FOR IMMEDIATE RELEASE

Compugen Presents Data Update from Ongoing Phase 1 Trial of COM701 at the 2020 AACR Virtual Annual Meeting

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Encouraging signals of durable disease control, including partial responses in monotherapy and combination therapy arms in diverse, refractory patient population

HOLON, ISRAEL – April 27, 2020 – Compugen Ltd. (Nasdaq: CGEN), a clinical-stage cancer immunotherapy company and a leader in predictive target discovery, will present updated results from its ongoing Phase 1 dose escalation study of COM701, a first-in-class anti-PVRIG antibody, in patients with advanced solid tumors who have exhausted all available standard therapies, at the 2020 American Association for Cancer Research (AACR) Virtual Annual Meeting I, today at 11:45 am EDT.

COM701 was well-tolerated with no dose-limiting toxicities observed as a monotherapy and in combination with Opdivo® (nivolumab). Furthermore, COM701 demonstrated encouraging signals of anti-tumor activity with high disease control rate in both the monotherapy and combination therapy arms (69% and 75%, respectively), including two confirmed partial responses and durable responses of over six months across cohorts, in the heavily pretreated patients enrolled in the study.

"I am highly encouraged by the safety profile and preliminary anti-tumor activity observed with COM701 both as a monotherapy and in combination with nivolumab," said Ryan J. Sullivan, M.D., Assistant Professor, Medicine, Harvard Medical School and Faculty Member of the Termeer Center for Targeted Therapy and Immunotherapy Programs at Massachusetts General Hospital Cancer Center, and presenting author. "With a highly refractory and all comer patient population, this trial enrolled patients that are difficult to treat including those who progressed on numerous prior therapies. Achieving durable disease control, including partial responses, is remarkable in this population and I am particularly enthusiastic about the proportion of patients in the combination arm, currently 50%, who remain on treatment. Taken together, these results support further

investigation of targeting PVRIG with COM701 and suggest that targeting the PVRIG/TIGIT pathways may broaden the patient population that can benefit from immunotherapies."

Anat Cohen-Dayag, Ph.D., President and CEO of Compugen, said, "We are thrilled to see durable responses in patients with extremely challenging cancer types with poor prognosis. These findings from the completed monotherapy dose escalation and ongoing combination dose escalation study arms continue to support the potential of COM701 as a monotherapy and in combination with nivolumab in patients who have exhausted all available treatment options. Notably, the ongoing responses in microsatellite stable colorectal cancer and primary peritoneal cancer, a type of ovarian cancer, are supportive of our biomarker-informed selection of indications for the monotherapy expansion cohorts."

The reported data are from the monotherapy and combination arms of the ongoing, Phase 1, open label, dose escalation study and include all eight cohorts from the monotherapy arm (n=16), and the first three of four cohorts of the combination arm (n=12).

Key findings to be presented by Dr. Sullivan in an oral virtual presentation titled "COM701 Demonstrates Antitumor Activity as Monotherapy and in Combination with Nivolumab in Patients with Advanced Malignancies" include:

- COM701 was well-tolerated through 20 mg/kg IV Q4 weeks as a monotherapy and 10 mg/kg IV Q4 weeks in combination with Opdivo® (480 mg IV Q4 weeks) with no dose-limiting toxicities reported.
    - No increased toxicity was observed in the combination arm.
    - No patients discontinued treatment due to toxicity of any study drug.
- Preliminary COM701 pharmacokinetic data supports IV Q4 weeks dosing, allowing dosing schedule with Opdivo®.
- Encouraging disease control rates of 69% (11/16) for monotherapy and 75% (9/12) for combination arm.
    - 50% of patients (6/12) in the combination arm remain on study, some with continued responses observed beyond 200 days of treatment.
- Across cohorts, durable responses of stable disease for over six months in six of 28 (21%) patients.
- The two patients previously reported with confirmed partial responses, one from the monotherapy arm (microsatellite stable primary peritoneal cancer) and one from the combination arm (microsatellite stable colorectal cancer), remain on treatment.

Enrollment in the COM701 monotherapy dose escalation arm is completed and enrollment in the combination dose escalation arm at 20 mg/kg IV Q4 weeks is ongoing.

The monotherapy expansion cohorts that will follow the monotherapy dose escalation arm is based on a biomarker-informed selection of indications, and will include non-small cell lung cancer, ovarian, breast, endometrial and colorectal cancer. During this monotherapy expansion study, biopsies will be collected before and on COM701 treatment to allow retrospective analyses of Compugen's DNAM axis biomarker approach.

About the COM701 Phase 1 Study

The Phase 1 open-label clinical trial of COM701 is designed to assess the safety and tolerability of administering escalating doses of COM701 monotherapy as well as of combination administration with Bristol-Myers Squibb's Opdivo® (nivolumab) in patients with advanced solid tumors. Additionally, secondary endpoints include preliminary antitumor activity, pharmacokinetics and pharmacodynamics of COM701 monotherapy and in combination with Opdivo® (nivolumab) in patients with selected tumor types, including non-small cell lung cancer, ovarian cancer, breast cancer, endometrial cancer and colorectal cancer. Additional information is available at www.clinicaltrials.gov (NCT 03667716).

About COM701

COM701 is a humanized antibody that binds with high affinity to PVRIG, a novel immune checkpoint discovered computationally by Compugen, and blocks the interaction with its ligand, PVRL2. TIGIT, discovered by Compugen's computational discovery platform in 2009, and PVRIG constitute parallel immune checkpoint pathways that counteract DNAM, a costimulatory molecule on T cells and NK cells. Preclinical data suggest that the blockade of PVRIG induces a robust anti-tumor immune response and demonstrates synergistic activity when used in combination with inhibitors of TIGIT and/or PD-1. Currently, COM701 is being evaluated in a Phase 1 clinical study. Data from the ongoing study have shown that COM701 is well-tolerated and demonstrated preliminary signals of anti-tumor activity in a heavily pretreated patient population.

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. The Company's lead product candidate, COM701, a first-in-class anti-PVRIG antibody, for the treatment of solid tumors, is undergoing a Phase 1 clinical study. In addition, COM902, Compugen's antibody targeting TIGIT, is in a Phase 1 clinical study. The Company's therapeutic pipeline also includes early stage immuno-oncology programs focused largely on myeloid targets. Compugen's business model is to selectively enter

into collaborations for its novel targets and related drug product candidates at various stages of research and development. The Company is headquartered in Israel, with offices in South San Francisco, CA. Compugen's shares are listed on the 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 the suggestion that targeting the PVRIG/TIGIT pathways may broaden the patient population that can benefit from immunotherapies, the potential of COM701 both as a monotherapy and in combination with Opdivo® (nivolumab) and that the monotherapy expansion cohort will include non-small cell lung cancer, ovarian, breast, endometrial and colorectal cancer. 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 operations could be affected by the outbreak and spread of COVID-19; 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 is a lengthy and expensive process, with an uncertain outcome that involves many inherent risks, including failure to progress to clinical trials or, if they progress to or enter clinical trials, failure to advance through clinical development or receive regulatory approval. Additionally, Compugen's ability to present data derived from collaborations with its partners is dependent in some cases on the agreement of our partners to present such data, and in any event is dependent on our acceptance to present data in relevant conferences. These and other factors, including the ability to finance the Company, 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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