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Singapore set to revolutionise heart valve surgery with personalised implant

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First naturally-designed and personalised bioprosthesis SingValve

A naturally-designed human-like personalised heart valve bioprosthesis developed by a team of clinician-scientists from the National University Health System (NUHS) looks set to be a game changer in the next generation of “personalised medicine” and further contribute to Singapore’s growing MedTech ecosystem.

This newly-developed mitral valve bioprosthesis, named SingValve, mimics the appearance, form and physical properties of a human mitral valve.

This innovation is led by Associate Professor Theodoros Kofidis, Head and Senior Consultant, Department of Cardiac, Thoracic and Vascular Surgery, National University Heart Centre, Singapore (NUHCS) and Associate Professor, Department of Surgery, Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine).

The research team led by principal investigator, A/Prof Kofidis, was awarded a translational grant of $4.9 million from the National Research Foundation Singapore (NRF) Central Gap Fund in May this year.

The grant will enable product verification, validation through in vitro and pre-clinical experiments, as well as comparative studies with existing valves. The first-inhuman trials – which entail about 15 human implantations in two to three different countries – are expected to be conducted by 2023.

The market potential of SingValve is immense. The establishment of a SingValve production outlet and logistic distribution hub in Singapore is expected to create jobs for the MedTech industry, boost research and development, and increase medical tourism to Singapore.