

MEDIA RELEASE

New partnership in improving manufacturability of orthopaedic implants

IMCRC activate funding to support development of proprietary coating manufacturing process for orthopaedic implants

Melbourne, 10 August 2021: A new partnership between Allegra Orthopaedics Ltd, Swinburne's ARC Training Centre for Surface Engineering for Advanced Materials (SEAM) and RMIT will explore a novel coating manufacturing process to deposit its proprietary bioceramic material onto orthopaedic implants. The industry-led research project has been awarded \$118,338 by the Innovative Manufacturing Cooperative Research Centre (IMCRC) and Allegra Orthopaedics Ltd. The project will span over 12 months and is led by Swinburne's Dr Andrew Ang and Allegra Orthopaedics' Robert Bell.

The manufacturing outcome for Allegra will be a robust coating process that manufactures a new product line of novel bioceramic coated orthopaedic implants. This unique coating can outperform the current hydroxyapatite-coated implants. It allows Allegra to develop a proprietary implant coating process that does not currently exist in the market. This project will catalyse the industry-university collaboration and establish a solid foundation for manufacturing functional bioceramic coatings for Allegra Orthopaedics.

"This manufacturing system is the first of its kind in Australia and will be made available to Allegra for this project. It will change the way on how orthopaedic implants are coated", says Prof. Christopher Berndt, SEAM Director.

"Together with our novel bioceramic material, this manufacturing process-material combination can expand its market within the biomedical industry. And it could be licenced to interested coating providers.", says Jenny Swain, CEO of Allegra Orthopaedics Ltd.

This project employs a novel plasma spray process that can create unique hierarchical nano-and micro-scale features that exhibit enhanced biointegration with bone tissue as well as antimicrobial properties. Key R&D activities of this project are:

- Preparation of the bioceramic material as novel feedstock for the new plasma spray process.
- Plasma spraying coatings of the new bioceramic that allow microstructural and chemical control up to nano-scale.
- Coating characterisations and optimisation.
- Product evaluation and commercial recommendations.

David Chuter, CEO and Managing Director of IMCRC, adds that the project funded via IMCRC's activate program is a perfect example of how industry works closely with Australian universities to translate manufacturing research into innovative, commercial solutions with real-world benefits.

"With an ageing population and bone-related diseases on the rise, orthopaedic implants with excellent performance are needed globally. By proactively investing in R&D and exploring new surface coating technology with the help of SEAM and RMIT, Allegra Orthopaedics will not only improve the coating quality and endurance of its medical implants but also significantly enhance the quality of life for many patients who otherwise might require frequent, complicated, and expensive orthopaedic surgeries."

About IMCRC

IMCRC is an independent and for-impact cooperative research centre with a successful, proven and scalable model for catalysing research and business partnerships that drives transformative commercial outcomes for participating Australian manufacturers. To date, IMCRC has successfully co-invested in more than 50 R&D projects, catalysing more than \$200 million in transformative manufacturing research. Find out more at www.imcrc.org.

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