

Research Centre of Infection and Immunology

Director: Professor PCY Woo

The Centre is one of the six new research centres based on the Faculty's strategic research themes. The Centre is supported by the State Key Laboratory of Emerging Infectious Diseases, the establishment of which in HKU was approved by the Ministry of Science and Technology. The national recognition fully demonstrates the Faculty's continuing excellence in research on infectious diseases, particularly in SARS and avian influenza. There are more than 100 state key laboratories throughout China; each focusing on an individual research area and the overall number of disciplines involved is 92. This State Key Laboratory at the University has been the first laboratory which is located outside the Mainland and focuses on emerging infectious diseases.

Since the start of the Centre, members have discovered human coronavirus HKU1, bat SARS coronavirus, eight other bat coronaviruses HKU2, HKU4 to HKU10, nine avian coronaviruses HKU11 to 13 and HKU16 to 21, porcine coronavirus HKU15, rabbit coronavirus HKU14, feline morbillivirus, feline picornavirus, canine picodistrovirus, canine picornavirus, tuhokovirus 1 to 3, avian turdivirus 1 to 3, porcine and bovine partetravirus, feline and canine bocavirus, porcine bocaviruses, bat and mouse astrovirus. We have also discovered more than 20 bacterial and fungal species named after Hong Kong or China, such as *Laribacter hongkongensis*, *Streptococcus sinensis*, *Streptococcus hongkongensis* and *Exophiala hongkongensis*. In addition to the search for novel microbes in human and animals, the Centre focuses on studying the interaction between existing/emerging microbes with antigen presenting cells and with novel chemical compounds. The study of the pathogenesis, cell biology in terms of intracellular signaling pathway and the resulting immunological response after the encounter between the microbe and host cells constitutes an important part of the Centre. This will have profound influence on the development of vaccine (or immunomodulatory agents) which is one of the most important armamentarium against infectious microbes.

Other than immunization, the next most important armamentarium in the control of infection is antimicrobial chemotherapy. Advances in genomics are not matched by our ability to dissect out the phenotypes or functions of many novel genes. Use of combinatorial chemical libraries by a robotic high throughput screening platform will throw new lights on these novel genes and indirectly identify novel antimicrobial agents with good activity against these microbes. In a recent paper published in Nature biotechnology, we discovered that an internal non-enzymatic structural protein of the influenza A virus called nucleoprotein can be a useful antiviral target.