Codex Research Pty Ltd

Media Release

New partner joins forces in development of in vitro blood vessel

A project working on building blood vessels outside of the body has attracted further industry attention, with the IMCRC joining Dr Steven Wise and Codex Research in the research collaboration.

Dr Steven Wise from the Faculty of Medicine and Health and his team have partnered with the Innovative Manufacturing Cooperative Research Centre (IMCRC), after securing backing from Codex Research earlier this year.

IMCRC has committed $851,000 of Commonwealth funding to the research, which is projected to be underway until 2022. The collaboration will be the second research partnership between the University of Sydney and Codex.

His work aims to improve the treatment of heart disease by engineering a physiologically-relevant blood vessel implant used in bypass surgery. To reduce the failure rate of their traditional plastic counterparts, Dr Wise and his team employ a range of synthetic and natural materials with the aim of developing new synthetic graft materials which combine tailored mechanical properties with improved biocompatibility. Current lab-based methods to assess these new materials have significant limitations, and better mimicry of human systems in a laboratory environment would greatly benefit this research area.

Dr Wise says the partnership with IMCRC has facilitated the rare opportunity of assembling a diverse team with cross-disciplinary expertise in vascular biology, materials engineering, hardware design and manufacturing, integrated software and sensing systems.

As well as funding, IMCRC has provided substantial support and guidance in helping to focus on business and manufacturing requirements and have helped to crystalise a sophisticated business model for the project.

The collaboration combines a mutual enthusiasm and commitment to supporting Australian innovation that boosts the country's technological capabilities and allows us to meet global challenges and opportunities. To help achieve this, with the support of the University of Sydney, Dr Wise and his team will be conducting their research in the Charles Perkins Centre, where they have access to world-class infrastructure and facilities.

IMCRC CEO and Managing Director, David Chuter, said the project personifies the exciting times for organisations working in emerging fields such as biotechnology, like Codex Research.

"Digital and advanced manufacturing technologies are creating new opportunities for Australia's biotechnology sector, collecting, analysing and providing information that speeds up the discovery and engineering process of new products that have real-life impact," Mr Chuter said.

"Investing in a project that lays the manufacturing foundation to develop highly tailored products that mimic the human vascular system to then be able to create life-changing products such as new vascular implants is very rewarding. "

IMCRC hopes Dr Wise's research will disrupt and transform current approaches while also developing an advanced perfusion bioreactor technology to mimic biological environments in vitro.

In January, Dr Wise and his team secured $520,000 through the federal government's ARC Linkage Project to develop the vascular biology underpinning an in vitro blood vessel system with industry partner Codex Research. This new partnership with IMCRC will add significant value to the

collaboration, facilitating the further development, scaling and manufacture of their bioreactor technology.

Dr Wise has highlighted the value of finding an enthusiastic industry partner which helps to translate research and has praised Codex for their proactive engagement of the research team.

“Working with such an engaged industry partner in Codex is a fantastic opportunity, they are adding so much value both in terms of additional subject expertise but also an embedded teamwork philosophy. In a short space of time, the group has already been incredibly productive,” Dr Wise said.

Codex Research said the program provides them an enormous boost, highlighting the collaboration with Sydney University researchers as being key to the success of the project.

“For a small start-up like Codex Research to gain access to government funding and the resources of a G8 university is extraordinary.

We have been able to develop our project in directions and at a pace that would never have been possible otherwise,” Codex Research said.

The benefits of the project, and the partnership between Dr Wise, Codex, and IMCRC, will be felt across medial manufacturing, biomaterials, tissue engineering, and vascular biology fields. By integrating digital technologies in a medical science and regenerative setting, the research promises to increase efficiencies within these fields.

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For more information, or to coordinate interviews with a representative of the IMCRC, please contact:
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