

## **Inquiry to a COVID-19 Royal Commission**

I note the committee's comments on potentially adverse reflections on Professor Edward Holmes and myself.

I cannot comment on reflections related to Professor Holmes.

My opinion, reflected in the WHO Study on the Origins of SARS-CoV-2 (of which I was a member, representing Australia<sup>1</sup>) and later WHO reports from the SAGO Group (of which I am not a member), is that an animal [eg bats, through intermediate animal(s)] is the most likely source of SARS-CoV-2. The Huanan market in Wuhan played a major role in the initiation of the outbreak. The data presented in the WHO report has been reanalysed and supports these conclusions. Note that the WHO Study Group visited the various laboratories in Wuhan implicated in coronavirus basic science and clinical research.

Animal origins of other coronaviruses, eg SARS and MERS, have been identified. Animal-human-environmental ('One Health') interactions are responsible for the great majority of viral incursions into humans.

A laboratory leak remains a hypothesis (as mentioned in the WHO documents), but awaits supporting evidence. No such evidence has been presented to date. The laboratory leak has been discussed as accidental, or deliberate, and includes creation of SARS-CoV-2 through 'gain of function' (GoF) or other manipulations. Unsuccessful US/Chinese grant applications for GoF do not support that GoF work actually occurred.

Evidence consistent with animal origins continues to be generated, including the presence of viral-specific features (eg. furin cleavage sites and ACE2 receptor use, ascribed by some as consistent with GoF studies) in bat and other animal coronaviruses, and detection of related coronaviruses in the wild.

There has been misinterpretation, due to general or wilful misunderstanding, of viral sequence data, virus isolation information, gain of function research, laboratory locations and functions, scientific processes, epidemiological analyses, clinical features, environmental and animal studies etc.

One might argue that conflicts of interest, for example by people who have published and sold books supporting the laboratory leak or other hypotheses, have not always been declared. The political and other drivers behind USA and other government hearings, or specific Agency investigations, supporting various origins hypotheses are hard to untangle.

The key to understanding viral origins is based on careful accumulation of evidence, requiring openness between scientists and countries, data sharing, reliable reporting, freedom from political bias, and repetition where possible. Such processes may take many years.

To say that it is a ‘false story that it was of natural origin’ is, based on accumulating evidence to date of animal origins and lack of evidence of laboratory leaks or other hypotheses, at this stage and in my scientific opinion incorrect. Scientific conclusions are always open to change if further and reliable evidence becomes available.

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<sup>1</sup> World Health Organization-convened Global Study of Origins of SARS-CoV-2. Joint WHO-China Study Report. March 2021. <https://www.who.int/publications/i/item/who-convened-global-study-of-origins-of-sars-cov-2-china-part>.