PUBLICATION IN BLOOD® HIGHLIGHTS POTENTIAL FOR GM-CSF NEUTRALIZATION AS A SOLUTION FOR CAR-T INDUCED NEUROTOXICITY

- ***Severe neurotoxicity (NT) is a negative prognostic factor for overall survival with chimeric antigen receptor T-cell (CAR-T) therapy***
- ***Prolonged exposure of corticosteroids for severe NT may negatively influence overall survival***
- ***GM-CSF neutralization identified as a potential next-generation strategy to reduce CAR-T induced NT while simultaneously improving the efficacy and durability of response***

Burlingame, CA, May 16, 2019 – Humanigen, Inc., **(HGEN)** ("Humanigen") announced today that blood®, which is widely regarded as a premier journal in hematology and the official journal of the American Society of Hematology, published an article by Dr. Omar Ahmed entitled "CAR-T Cell Neurotoxicity: Hope is on the Horizon" which puts a spotlight on the unmet need to mitigate CAR-T induced NT. The article (which is available online at http://www.bloodjournal.org/content/133/20/2114) expands upon the results of a study led by researchers at Harvard Medical School, Yale School of Medicine, and Massachusetts General Hospital Cancer Center entitled "Clinical presentation, management, and biomarkers of neurotoxicity after adoptive immunotherapy with CAR T cells", which is authored by Karschnia, et al. and also featured in the current issue of 'blood'.

A critical finding was that both severe NT and prolonged exposure to corticosteroids, the currently recommended treatment for NT, for >10 days were negative prognostic factors for overall survival following CAR-T (p=0.013 and p=0.030, respectively), a significant finding as >50% of patients with NT in this study developed severe NT. Moreover, the majority of patients treated with CAR-T are treated as in-patients, and admission to the intensive care unit (ICU) for the management of these toxicities is sometimes required, creating an added health economic burden and less favorable reimbursement for hospitals and institutions, which inevitably results in restricted access. Strategies to improve the safety profile of CAR-T without negatively impacting efficacy are needed to improve its benefit-risk profile, cost-effectiveness and to enable CAR-T to move beyond use solely in relapsed/refractory patients to earlier lines of therapy.

The article also focused on the proposed pathophysiology of CAR-T induced NT and cytokine release syndrome (CRS) and identified GM-CSF neutralization as a strategy with potential to simultaneously improve both the safety and efficacy of CAR-T, given the dual mechanism of action of GM-CSF neutralization. "GM-CSF is a key upstream trigger in the inflammatory cytokine cascade resulting in NT and CRS, and also acts directly on myeloid lineage cells to promote the expansion and trafficking of myeloid derived suppressor cells (MDSC) and tumor-associated macrophages (TAM), which have been demonstrated to inhibit T-cell proliferation and effector functions. Therefore, neutralizing GM-CSF is a novel approach that may break the efficacy/toxicity linkage seen with novel next-generation CAR-T constructs in development," stated Dr. Ahmed. "With GM-CSF neutralization, it may be feasible to take a prophylactic approach to mitigating these toxicities while also helping to improve the efficacy of the CAR-T itself," he continued.

"GM-CSF neutralization could be a next-generation strategy to potentially improve the efficacy, safety, and cost-effectiveness of CAR-T therapy," stated Dr. Cameron Durrant, CEO of Humanigen.

About Humanigen, Inc.

Humanigen, Inc. is developing its portfolio of Humaneered® monoclonal antibodies to address cutting-edge CAR-T optimization and the need for new oncology drugs that provide safer, better, and more effective cancer therapies. Derived from the company's Humaneered platform, lenzilumab, ifabotuzumab, and HGEN005 are monoclonal antibodies with first-in-class mechanisms. Lenzilumab, which neutralizes human GM-CSF, is in development as a potential biologic therapy to make CAR-T safer and more effective, as well as a potential treatment for hematologic cancers. Ifabotuzumab, which targets the Eph type-A receptor 3 (EphA3), is in a Phase I study as a potential treatment for glioblastoma multiforme (GBM) and being investigated for a range of solid tumors, both as an optimized naked antibody and as part of an antibody-drug conjugate, as well as a backbone for a novel CAR-T construct, and a bispecific antibody platform. HGEN005 which selectively targets the eosinophil receptor EMR1 is being explored as a potential treatment for a range of eosinophilic diseases including eosinophilic leukemia both as an optizimized naked antibody and as the backbone for a novel CAR-T construct. For more information, visit www.humanigen.com

Forward-Looking Statements

This release contains forward-looking statements. Forward-looking statements reflect management's current knowledge, assumptions, judgment and expectations regarding future performance or events. Although management believes that the expectations reflected in such statements are reasonable, they give no assurance that such expectations will prove to be correct and you should be aware that actual events or results may differ materially from those contained in the forward-looking statements. Words such as "will," "expect," "intend," "plan," "potential," "possible," "goals," "accelerate," "continue," and similar expressions identify forward-looking statements, including, without limitation, statements regarding our expectations for future development of lenzilumab to help CAR-T reach its full potential. Forward-looking statements are subject to a number of risks and uncertainties including, but not limited to, the risks inherent in Black Horse Capital and its affiliates owning more than 50% of our outstanding common stock, including their ability to control the company; our lack of profitability and need for additional capital to operate our business as a going concern; the uncertainties inherent in the development and launch of any new pharmaceutical product; the outcome of pending or future litigation; and the various risks and uncertainties described in the "Risk Factors" sections and elsewhere in the Company's periodic and other filings with the Securities and Exchange Commission.

All forward-looking statements are expressly qualified in their entirety by this cautionary notice. You should not place undue reliance on any forward-looking statements, which speak only as of the date of this release. We undertake no obligation to revise or update any forward-looking statements made in this press release to reflect events or circumstances after the date hereof or to reflect new information or the occurrence of unanticipated events, except as required by law.

CONTACT:

Investors:

Al Palombo
650-243-3181
ir@humanigen.com