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ASIA EDITION

Australia-US team brings world-first durable total artificial heart

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The research team seeks to take this new artificial heart technology to market within the six-year duration of MRFF Frontiers program

A consortium of universities, hospitals and industry, led by Monash University in Australia and US-based BiVACOR, have received $1 million in Australia's Federal Government funding to develop and commercialise a world-first durable Total Artificial Heart.

Made possible through funding from the Federal Government's Medical Research Future Fund (MRFF), the Artificial Heart Frontiers Program will develop and commercialise these new devices through the use of novel, innovative technology applied to this global health problem.

Importantly, the research team seeks to take this new technology to market within the six-year duration of the MRFF Frontiers program. Through this program, the research team hopes to save lives, create jobs, and establish Australia as a worldwide leader in the medical device sector.

The BiVACOR Total Artificial Heart is an implantable total artificial heart based on rotary blood pump technology. Similar in size to an adult fist, it is small enough to be implanted in many women and some children yet capable of providing enough cardiac output to an adult male undergoing exercise.

The design, using magnetic levitation (MAGLEV) technology - the same principle used in high-speed trains - includes left and right vanes positioned on a common rotor to form the only moving part, a magnetically suspended double-sided centrifugal impeller.

The team has already engaged partners across Australia, Asia-Pacific, USA and Europe, established regulatory approval pathways, and recently closed a $19 million Series B to fund the company's preclinical verification activities and the addition of key team members to support the first in-human studies.

The BiVACOR-created Total Artificial Heart has world-first technology including an optimised hydraulic system to support both sides of the heart, powerful magnetic levitation and rotation systems that significantly enhances durability and biocompatibility, small device size to support more patients, and flow adaptation that responds to patient requirements without user input.