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## Funding for research into repairing a damaged heart

Research into repairing damaged heart muscle is set to be advanced with the Centenary Institute's Dr Daniel Hesselton awarded a Cardiovascular Collaborative Grant worth \$994,000 under the NSW Government's Cardiovascular Research Capacity Program.

Heart muscle damage resulting from a heart attack or cardiomyopathy (heart muscle disease) can lead to reduced heart function and life expectancy as well as decreased quality of life.

Dr Hesselton's research aims to address this health issue by enhancing the potency of a promising therapeutic – a protein called Krüppel-like factor-1 (KLF1) – that can stimulate the growth of heart muscle cells. The goal is to improve outcomes, wellbeing and survival of heart patients.

As the Head of the Centenary Institute's Directed Evolution Laboratory, Dr Hesselton said that the protein KLF1 had been found to be able to renew heart tissue in zebrafish but that it didn't work the same way on people.

"We hope to be able to use the technique of directed evolution to be able to 'evolve' KLF1 so that it can also work with people and potentially regenerate their heart muscle," Dr Hesselton said.

Directed evolution is a laboratory process that accelerates the natural evolution of proteins by artificial means. It involves repeated screening, selection and then replication of the protein to amplify the desired trait required.

According to Professor Marc Pellegrini, Centenary Institute Executive Director, the successful research grant demonstrated the cutting-edge science that was being conducted at the Institute aimed at advancing heart health across Australian communities.

"Heart attack survivors often suffer lasting heart muscle damage, leading to a weakened heart that increases their susceptibility to other heart-related complications and mortality," said Professor Pellegrini.

"I commend Dr Hesselton on his exciting work in this important health area. Developing an innovative treatment to help regenerate heart tissue in people has the potential to ultimately improve and save many lives."

Dr Hesselton said evolved versions of the KLF1 protein would be tested in pre-clinical heart attack models in collaboration with the Victor Chang Cardiac Research Institute. The goal will be the production of a therapeutic that is ready for the next stage of the drug development pathway.

*The NSW [Cardiovascular Research Capacity Program](#) funds high quality cardiovascular research in NSW in order to drive scientific discoveries, support the development of novel and innovative therapies, and improve health outcomes for patients with cardiovascular disease.*

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**Images:**

Dr Daniel Hesselton:

[https://drive.google.com/file/d/18eBic3pWw5MgUmEIBR\\_AICNABrtm28Ar/view?usp=sharing](https://drive.google.com/file/d/18eBic3pWw5MgUmEIBR_AICNABrtm28Ar/view?usp=sharing)

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**About the Centenary Institute**

The Centenary Institute is a world-leading independent medical research institute, closely affiliated to the University of Sydney and the Royal Prince Alfred Hospital. Our research focuses on three key areas: cancer, inflammation and cardiovascular disease. Our strength lies in uncovering disease mechanisms and applying this knowledge to improve diagnostics and treatments for patients.

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