuno-oncology programs focused largely on myeloid targets. Compugen is headquartered in Israel, with offices in South San Francisco, CA. Compugen's shares are listed on Nasdaq and the Tel Aviv Stock Exchange under the ticker symbol CGEN. For additional information, please visit Compugen's corporate website at www.cgen.com.

Forward-Looking Statement

This press release contains "forward-looking statements" within the meaning of the Securities Act of 1933 and the Securities Exchange Act of 1934, as amended, and the safe-harbor provisions of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements are based on the current beliefs, expectations and assumptions of Compugen. Forward-looking statements can be identified by the use of terminology such as "will," "may," "expects," "anticipates," "believes," "potential," "plan," "goal," "estimate," "likely," "should," "confident," and "intends," and similar expressions that are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Forward-looking statements include, but are not limited to, statements regarding our expectation to share initial results from the COM902 monotherapy dose escalation study in Q4 2021, our belief that dual blockade of PVRIG and TIGIT pathways has the potential to expand the number of patients who respond to treatment with immunotherapy and the expected tumor types in the different study arms and the number of patients to be enrolled to the study, statements regarding the ability to increase antitumor immune responses and the further enhancement of such response with the addition of PD-1 blockade and statements regarding preclinical data suggesting that the inhibition of PVRIG together with TIGIT and/or PD-1 has the potential to further enhance anti-tumor immune response and improve patient outcomes in a broad variety of tumor types. 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: the global COVID-19 pandemic may continue to negatively impact the global economy and may also adversely affect Compugen's business; clinical development involves a lengthy and expensive process, with an uncertain outcome and Compugen may encounter substantial delays or even an inability to begin clinical studies for any specific product, or may not be able to conduct or complete its studies on the timelines it expects; Compugen relies and expects to continue to rely on third parties to conduct its clinical studies and these third parties may not successfully carry out their contractual duties, comply with regulatory requirements or meet expected deadlines, and Compugen may experience significant delays in the

conduct of its clinical studies as well as significant increased expenditures; 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; Compugen's approach to the discovery of therapeutic products is based on its proprietary computational target discovery infrastructure, which is unproven clinically; and Compugen does not know whether it will be able to discover and develop additional potential product candidates or products of commercial value. These risks and other risks 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 (SEC) as well as other documents that may be subsequently filed by Compugen from time to time with the SEC. 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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