Novartis secures exclusive rights for potential acute respiratory distress syndrome cell therapy

- Novartis enters into exclusive worldwide license with Mesoblast to develop, commercialize and manufacture remestemcel-L for treatment of acute respiratory distress syndrome (ARDS) and other indications

- Addition of remestemcel-L could expand Novartis respiratory portfolio by adding potential first-in-class ARDS therapy using innovative cell-based technology with platform potential

- Deal includes $50 million upfront cash payment and equity/share subscription, plus performance-based milestones and royalties for access to a cell-therapy based platform with worldwide rights to a range of potential indications

Basel, November 19, 2020 — Novartis announced today that it entered into an exclusive worldwide license and collaboration agreement with Mesoblast to develop, commercialize and manufacture remestemcel-L for the treatment of acute respiratory distress syndrome (ARDS), including that associated with COVID-19. ARDS is an area of significant unmet need, with an approximate 40% mortality rate with current standard of care, which includes prolonged ICU treatment and mechanical ventilation.1,2 As the potential first ARDS therapy, remestemcel-L will use mesenchymal stromal cells (MSCs), a cell-based platform technology, to treat this deadly condition and improve outcomes. Remestemcel-L is currently being studied in COVID-19-related ARDS in an ongoing 300-patient Phase III study.3 Novartis intends to initiate a Phase III study in non-COVID-19-related ARDS after the anticipated closing of the license agreement and successful completion and outcome of the current study.

“We believe that Novartis is uniquely placed to advance this important potential new therapy,” said John Tsai, M.D., Head of Global Drug Development and Chief Medical Officer for Novartis. “Novartis is committed to, and has demonstrated success with, cell-based therapies and transforming care for a spectrum of respiratory diseases. This makes remestemcel-L an important addition to our pipeline. It has the potential to be the first treatment for the most critically ill ARDS patients, and it provides us with an opportunity to apply years of specialized experience directly to the work of saving lives.”

The demonstrated ability of Novartis to rapidly move from clinical to commercial scale with cell-based therapies will play a role in the successful development and potential commercialization of remestemcel-L, as will the nearly two decades of experience Novartis has in delivering first-in-class products that address areas of unmet respiratory need.
In March, an open label compassionate use program was conducted, which included 12 patients with COVID-19-related ARDS, who were being supported with mechanical ventilation. Remestemcel-L treatment was associated with an 83% survival rate. Based on those results, remestemcel-L is being studied in this population in an ongoing 300-patient Phase III study, conducted in collaboration with the Cardiothoracic Surgical Network, which is anticipated to be completed in early 2021. After the anticipated closing of the license agreement and successful completion and outcome of this ongoing study, Novartis and Mesoblast will work together to develop appropriate critical quality attributes that meet U.S. Food and Drug Administration requirements for remestemcel-L in advance of initiation of the Phase III study in non-COVID-19-related ARDS.

Under the license agreement, Novartis will acquire the exclusive worldwide rights to develop, commercialize and manufacture remestemcel-L for ARDS, and will obtain access to an innovative cell-therapy platform with a range of potential applications in severe respiratory conditions and beyond. Novartis will make a $25 million upfront payment and invest $25 million in Mesoblast equity with additional payments and royalties due on achievement of agreed development, regulatory and commercial milestones. In addition, Novartis will provide certain support to enable commercial manufacturing scale-up. Novartis has the option, if exercised, to distribute remestemcel-L for graft versus host disease (GVHD) (outside Japan). Both parties have rights to co-fund development and commercialization for other non-respiratory indications. The closing of the license agreement is subject to the expiration or termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act and certain other conditions.

**About remestemcel-L**

Remestemcel-L is an investigational therapy comprising of culture-expanded mesenchymal stromal cells derived from the bone marrow of an unrelated donor. Remestemcel-L is thought to have immunomodulatory properties to counteract the cytokine storms that are implicated in various inflammatory conditions by down-regulating the production of pro-inflammatory cytokines, increasing production of anti-inflammatory cytokines, and enabling recruitment of naturally occurring anti-inflammatory cells to involved tissues. In the Phase III study in COVID-19-related ARDS, remestemcel-L is administered as two infusions of 2x10^6 MSC/kg given three to four days apart. The administration of remestemcel-L for the treatment of all-cause ARDS could be the subject of further exploration.

**About mesenchymal stromal cells**

Mesenchymal stromal cells (MSCs) are isolated from bone marrow, adipose tissue and other sources that can be expanded in culture to larger quantities. In preclinical studies MSCs have been suggested to transiently accumulate in the pulmonary circulation and have potent immunomodulatory functions. They express receptors for multiple chemokine, cytokine and growth factor receptors and in inflammatory conditions secrete immunomodulatory mediators that have broad-acting effects to promote resolution of inflammation and tissue repair. MSCs have been infused into well over 1,000 patients, including young children, without serious adverse events to date, testifying to the general safety of this therapeutic approach.

**About acute respiratory distress syndrome**

Acute respiratory distress syndrome (ARDS) is a clinical syndrome that represents a final common pathway for lung injury caused by a variety of factors including bacterial and viral infection (including COVID-19). It is characterized by life threatening hypoxemia and bilateral pulmonary infiltrates without evidence of cardiac failure. Mortality often exceeds 40%. Aside from appropriate ventilator and fluid management, no therapies have been shown to consistently improve survival in randomized clinical trials.

**Disclaimer**

This press release contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995. Forward-looking statements can generally be identified by words such as “potential,” “can,” “will,” “may,” “could,” “anticipated,”
For questions about the site or required registration, please contact

Novartis is on Twitter. Sign up to follow @Novartis at

than

innovative ways to expand access to our latest treatments. About development. Novar

we consistently rank among the wor

transformative treatments in areas of great medical need. In our quest to find new medicines,

Novartis is reimagining medicine to improve

About Novartis

Novartis is reimagining medicine to improve and extend people's lives. As a leading global medicines company, we use innovative science and digital technologies to create transformative treatments in areas of great medical need. In our quest to find new medicines, we consistently rank among the world's top companies investing in research and development. Novartis products reach nearly 800 million people globally and we are finding innovative ways to expand access to our latest treatments. About 110,000 people of more than 140 nationalities work at Novartis around the world. Find out more at https://www.novartis.com.

Novartis is on Twitter. Sign up to follow @Novartis at https://twitter.com/novartisnews
For Novartis multimedia content, please visit https://www.novartis.com/news/media-library
For questions about the site or required registration, please contact media.relations@novartis.com

References

   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7441837/


3. MSCs in COVID-19 ARDS. ClinicalTrials.gov identifier: NCT04371393.
   https://www.clinicaltrials.gov/ct2/show/NCT04371393

4. Mesoblast Ltd. 83% Survival in COVID-19 Patients with Moderate/Severe Acute Respiratory Distress Syndrome Treated in New York with Mesoblast's cell therapy Remestemcel-L; 2020
   https://investorsmedia.mesoblast.com/static-files/337e723a-340d-493e-a4a1-0971d2c71460


