

Publication of Study of Cymerus™ MSCs in Pulmonary Fibrosis Model

Cymerus MSCs shown to reverse pulmonary fibrosis and lung stiffness

Melbourne, Australia; 8 August 2024: Cynata Therapeutics Limited (ASX: “CYP”, “Cynata”, or the “Company”), a clinical-stage biotechnology company specialising in cell therapeutics, is pleased to announce the publication of a study of its Cymerus™ off-the-shelf iPSC¹-derived MSC² therapy in a preclinical model of pulmonary fibrosis in the peer-reviewed journal *Biomedicine & Pharmacotherapy*.

The study was conducted by Professor Chrishan Samuel, a Monash Biomedicine Discovery Fellow and Head of the Fibrosis Laboratory, Department of Pharmacology at Monash University. It was conducted in mice subjected to bleomycin (BLM)-induced pulmonary fibrosis, which mimics features of idiopathic pulmonary fibrosis (IPF) in humans.

IPF is a chronic lung disease of unknown cause, characterised by lung scarring and stiffening, which leads to a progressively worsening difficulty in breathing. There is no known cure, and the condition is often fatal, with a reported median survival of between two and five years from diagnosis.^{3,4}

The study found that bleomycin injury resulted in the expected features of the pulmonary fibrosis model, which were ameliorated by a single or double intravenous administration of Cymerus™ MSCs. In particular, Cymerus™ MSCs were shown to:

- reduce lung inflammation and epithelial damage
- reduce the levels of pro-inflammatory cytokine expression whilst promoting anti-inflammatory cytokine expression
- reduce several measures of interstitial lung fibrosis
- promote the balance between collagen-degrading matrix metalloproteinases (MMPs) and tissue inhibitors of metalloproteinases (TIMPs), which can facilitate the breakdown of established fibrosis
- restore the loss of dynamic lung compliance (a measure of lung stiffness)

Professor Samuel said:

“We found that Cymerus™ MSCs induced striking multi-factorial therapeutic effects in this study, which suggest that these cells have the potential to be a novel treatment option for IPF, a condition with an enormous unmet need. This study builds on the very promising data we have generated previously, using Cymerus™ MSCs in a model of chronic allergic airways disease.”

The details of the paper are as follows:

- Chakraborty A, Wang C, Hodgson-Garms M, Broughton BRS, Frith JE, Kelly K, Samuel CS. Induced pluripotent stem cell-derived mesenchymal stem cells reverse bleomycin-induced pulmonary fibrosis and related lung stiffness. *Biomedicine & Pharmacotherapy*. 2024;178: 117259. <https://doi.org/10.1016/j.biopha.2024.117259>

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Authorised for release by Dr Kilian Kelly, CEO & Managing Director

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**About Cynata Therapeutics (ASX: CYP)**

Cynata Therapeutics Limited (ASX: CYP) is an Australian clinical-stage stem cell and regenerative medicine company focused on the development of therapies based on Cymerus™, a proprietary therapeutic stem cell platform technology. Cymerus™ overcomes the challenges of other production methods by using induced pluripotent stem cells (iPSCs) and a precursor cell known as mesenchymoangioblast (MCA) to achieve economic manufacture of cell therapy products, including mesenchymal stem cells (MSCs), at commercial scale without the limitation of multiple donors.

Cynata's lead product candidate CYP-001 met all clinical endpoints and demonstrated positive safety and efficacy data for the treatment of steroid-resistant acute graft-versus-host disease (GvHD) in a Phase 1 trial. A Phase 2 clinical trial in GvHD under a cleared US FDA IND, as well as trials of Cymerus products in osteoarthritis (Phase 3 – patient enrolment completed) and diabetic foot ulcers (DFU – patient enrolment completed) are currently ongoing, while a trial in renal transplant is expected to commence in the near future. In addition, Cynata has also demonstrated utility of its Cymerus technology in preclinical models of numerous diseases, including critical limb ischaemia, idiopathic pulmonary fibrosis, asthma, heart attack, sepsis, acute respiratory distress syndrome (ARDS) and cytokine release syndrome.

Cynata Therapeutics encourages all current investors to go paperless by registering their details with the designated registry service provider, Automic Group.

¹ iPSC = induced pluripotent stem cell

² MSC = mesenchymal stem (or stromal) cell

³ Raghu et al, Am J Respir Crit Care Med. 2011;183(6):788-824.

⁴ Zheng et al, ERJ Open Res. 2022 Jan; 8(1): 00591-2021.