

## MESOBLAST PARTNERS WITH CARTHERICS TO DEVELOP 'OFF-THE-SHELF' CELL-BASED IMMUNOTHERAPIES FOR SOLID CANCERS

### Relapsed Ovarian and Gastric Cancers Initial Targets for Allogeneic CAR-T Cells

**New York, USA; May 28, 2018 and Melbourne, Australia; May 29, 2018:** Mesoblast Limited (ASX:MSB; Nasdaq:MESO) today announced that it has entered into a partnership with Cartherics Pty Ltd to develop allogeneic 'off-the-shelf' CAR-T cells armed with multiple targeting receptors for use in solid cancers. Off the shelf CAR-T therapies have the potential to reduce costs dramatically and open up this very effective treatment to millions of cancer patients across the world. The initial targets are relapsed ovarian and gastric cancers. Mesoblast and Cartherics will jointly own the intellectual property produced using their combined technologies.

The program will be funded by A\$12.6 million (\$US9.6 million) in direct and in-kind contributions from collaborators in the Australian Government's Cooperative Research Centres Program (CRC-P), including Cartherics, Monash University, Hudson Institute of Medical Research and Cell Therapies Pty Ltd.

Mesoblast will make an in-kind contribution of its allogeneic cell platform technology as well as providing scientific expertise. Mesoblast is a global leader in allogeneic cellular medicines with three Phase 3 trials in advanced heart failure, chronic lower back pain and acute graft versus host disease.

"We're very excited to now be in a position to produce unique, timely and cost-effective off-the-shelf therapies that may remove many barriers to treatment for cancer," said Professor Alan Trounson, CEO of Cartherics, Hudson Institute Distinguished Scientist, stem cell biologist, IVF pioneer and former President of the California Institute for Regenerative Medicine.

While clinical results using CAR-T cells have yielded unprecedented complete clearance response rates in certain blood cancer patients, the process poses daunting challenges. CAR-T cells are derived from individual patient's T-cells, a complex, time-consuming, and patient-specific process whose manufacturing alone can cost upwards of USD\$400,000. Experts have estimated the total all-in cost of a multi-dose CAR-T therapy at as much as USD\$1.5 million per patient<sup>1</sup>.

Combining technology platforms from Mesoblast and Cartherics aims to facilitate large scale production of allogeneic CAR-T cells from induced pluripotent stem cells (iPSCs)<sup>2</sup>. Clinical-grade manufacturing and banking methods will be used to convert gene-edited iPSCs to potentially limitless numbers of killer T cells, eliminating costly resources required to produce autologous (patient's own) CAR-T cells. This could provide large numbers of cancer patients with access to cost-effective 'off-the-shelf' CAR-T therapies.

Mesoblast Chief Executive Dr Silviu Itescu stated, "With our combined technology platforms and expertise, we are ideally placed to greatly increase accessibility to this very promising new field of cancer therapeutics through the development of highly-scalable, allogeneic cellular immunotherapies."

1. <https://www.mdedge.com/hematologynews/article/152563/all-acute-lymphoblastic-leukemia/car-t-cell-therapy-moving-cost-value>

2. iPSCs, when cultured, are capable of unlimited self-renewal, as well as of reproducing all adult cell types in the course of their differentiation. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3347549/>

**Mesoblast Limited**  
ABN 68 109 431 870  
[www.mesoblast.com](http://www.mesoblast.com)

**Corporate Headquarters**  
Level 38  
55 Collins Street  
Melbourne 3000  
Victoria Australia  
  
T +61 3 9639 6036  
F +61 3 9639 6030

**United States Operations**  
505 Fifth Avenue  
Third Floor  
New York, NY 10017  
USA  
  
T +1 212 880 2060  
F +1 212 880 2061

**Asia**  
20 Biopolis Way  
#05-01 Centros  
Biopreneur 3  
SINGAPORE 138668  
  
T +65 6570 0635  
F +65 6570 0176

## About Mesoblast

Mesoblast Limited (ASX:MSB; Nasdaq:MESO) is a global leader in developing innovative cell-based medicines. Through a proprietary process, Mesoblast selects highly purified mesenchymal lineage precursor and stem cells from the bone marrow of healthy adults, and creates master cell banks which can be industrially expanded to produce thousands of doses from each donor that meet stringent release criteria, have lot to lot consistency, and can be used off the shelf without the need for tissue matching.

The Company has leveraged its proprietary technology platform to establish a broad portfolio of late-stage product candidates. Mesoblast's allogeneic, 'off-the-shelf' cell product candidates are being evaluated in their ability to target advanced stages of diseases with high, unmet medical needs including cardiovascular conditions, orthopedic disorders, immunologic and inflammatory disorders and oncologic/hematologic conditions.

## About Cartherics

Cartherics Pty Ltd is developing next generation immunotherapies for adenocarcinomas, with an initial primary focus on ovarian, gastric cancers and cutaneous T cell lymphomas. The products in development include potential chimeric antigen receptor (CAR-T) enhanced killer T cells for autologous and allogeneic ('off-the-shelf') cancer therapies. For more information, please see

[www.cartherics.com.au](http://www.cartherics.com.au)

## Forward-Looking Statements

This announcement includes forward-looking statements that relate to future events or our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to differ materially from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. We make such forward-looking statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. Forward-looking statements include, but are not limited to, statements about: the initiation, timing, progress and results of Mesoblast and its collaborators' preclinical and clinical studies, and research and development programs; Mesoblast and its collaborators' ability to advance product candidates into, enroll and successfully complete, clinical studies; Mesoblast and its collaborators' ability to advance manufacturing capabilities; the timing or likelihood of regulatory filings and approvals, manufacturing activities and product marketing activities, if any; the commercialization of Mesoblast and its collaborators' product candidates, if approved; regulatory or public perceptions and market acceptance surrounding the use of stem-cell based therapies; the potential for Mesoblast and its collaborators' product candidates, if any are approved, to be withdrawn from the market due to patient adverse events or deaths; the potential benefits of strategic collaboration agreements and Mesoblast's ability to enter into and maintain established strategic collaborations; Mesoblast's ability to establish and maintain intellectual property on its product candidates and Mesoblast's ability to successfully defend these in cases of alleged infringement; the scope of protection Mesoblast is able to establish and maintain for intellectual property rights covering its product candidates and technology; developments relating to Mesoblast's competitors and industry; and the pricing and reimbursement of Mesoblast and its collaborators' product candidates, if approved. You should read this press release together with our risk factors, in our most recently filed reports with the SEC or on our website. Uncertainties and risks that may cause Mesoblast's actual results, performance or achievements to be materially different from those which may be expressed or implied by such statements, and accordingly, you should not place undue reliance on these forward-looking statements. We do not undertake any obligations to publicly update or revise any forward-looking statements, whether as a result of new information, future developments or otherwise.

*For further information, please contact:*

Julie Meldrum  
Corporate Communications  
T: +61 3 9639 6036  
E: [julie.meldrum@mesoblast.com](mailto:julie.meldrum@mesoblast.com)

Schond Greenway  
Investor Relations  
T: +1 212 880 2060  
E: [schond.greenway@mesoblast.com](mailto:schond.greenway@mesoblast.com)

Mesoblast Limited  
ABN 68 109 431 870  
[www.mesoblast.com](http://www.mesoblast.com)

Corporate Headquarters  
Level 38  
55 Collins Street  
Melbourne 3000  
Victoria Australia  
T +61 3 9639 6036  
F +61 3 9639 6030

United States Operations  
505 Fifth Avenue  
Third Floor  
New York, NY 10017  
USA  
T +1 212 880 2060  
F +1 212 880 2061

Asia  
20 Biopolis Way  
#05-01 Centros  
Biopreneur 3  
SINGAPORE 138668  
T +65 6570 0635  
F +65 6570 0176