Poster

Structural and biophysical characterization of antigen-antibody complexes

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The interaction studies between antigens and antibodies is very crucial in controlling and preventing infectious diseases. Structural biology tools help to analyse clearly the interaction and binding interface between an antibody and its specific antibody in detail. In this study, we designed DNA constructs encoding various antigens, which are SARS-CoV-2 NP, SASRS-CoV-2 RBD, MERS-CoV NP and ZIKV NS1, and purified recombinant proteins as diagnostic and therapeutic targets. In addition, we generated the antibodies which can bind specifically to each antigen. We performed biophysical characterization of antigens, antibodies and antigen-antibody complexes using circular dichroism(CD), size-exclusion chromatography with multi-angle light scattering(SEC-MALS) and biolayer interferometry(BLI), and structural studies by X-ray crystallography, biological SAXS and Cryo-EM. Consequently, we developed the diagnostic and neutralizing antibodies with high affinity to viral antigens. This integrative structural biology study and biophysical characterization on antigen-antibody complex will provides valuable information for accelerating structure-based antibody design against new emerging pathogens.