

## Preclinical Study of Cymerus™ MSCs to Prevent Organ Transplant Rejection Accepted for Publication in Leading Peer-Reviewed Journal

**Melbourne, Australia; 4 September 2019:** Cynata Therapeutics Limited (ASX: CYP), a clinical-stage biotechnology company specialising in cell therapeutics, is pleased to announce that a scientific paper demonstrating the efficacy of Cymerus MSCs in a preclinical model of organ transplant rejection has been accepted for publication in a leading peer-reviewed journal, *Stem Cell Research & Therapy*.

### Key Highlights

- Cymerus™ MSC treatment demonstrated effects expected to prevent organ transplant rejection
- The treatment led to an increase in human TSG-6, an anti-inflammatory protein, followed by an increase in peripheral mouse regulatory T cells, which play an important role in limiting transplant rejection by establishing immune tolerance.
- Further, Cymerus™ MSC treatment also:
  - suppressed cytokines (important cell signalling molecules) that cause inflammation, and increased levels of cytokines with beneficial immunomodulatory properties;
  - reinstated graft functional microvascular blood flow, and oxygenation;
  - prevented harmful collagen deposition; and
  - limited injury to the transplanted organ

The study was conducted at King Faisal Specialist Hospital and Research Centre (KFSH&RC), Riyadh, Saudi Arabia, under the leadership of Dr Mohammad Afzal Khan. KFSH&RC runs the largest organ transplantation program in the Middle East, performing approximately 1,500 transplants in 2017, a figure that is comparable to the largest transplantation centres globally. Cynata provided the Cymerus MSCs for this collaborative study, with the experimental work being conducted and funded by KFSH&RC.

Organ transplantation can be a life-saving procedure in patients with end-stage organ failure, but success rates are severely limited by rejection of the transplanted organ, as well as adverse effects of the immunosuppressive drugs that are currently required to prevent rejection.

In this study, orthotopic tracheal (windpipe) transplants were performed between unrelated strains of mice – a procedure that ordinarily results in rejection of the transplanted trachea by the recipient. Mice were randomly assigned to receive a single intravenous injection of either Cymerus MSCs or placebo, one day prior to the transplant. Mice were then further divided into groups of 4-6 for evaluation at five timepoints over a 90-day period. The experiments were repeated in triplicate to ensure robustness of the conclusions.

Dr Khan commented, “We are very excited by these results. Based on our findings, we believe that a clinical trial of Cymerus MSCs is warranted, as a potential option for immunosuppression in organ transplant recipients.”



Dr Kilian Kelly, Cynata's Chief Operating Officer, said, "Dr Khan and his team have generated extremely interesting results in this study. Their findings build on the body of data demonstrating the immunomodulatory properties of Cymerus MSCs, which have already been harnessed with great success in our clinical trial in patients with graft versus host disease. We look forward to continuing this productive collaboration."

The paper will be published online on the Stem Cell Research & Therapy website on an Open Access basis. The details of the paper are as follows:

Khan MA, Alanazi F, Ahmed HA, Shamma T, Kelly K, Hammad MA, Alawad AO, Assiri AM and Broering DC. iPSC-derived MSC therapy induces immune-tolerance and supports long-term graft survival in mouse orthotopic tracheal transplants. Stem Cell Research & Therapy, 2019.

### Ends

**CONTACTS:** Dr Ross Macdonald, CEO, Cynata Therapeutics, +61 (0)412 119343, [ross.macdonald@cynata.com](mailto:ross.macdonald@cynata.com)  
Melissa Hamilton, Australia Media Contact, +61 (0) 417 750 274 [melissa.hamilton@mcpartners.com.au](mailto:melissa.hamilton@mcpartners.com.au)  
Claire LaCagnina, U.S. Media Contact, +1 315.765.1462, [clacagnina@6degreespr.com](mailto:clacagnina@6degreespr.com)

### 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 and 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. Cynata plans to advance its Cymerus™ MSCs into Phase 2 trials for GvHD, critical limb ischemia and osteoarthritis. In addition, Cynata has demonstrated utility of its Cymerus MSC technology in preclinical models of asthma, diabetic wounds, heart attack and cytokine release syndrome, a life-threatening condition stemming from cancer immunotherapy.