Abstract:

Bats perform important ecological roles in our ecosystem. However, bats are also reservoirs of emerging viruses that have spilled over into humans and agricultural animals to cause severe disease. These viruses include Hendra and Nipah paramyxoviruses, Ebola and Marburg filoviruses, and coronaviruses that are closely related to severe acute respiratory syndrome coronavirus (SARS-CoV), Middle East respiratory syndrome coronavirus (MERS-CoV), and the recently emerged SARS-CoV-2. Intriguingly, bats that are naturally or experimentally infected with these viruses do not show clinical signs of disease. Highly pathogenic zoonotic coronaviruses have evolved proteins that can effectively block innate and intrinsic responses in human cells. In this talk, we shall explore how coronaviruses interact with innate and intrinsic responses in their wildlife (bat) and spill over (human) hosts. We will discuss lessons learnt from our studies on bat antiviral responses and translational outcomes that will enable us to design better countermeasures for coronavirus infections in humans.