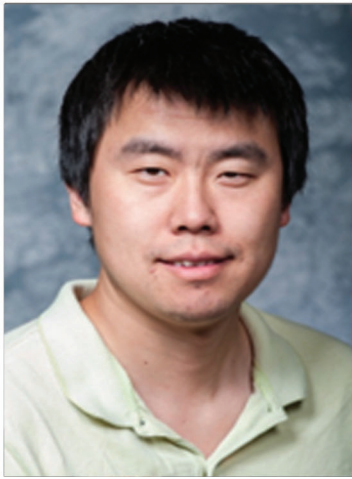


IMCB & ID Labs Seminar by A/Prof Xing Wang



Speaker : **A/Prof Xing Wang**
University of Illinois Urbana-Champaign

Date : 24 Jul 2023, Monday
Time : 11.00AM – 12.00PM
Venue : IMCB Seminar Room 3-46, Level 3, Proteos, Biopolis
Hosts : Dr Leslie Beh (IMCB)
Dr Guillaume Carissimo (ID Labs)

Seminar :

Nucleic acid engineering for disease diagnosis and treatment

Viruses or cells can present unique spatial patterns of their surface proteins (epitopes). Such epitope features can be selectively captured by different binders such as aptamers, nanobodies, and antibodies. My group has recently created designer DNA nanostructures (DDN) to display multiple viral or cancer cell surface protein-targeting binders in a 2D or 3D-pattern to offer multivalent and pattern matching interactions, affording dramatic improvement in virus or cancer cell-binding avidity. Our multivalent, pattern matching strategy built on DDN platforms has been applied to develop effective biosensors and therapeutic candidates for disease diagnosis and treatment. In this talk, I will discuss our recent efforts to create customized DDNs for the development of inexpensive and ultrasensitive biosensors for the rapid and early detection of dengue or SARS-CoV-2 virus, and of therapeutic candidates for virus inhibition or cancer treatment (briefly).

About the Speaker :

Dr. Xing Wang is an associate professor in the Bioengineering Department, and he is also affiliated with the Chemistry Department, Carl R. Woese Institute for Genomic Biology (IGB), and Holonyak Micro and Nanotechnology Laboratory (HMNTL) at the University of Illinois at Urbana-Champaign (UIUC). At UIUC, Dr. Wang directs the Nucleic Acids Programming Lab (NAPL) and co-directs the Center for Pathogen Diagnostics (CPD). He received a Ph.D. from New York University, working with Dr. Ned Seeman to build bio-functional DNA motifs. He did his postdoc training with Dr. Laura Landweber at Princeton University to use programmed non-coding RNAs for genome editing. Dr. Wang is a recipient of the Mikashi Awards in 2021. He is the inventor of the "DNA Star" platform. His research group utilizes nucleic acids and protein engineering to create and customize designer DNA nanostructure-based "plug-and-play" platforms for the applications in infectious disease diagnosis/treatment/prevention, cancer therapy, and high resolution bioimaging. Dr. Wang's research group is currently supported by the National Institutes of Health (NIH) and National Science Foundation (NSF).