

# MEDIA RELEASE

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## Scientist growing human heart tissue for new drug discovery wins Centenary Institute Medical Innovation Award



Dr James Hudson from the University of Queensland has been recognised for his ground-breaking work, creating human heart tissue from stem cells for cardiac repair winning the prestigious Centenary Institute Medical Innovation Awards In Memory of Neil Lawrence Prize.

Dr Hudson has found that using regenerated human heart tissue is a powerful tool for drug discovery. It was revealed in 2011 that mammals can fully regenerate their hearts following injury in a brief neonatal window, with the regenerative capacity declining seven days after birth. “While many decades of heart research in mice could lead to new regeneration drugs for heart failure, I believe that our human heart tissue may help us reach this goal more quickly and effectively.”

Dr Hudson’s laboratory is using this human heart tissue as a model to study the developmental processes which leads to loss of regenerative capacity of the heart muscle cells, in order to identify drugs which re-activate regeneration in adult hearts and patients with heart failure.

The process of making human heart tissue takes approximately four weeks in the laboratory. Dr Hudson says, “We start off with pluripotent stem cells, which we can culture for years in the lab and grow huge numbers of cells. Most importantly, however, they have the ability to turn into all the cell types in the body. In order to turn them into heart cells we mimic the developmental program that forms the embryonic heart.”

Dr Hudson and his team have multiple projects underway to study cardiac disease using regenerated human heart tissue. These include diseases caused by environmental damage (eg. diabetes) or genetic disorders (eg. childhood cardiomyopathies). Dr Hudson also hopes to make mechanistic insight into these diseases and eventually discover new drug targets for these diseases.

Heart disease is the leading cause of death in Australia, which is why scientific advancements in this area are vital to our nation's health. Centenary Institute Medical Innovation Awards panel of international judges, recognised this novel and timely work, announcing Dr Hudson as the overall winner of the prestigious \$25,000 In Memory of Neil Lawrence Prize at an awards ceremony at the Commonwealth Bank Innovation Lab, Sydney, on Thursday night. The award funds will support Dr Hudson's project.

The Centenary Institute Medical Innovation Awards, in memory of Neil Lawrence, recognises Australia's most innovative young researchers who are taking the risks to ask the big questions which have most people saying "that's impossible". It rewards ideas and projects which are set to enhance the nation's health and prosperity.

Centenary Institute's Executive Director, Professor Mathew Vadas AO says, "Exceptional young scientists can be hard to keep in Australia and we hope this Award will not only celebrate their achievements but also encourage a domestic culture of brilliance in medical research. There are only 20,000 early to mid-career researchers in Australia and only a handful receive funding to test their own creative ideas. The vast majority have to leave research altogether."

While this year, the ultimate winner was male, overall, there were more entries from females, which Centenary Institute Gender Equity Ambassador, renowned Channel Ten personality and newsreader, Sandra Sully highlights, "To adequately reflect the society, communities and world we live in, it's vital that all voices are heard across all industries and science is no different."

Sandra Sully says, scientists, both male and female, should not be afraid to promote great work which will benefit us all, "I know we all probably wish the gender discussion would end, but the facts prove there is still a lot of work to be done to create fair and equal opportunities for women across the board. Unless Women speak up, their voices will never be heard and, step by step, inch by inch, it will change, if we make it happen."

Centenary Institute would like to thank Val Morgan for supporting the Award and in doing so, valuing the vital importance of medical research in Australia and recognising the contribution these bright young scientists are making to our nation's health today and for future generations.

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