Humanigen

EXECUTIVE SUMMARY

LENZ® (lenzilumab) represents a near-term opportunity in COVID-19 with a defined regulatory pathway, a first-line positioning patient segment not addressed by current therapies, and potential for multi-billion dollar annual recurring revenues.

OVERVIEW

Humanigen has discovered, developed, and plans to commercialize LENZ® (lenzilumab), a variant-agnostic immunomodulatory antibody, which addresses a significant unmet need in COVID-19.

LENZ may offer a 'future-proof' treatment against current and inevitable future variants. We believe that COVID-19 will become a serious endemic disease and will continue to impact society, healthcare systems and patients.

LENZ is an effective therapeutic which has demonstrated significant benefit over and above existing standard of care and, importantly, with a safety profile comparable to placebo[1].

LENZ could potentially save countless lives, generate billions of dollars in recurring annual revenue, while also offering healthcare systems a cost-effective medicine[2] and in our view could be an essential countermeasure for government stockpiling.

LENZ is poised to enter a registrational study in CAR-T and a potential registrational study in acute Graft versus Host Disease, areas of significant unmet need for patients, healthcare professionals and payers, while generating substantial additional value.

Humanigen, Inc. is a clinical stage biopharmaceutical company, developing a portfolio of proprietary immuno-oncology and immunolomodulatory antibodies. We are focusing our efforts on the development of our lead product candidate, LENZ, our Humaneered® ("Humaneered") anti-human granulocyte-macrophage colony-stimulating factor ("GM-CSF") immunomodulatory antibody. LENZ has been demonstrated to neutralize human GM-CSF, a cytokine of critical importance in the hyperinflammatory cascade, sometimes referred to as cytokine release syndrome ("CRS") or "cytokine storm". GM-CSF neutralization with LENZ has been shown to reduce downstream inflammatory cytokines, prevent hyperinflammation and reduce progression to mechanical ventilation and death in COVID-19 patients.

LENZ has successfully completed a 520-patient phase 3 study ("LIVE-AIR") and the key primary outcomes are in the table below. There was also a time saved to recovery (2 days), in ICU (3 days) and on IMV (3 days). The observed benefit of LENZ was over and above any benefit provided by steroids and/or remdesivir. In LIVE-AIR, LENZ was safe and well-tolerated, there were no serious adverse events attributed to LENZ and it was noted to have a safety profile comparable to placebo, a profile consistent with other clinical studies conducted with LENZ. The positive LIVE-AIR results have been published with and accompanying expert opinion in Lancet Respiratory Medicine.

The NIH's ACTIV-5/BET-B study of LENZ was initiated in October 2020 after a review of 400 compounds. Based on the strength of the LIVE-AIR results, the NIH advanced and expanded ACTIV-5/BET-B up to 550 patients. Additionally, the NIH modified its Primary endpoint to assess the impact on patients with a baseline C-reactive Protein (CRP) of <150mg/L. This patient population is currently not served by other immunomodulatory therapies. NIH has fully enrolled the study and is now in the process of data analysis.

1. Temesgen Z, et al. Lancet Respir Med. 2021 Dec 1:S2213-2600(21)00494-X. DOI: 10.1016/S2213-2600(21)00494-X
2. Kilcoyne A et al, (2022). Journal of Medical Economics, 25:1, 160-171, DOI: 10.1080/13696998.2022.2030148

		Patients who died or required IMV Kaplan–Meier estimate[a]			
	Population (mITT)	Lenzilumab[b] (95% CI)	Placebo[b] (95% CI)	Lenzilumab vs Placebo Hazard Ratio (95% CI)[c]	*P*-Value
✓	Primary Endpoint (n=479)	15.6% (11.5-20.9) (n=236)	22.1% (17.4-27.9) (n=243)	1.54 (1.02-2.32)	0.0403
✓	CRP <150 mg/L and age <85 years old (n=337)	8.4% (5.0-14.0) (n=159)	21.2% (15.9-28.1) (n=178)	3.04 (1.68-5.51)	0.0003
✓	CRP <150 mg/L and age <85 years old with remdesivir (n=254)	9.2% (5.2-15.9) (n=123)	24.8% (18.2-33.2) (n=131)	3.43 (1.80-6.53)	0.0002

Note: CI = confidence interval; CRP = C-reactive protein; IMV = invasive mechanical ventilation; mITT = modified intent-to-treat

a. All data censored at 28 days following enrolment. All data reported for the mITT population and subgroups of the mITT population.
b. Kaplan-Meier estimates for proportion of patients.
c. Cox Proportional Hazard Model for time to event.

For further discussion, contact Cameron Durrant (CEO):
cdurrant@humanigen.com

PRODUCT PIPELINE

- LENZ successfully completed the 520-patient phase 3 LIVE-AIR study and the NIH's ACTIV-5/BET-B study of LENZ is now fully enrolled to further support the findings of LIVE-AIR
- Lenzilumab has also demonstrated benefits in combination with CAR-T in patients with relapsed or refractory diffuse large B-cell lymphoma ("DLBCL"). In a Phase 1b trial, lenzilumab in sequenced therapy with YESCARTA® (axicabtagene ciloleucel) demonstrated a 100% objective response rate at the targeted Phase 2 dose, and without any severe cytokine release syndrome (CRS ≥ grade 3) and without any severe neurotoxicity (NT ≥ grade 3). We have prepared a protocol for a multicenter Phase 3 registrational trial as a sequenced therapy with commercially available CD19-targeted CAR-T therapies in patients with non-Hodgkin lymphomas. We expect to dose the first patient in 1H22. The primary outcome will focus on measures of toxicity and efficacy six months after treatment
- We are also initiating a Phase 2/3 potentially registrational trial for LENZ to treat patients who have undergone allogeneic hematopoietic stem cell therapy ("HSCT") who are at high risk for steroid-refractory acute graft versus host disease ("GvHD"). The trial will be conducted by the IMPACT Group, a collection of 22 stem cell transplant centers located in the United Kingdom
- We have commenced a Phase 2/3 trial for LENZ for CMML with the SAHMRI group and the University of Adelaide in Australia
- Lenzilumab has many other indications with high unmet medical need

Two other pipeline candidates are currently in development:

- Ifabotuzumab: anti-EphA3 monoclonal antibody currently being evaluated in solid tumors alone and as an antibody drug conjugate
- HGEN005: anti-EMR1 monoclonal antibody to be evaluated in severe eosinophilic diseases.

PARTNERSHIPS

- Exclusive worldwide license agreement with the University of Zurich in GvHD
- Worldwide license agreement with the Mayo Foundation for Medical Education and Research in CAR-T
- KPM Tech and Telcon RF Pharma license agreement for Korea & Philippines for LENZ in COVID-19
- Open to strategic investment and innovative options, mergers and acquisitions.

RECENT ANNOUNCEMENTS

- February 9, 2022 – Humanigen launches Managed Access Program for lenzilumab
- February 8, 2022 – Humanigen and Cenexi Announce Collaboration to Manufacture Lenzilumab in France
- January 18, 2022 – Humanigen Announces Peer-Reviewed Publication in The Journal of Medical Economics Demonstrating the Clinical and Economic Benefits of LENZ
- January 10, 2022 – Humanigen Aligns with FDA on Potential Registration Phase 3 Study for LENZ with CAR-T
- January 5, 2022 – Humanigen Announces Target Enrollment in Phase 2/3 ACTIV-5/BET-B Trial of LENZ for the Treatment of COVID-19 has Been Achieved
- January 3, 2022 – LENZ Treatment Response in Hospitalized COVID-19 Patients Correlates with C-Reactive Protein Levels (CRP).

HUMANIGEN'S TEAM

With offices in Burlingame, California and Short Hills, New Jersey, and wholly-owned subsidiaries in the UK, European Union and Australia, Humanigen, Inc. is led by a senior management team with extensive leadership experience in the biotechnology and pharmaceutical industries:

- Chairman & CEO: Cameron Durrant, MD, MBA
- Chief Scientific Officer: Dale Chappell, MD, MBA
- Chief Operating Officer & Chief Financial Officer: Timothy Morris, CPA
- Chief Medical Officer: Adrian Kilcoyne, MD, MBA
- Chief Commercial Officer: Edward Jordan, MBA
- Head of Asia-Pacific Region: Bob Atwill, MBA.

FOCUS AREA

- Topline results from ACTIV-5/BET-B
- File amendment to EUA with FDA
- Respond to MHRA requests for additional information for LENZ in COVID-19
- Peer-Reviewed Publication of CRP in COVID-19
- First European shipment under LenzMAP managed access program in the UK and multiple other countries in Europe
- File CMA under Accelerated Approval with EMA
- Continue enrollment in CMML study
- Initiate Phase 3 CAR-T study, Phase 2/3 aGvHD study, Phase 3 in patients with cancer (C-SMART study, Australia) and the Phase 1 COVID PK study in Korean patients.

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