HKU-Pasteur Research Pole

By its strategic location HKU-PRP is well placed to be at the forefront of an early warning and response to emerging diseases threats. Our research strategy has focused on the generation of biological knowledge to confront the challenges posed by viral infections and provide solutions to treat infectious diseases. Three main questions are of particular interest to us:

How do viruses infect us?
What makes a microbe pathogenic?
How do pathogens withstand our natural defenses?

We have also worked on the development of a vaccine candidate following the severe acute respiratory syndrome (SARS) outbreak in 2003 and have validated a safe diagnostic test to carry out sero-epidemiological studies on avian influenza infection and the MERS coronavirus that has recently emerged.

We are studying influenza, MERS and other emerging viral zoonoses as well as dengue and Zika viruses to promote an innovative research and knowledge-based program dedicated to implement the One-Health approach to the understanding of infectious diseases. The fundamental research done at HKU-PRP is essential to deliver new “druggable” targets for human diseases.

Improving global health through RESEARCH

Which DISEASES are we focusing on?

**INFLUENZA**
Influenza is a major threat to global public health. Hong Kong is a travel-hub situated at an epicentre of zoonotic and pandemic emergence and, therefore, particularly challenged by this emerging and re-emerging infectious disease. Our work aims at understanding how the virus and the organisms interact and how it influences transmission between human beings, and from animals to humans.

**MIDDLE EAST RESPIRATORY SYNDROM**
The past decade has also seen the emergence of two novel coronaviruses that have caused human outbreaks threatening global health security: SARS and MERS coronaviruses. Where is MERS-CoV present today and how can we rapidly and efficiently detect it to better prepare prevention? We have designed a safe diagnostic test for epidemiological studies which is well adapted for large-scale studies and the identification of infected individuals to monitor virus spread.

**DENGUE**
Dengue is a global burden: it is the most common mosquito-borne disease and is highly underestimated in many regions. Over 2.5 billion people are now at risk from dengue, >70% live in Asia Pacific countries including Hong Kong and the region. With the prospect of further climate changes affecting the ecology of the mosquito vector, HKU-PRP is pursuing an original approach based on novel in-house tools to understand the mechanisms of viral pathogenesis.

**NEW DIRECTION: ZIKA**
Recent Zika outbreaks have raised concerns about its global spread, leading WHO to declare it as a Public Health Emergency of International Concern. In response, HKU-PRP is joining the forces of the Institut Pasteur network which is already strong of many years of investigation. What happens once Zika virus has infected its target remains poorly known to date: as for dengue virus, investigating the virus-host interactions and the immune response of infected cells can pave the way to the identification of cellular targets for innovative therapeutic compounds.