



The University of Hong Kong
School of Biological Sciences

**Public
Seminar**

Molecular Epidemiology of Exotic Pet-Associated Pathogens and their Associations with Gut Microbiome

Date: 23/9/2025

Time: 14:00

Venue: 6N-11 & Zoom

About the speaker:

Jackie Ko is a PhD student focusing on host-pathogen interactions in diverse captive animal systems and their roles in One-Health. She is a PhD student under Prof. Simon Sin.

Abstract:

The recent expansion of exotic pet trade contributes substantially to the emergence of zoonotic and epizootic diseases. The primary aim of my thesis is to clarify epidemiological features, including prevalence, genetic diversity, risk factors, and/or antimicrobial resistance (AMR) profiles of four critical pathogens associated with exotic pets (i.e., avian viruses Psittacine Beak and Feather Disease Virus (PBFDv) and Budgerigar Fledgling Disease Virus (BFDV); and zoonotic pathogens *Chlamydia psittaci* and *Salmonella*) in Hong Kong, a major hub of wildlife trade. On top of that, my study explores host-microbiota-pathogen dynamics by evaluating the indirect effects of host MHC diversity to PBFDv infection through modulation of the gut microbiome in ros-faced lovebirds (*Agapornis roseicollis*) under controlled conditions.

PBFDv, BFDV and *C. psittaci* were detected in low prevalences among over 500 captive birds from domestic, commercial, and veterinary settings, with phylogenetic analyses suggesting potential contributions of international bird trade to the dissemination of PBFDv. *Salmonella* was isolated from a majority of sampled pet reptiles and amphibians, with most isolates exhibiting AMR and some being multi-drug resistant. Finally, results revealed associations between MHC-I diversity, gut pathogen abundance and PBFDv load in *A. roseicollis*.

