

Theme-based Research Scheme

Department of Microbiology

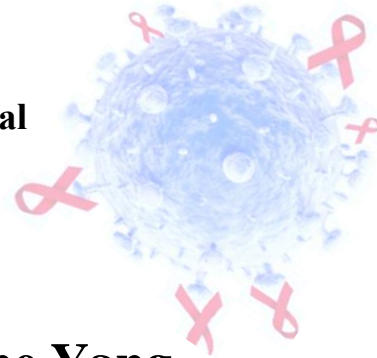
The University of Hong Kong

Seminar

EM based Epitope Mapping and Vaccine Development

11:00 am, Friday, May 5, 2023

Lecture Theatre, 2/F, Block T, Queen Mary Hospital



Speaker: Dr Renee Yuhe Yang

Principal Investigator

National Center for Nanoscience and Technology
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Abstract:

In response to the virus outbreak, scientists and pharmaceutical companies have developed vaccines and therapeutics that saved countless lives and became a miracle in modern medicine. By applying structure-based immune evaluation, modulation, and optimization, we attempt to elucidate the mechanisms of our immune response against those threatening infections. We use cryo-EM to determine the high-resolution structures of viral antigens in complex with monoclonal/polyclonal antibodies, with the purpose to reveal the epitope landscape and antigenic determinants, which will aid the design of novel vaccines and shed light on the evaluation of vaccine efficacy towards new variants. By solving the high-resolution cryo-EM structure of the HIV envelope protein in complex with a neutralizing antibody, which delineated the interaction details surrounding the “glycan hole” epitope, we have concluded that such an epitope is challenging to be broadened for HIV vaccine design. By developing new technologies using full-length native IgG in the EM epitope mapping, we have revealed novel inter-spike cross-linking neutralizing mechanism based on the distinct dimer-trimer architectures and shed light on molecular basis of Omicron immune escape.

Dr. Yuhe Renee Yang was awarded the **2021 National Science Fund for Excellent Young Scholars (overseas)** and the **2021 Chinese Academy of Sciences Talents Program**. She has worked in Structural Biology and DNA Nanotechnology for more years.



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