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Australia invests $2.9 M into new lab to fast-track drug invention, trials and commercialisation

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It will house Australiaâ??s first automated system for high-throughput X-ray crystallography



Australia's Monash University is partnering with key institutions to launch a $2.9 million national project, delivering a robotic laboratory capable of drastically speeding up the invention, trials and commercialisation of medicines by Australian researchers.

The nationally accessible facility, backed by a Medical Research Future Fund (MRFF) National Critical Research Infrastructure grant, will house Australia's first automated system for high-throughput X-ray crystallography, often referred to as HTX, at the Australian Synchrotron in Clayton.

HTX is a powerful scientific technique that involves blasting tiny biological crystals with X-rays to map the exact 3D shape of disease-causing proteins – revealing how a molecule binds to its target.

Professor Martin Scanlon, Head of Medicinal Chemistry at the Monash Institute of Pharmaceutical Sciences (MIPS) in the Faculty of Pharmacy and Pharmaceutical Sciences, said the new technology would provide "incalculable ability" to boost capability and capacity while saving time and accelerating productivity.

"HTX will attract investment, and importantly grow the Australian biotechnology and clinical trials economy as more partners invest locally to bring new clinical candidates to market. Analysis of drug discovery projects successful in generating a clinical candidate showed 65 per cent relied on structural information, most of which were derived from X-ray crystallography", Professor Scanlon said.

Professor Christopher Porter, Director of MIPS, said the HTX platform changes the landscape, shrinking months of painstaking laboratory work down to just a few days, meaning the technology will help researchers quickly turn their medical discoveries into life-changing treatments.

The platform will boost sovereign capability in therapeutics, supporting hundreds of researchers across the country investigating treatments for over 40 disease targets, including cancer, HIV, bacterial infections, and neurodegeneration.

Providing the essential structural data fills a critical gap in Australia’s drug development pipeline, giving commercial partners the confidence they need to invest heavily in local biotechnology.

The five-year project represents a very large collaborative effort across the nation's leading scientific institutions, uniting Monash University with ANSTO, the Australian Synchrotron, CSIRO, WEHI, the Australian National University, The University of Western Australia, The University of New South Wales, Griffith University, The University of Adelaide, La Trobe University and The University of Queensland.

The MRFF National Critical Research Infrastructure initiative provides $600 million over 10 years between 2024-25 and 2033-34, increasing Australia’s capacity to conduct health and medical research.