Tackling emerging and re-emerging infectious diseases

Hiroshi Kida of Hokkaido University takes
THE LEAD IN INTERNATIONAL RESEARCH
for zoonosis control.

Recent years have seen an increasing threat of emerging and re-emerging zoonoses — infectious diseases able to be transmitted between animals and humans, including Zika, Ebola and certain strains of influenza.

Hiroshi Kida, who heads Hokkaido University's Research Center for Zoonosis Control, is a world-leading expert in zoonotic diseases. His contributions include the discovery that enteric viruses in ducks are the source of the Influenza A virus genes that infect both birds and mammals, including humans. He has also proven that new virus strains can develop in the respiratory organs of pigs simultaneously hosting human and avian influenza viruses, and that this has potentially led to viral outbreaks. Furthermore, Kida's epidemiological research unraveled the global transmission route of avian influenza; it was likely first transmitted to humans via pigs, who had contracted the disease from ducks migrating to ponds in Southern China from the inland waters of Siberia.

In recognition of his achievements, in 2005 Kida was appointed head of the World Reference Laboratory for Avian Influenza at the World Organisation for Animal Health, and in 2011 he took over leading the World Health Organization's Collaborating Centre for Zoonoses Control.

In recent years, Kida and his collaborators have been developing prototypes of 'whole-virus vaccines' against influenza, which has proven far more effective at inducing immunity in animals than current 'split-virus vaccines'. This development is a significant step towards vaccines that are more effective in children and the elderly, as well as being highly effective against mutated viruses. At present, Kida is strengthening ties with industry and government institutions to accelerate this research and initiate clinical trials.

In 2014, to promote international research and education on zoonoses, Hokkaido University created the Global Station for Zoonosis Control in close collaboration with the University of Melbourne, University College Dublin, and King Abdullah University of Science and Technology. In 2017, the university also established the Graduate School of Infectious Diseases, which cultivates scientific expertise in infectious diseases and equips students with the most up-to-date knowledge, and the practical and leadership skills necessary to steer zoonoses control.

Hokkaido University originated from the Sapporo Agricultural College, which was established in 1876 and was Japan's first higher education institution to award bachelor's degrees. The university has 12 undergraduate and 21 graduate schools covering a wide range of disciplines. Boasting one of the biggest campuses in Japan, the university houses cutting-edge research facilities, a university hospital, and one of the world's largest research forests. ■

The threat of emerging and re-emerging infectious diseases has increased in recent years (top). The Sapporo campus of Hokkaido University in northern Japan (bottom left). Research by Hiroshi Kida, head of the university's Research Center for Zoonosis Control (bottom right), has made important advances in our understanding of zoonotic diseases.

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