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## **Major global partnerships bring life-saving COVID-19 research to WA**

The Australian National Phenome Centre (ANPC), at Murdoch University, is at the forefront of the global COVID-19 research response, thanks to a major research partnership with the Department of Medicine at the world-renowned University of Cambridge and significant funding support from Spinnaker Health Research Foundation.

The ANPC and Cambridge are working together on a world-leading international study designed to capture the complete COVID-19 journey from health, through the disease response and into recovery, of a group of frontline medical staff and patients.

Vital funding from Spinnaker will enable the development of new and improved methods for studying the recovery of patients that have experienced a significant COVID-19 episode. This will assist each patient's clinical recovery, rehabilitation and possibly help predict long-term disease risks.

ANPC Director and Pro Vice Chancellor of Murdoch University's Health Futures Institute Professor Jeremy Nicholson said knowledge of how the virus evolves, the health risks, efficacy of therapies and downstream health consequences are still not well understood.

"This global research collaboration with University of Cambridge will help us understand the recovery process from the perspective of severity and side effects of the disease as experienced by individuals. The funding from Spinnaker is vital to enable the research to take place and to manage the long-term disease risks of COVID-19 patients."

Multiple recovery and post recovery samples from Cambridge shipped to the ANPC with further samples collected through the South Metropolitan Health Service's (SMHS) COVID-19 Research Response (CRR) group by Professor Toby Richards and his team at The University of Western Australia (UWA) through the SMHS CRR. This is an international collaboration of enormous global importance and it is happening here in WA thanks to the "state-of-the-art" ANPC research facility.

Professor Nicholson said the breadth of research being undertaken will enable a comprehensive overview of many key immune functions involved in the COVID-19 disease process.

"Ultimately, we will be able to better understand COVID-19 and the complex genetic, environmental and lifestyle interactions that give rise to the differential severity of the disease and subsequent recovery," Professor Nicholson said.

The ANPC and the Cambridge teams will work together to get a more holistic understanding of the disease process."

"By bringing together the complementary scientific expertise of the ANPC and the University of Cambridge and focusing it on samples from hundreds of patients with COVID-19, we hope to explain and predict the progression and recovery from the disease," said Professor Ken Smith, Head of the Department of Medicine at Cambridge.

Spinnaker, who support community responsive research in south metropolitan Perth, believe there has never been a more pressing need for investment in medical research.

“The world is grappling with an unprecedented and deadly challenge and the time for us to act as global citizens has come” said Spinnaker CEO Dana Henderson:

“The research we are funding puts Western Australia at the forefront of delivering solutions to the COVID-19 pandemic in an accelerated timeframe.

“For 24 years Spinnaker has served the community, we have funded research to protect and heal them.

“This is a project that will continue that commitment to our local community while we also extend our focus to the global community. This is an exceptional gift from the Foundation which reflects the severity of the situation in which we find ourselves.”

The research builds on that already being undertaken by a collaboration of experts from the SMHS, UWA and the ANPC.

Professor Richards, who is bringing together leading doctors and researchers for the project said “A unique platform has been developed in WA to collect patient data and biosamples to enable a thorough understanding of the disease and also response to treatment.

“Through the CRR we have already gathered more information and data on COVID-19 patients than any other state in Australia, capturing over 40% of patients who have presented in WA, and this is some of the best data available globally,” Professor Richards said.

Professor Nicholson said “One aim of the project is to develop biological markers that predict who will recover completely and to understand some of the longer term effects of COVID-19 that are experienced by some patients”.

“Given the number of worldwide cases this is a globally significant project” Professor Nicholson said.

### **What is a Phenome?**

A person's phenome is a dynamic fingerprint of their unique biology resulting from the complex interactions between environmental and genetic factors. The phenome also changes in complex ways that can be monitored biochemically during a disease process and through to recovery.

Metabolic phenotyping is part of the study of the phenome involving the analysis of biological fluids such as plasma and urine that can readily be obtained from patients before, during and after the disease.

### **About Spinnaker Health Research Foundation**

Founded in 1996 at Fremantle Hospital, Spinnaker Health Research Foundation is a wholly independent, philanthropically funded organisation supporting research at south metropolitan hospitals, and affiliated research organisations, that translate to improved diagnosis, treatment and care of patients. As one of WA's major medical research foundations Spinnaker seeks to identify research priorities that are responsive to critical needs of the community and are locally and globally impactful.

### **About the Australian National Phenome Centre:**

The Australian National Phenome Centre (ANPC), led by Murdoch University, will transform how long and how well people live, not just in Australia, but around the world.

The work of the ANPC supports almost every area of bioscience. It reaches across traditional research silos and fosters a new, more collaborative approach to science. Long-term, the ANPC

hopes to build 'global atlases' of human disease, providing insights into future health risks which everyone on the planet can benefit from.

The only facility of its kind in the southern hemisphere, the ANPC brings together all five Western Australian universities and leading health and medical research institutes. It is linked to the International Phenome Centre Network and also has wide applications in agriculture and environmental science.

The ANPC and its researchers positions Perth and WA as a global leader in precision medicine, and enable quantum leaps in predicting, diagnosing and treating disease. The ANPC is part of the Health Futures Institute at Murdoch University.

### **Murdoch/Cambridge partnership**

Underpinning the joint research program is a Memorandum of Understanding between Murdoch University and The Department of Medicine at University of Cambridge to promote and further academic links between the two institutions.

The agreement includes possibilities for staff and student exchange, collaborative research, exchange of academic, educational, scientific and scholarly materials, and an Intellectual Property framework. In the immediate term, this partnership is focussed on COVID-19 research.

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