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Media Release

FIRST ISOLATION OF SARS-CoV-2 OUTSIDE CHINA WINS NATIONAL RESEARCH PRIZE

FOR IMMEDIATE RELEASE

RESEARCH which isolated and sequenced the 2019 novel coronavirus (SARS-CoV-2) from the first patient diagnosed with COVID-19 in Australia, and then shared its results with the world within 24 hours, is the winner of the 2020 *MJA*/MDA National Prize for Excellence in Medical Research.

The prize, sponsored by MDA National, awards $10 000 to the authors of the best research article published in the *Medical Journal of Australia* in the previous calendar year.

The research aimed to describe the first isolation and sequencing of SARS-CoV-2 in Australia and rapid sharing of the isolate. SARS-CoV-2 was isolated from a 58-year-old man from Wuhan, China who arrived in Melbourne on 19 January 2020 and was admitted to the Monash Medical Centre, Melbourne, from the emergency department on 24 January 2020 with fever, cough, and progressive dyspnoea.

The major outcomes were to describe the clinical course and laboratory features of the first reported case of COVID-19 in Australia; isolation, whole genome sequencing, imaging, and rapid sharing of virus from the patient.

A nasopharyngeal swab and sputum collected when the patient presented to hospital were each positive for SARS-CoV-2 (reverse transcription polymerase chain reaction). Inoculation of Vero/hSLAM cells with material from the nasopharyngeal swab led to the isolation of SARS-CoV-2 virus in culture.

Electron microscopy of the supernatant confirmed the presence of virus particles with morphology characteristic of viruses of the family *Coronaviridae*. Whole genome sequencing of the viral isolate and phylogenetic analysis indicated the isolate exhibited greater than 99.99% sequence identity with other publicly available SARS-CoV-2 genomes.

Within 24 hours of isolation, the first Australian SARS-CoV-2 isolate was shared with local and overseas reference laboratories and major North American and European culture collections.

“We applied standard techniques to isolate the virus, but we were the first group to isolate it outside China during the early stages of the epidemic,” Caly and colleagues wrote.

“Potential reasons for our success could be the viral burden of the collected specimens and the extensive clinical experience in our reference laboratory.

“An important aspect of the scientific response to the COVID-19 outbreak has been the rapid sharing of information about diagnostic assays and genomic data, enabling rapid elucidation of the emergence and spread of the novel virus.

"In addition, a major principle of our laboratory response in Australia was to immediately share the viral isolate with the WHO and other laboratories to facilitate rapid validation of diagnostic testing.

"We continue to share live virus with other agencies, both locally and overseas, involved in the development and testing of therapeutic agents and vaccines. This is an essential function of public health reference and research laboratories, and we strongly encourage others to apply a similarly collaborative approach to streamlining efforts to diagnose, prevent, and treat COVID-19 during this public health emergency."

The authors will present their article during the Australian Medical Association's National Conference on Saturday 31 July, when the prize will also be announced.

The winning study -- *Isolation and rapid sharing of the 2019 novel coronavirus (SARS-CoV-2) from the first patient diagnosed with COVID-19 in Australia* – is online at https://www.mja.com.au/journal/2020/212/10/isolation-and-rapid-sharing-2019-novel-coronavirus-sars-cov-2-first-patient and is free to access.

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