

NCRIS Virtual Seminar Series

Viruses and bats in the context of the COVID-19 pandemic

Abstract:

The Year of Rat is unfortunately dominated by bats due to the ongoing 2019-novel coronavirus (COVID-19) outbreak. Although we are not 100% certain that this is a bat virus, all the evidence suggests that there is a high chance that SARS-CoV-2 originated from bats. This is a “SARS-like event caused by a SARS-like virus” based on the following: 1) the onset of the outbreak is in the Chinese winter (November – December); 2) the major transmission event(s) have a strong epidemiological link to wildlife market; 3) the virus belongs to the same species, *SARS relative coronavirus* (SARSr-CoV), as SARS-CoV; 4) a bat CoV genome detected in a horseshoe bat (RaTG13) is 96% identical in sequence to SARS-CoV-In last 25 years, we have had multiple zoonotic diseases outbreaks caused by bat-borne viruses or probable bat viruses: Hendra in Australia (first detected in 1994), Nipah in Malaysia/Singapore (1998/9), SARS outbreak (2002/3), MERS outbreak (2012), large scale Ebola virus outbreak (2014) and the Covid-19 (2019/20).

We have discovered that the bat’s host defense and tolerance responses are better balanced in comparison to other mammals. On one hand, they have high basal level defense systems (such as DNA damage repair, heat shock, membrane efflux pumps) switched on before encountering danger signals. On the other hand, they have evolved sophisticated mechanisms to prevent over reaction (such as over inflammation) upon viral infection and other cell stress signals. This explains why bats are such a good reservoir capable of hosting a large number of viruses without suffering from diseases themselves.

Speaker:



Professor Wang Linfa

Principal Investigator, Emerging Infectious Diseases Programme

Laboratory of Emerging Zoonotic Viruses
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Prof Linfa Wang is a professor in the Programme in Emerging Infectious Diseases at Duke-NUS Medical School, Singapore. His current research focuses on why bats are such an important reservoir for emerging viruses and on how we can learn from bats to make us more resilient to infection and diseases in general. He was a member of the WHO SARS Scientific Research Advisory Committee and played a key role in identification of bats as the natural host of SARS-like viruses. Currently, he is serving on multiple WHO committees for COVID-19, including the WHO IHR Emergency Committee.

Date:

**26th October 2020
 (Monday)**

Venue:

via Zoom

For details:

Please contact

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Time:

12 noon-1pm

Host:

David Virshup

Professor & Director
 Programme in Cancer &
 Stem Cell Biology
 Duke-NUS Medical School
 Singapore

**No registration is
 required.**

All are welcome.

Any enquiries, please contact:
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