NUS National University of Singapore | Infectious Diseases Translational Research Programme, Yong Loo Lin School of Medicine

Research Seminar

10 March 2026 **12-1pm** **MD4-02-03E - MD4 Microbiology, Seminar room, level 2**

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Director of SHARE, Singapore – HUJI Alliance of Research and Enterprise

Using peptides for sensing and inhibiting protein interactions

Abstract

Protein-Protein Interactions (PPI) mediate most of the vital processes in cells and are involved in numerous diseases. However, it is extremely challenging to make them drug targets. The research in our lab focuses on using peptides for the quantitative biophysical and structural analysis of PPI in health and disease. Based on this, we develop lead peptides that modulate PPI for therapeutic purposes. In addition, peptides are used for biosensing based on specific PPI. In my talk I will give an overview of our research, including recent examples for PPI-targeting and sensing peptides developed in our lab:

- Control of condensation and aggregation of proteins by multiphosphorylation(1,2).
- Inhibiting structured and disordered domains simultaneously (3)
- Specific targeting of cancer cells by a designed peptide (4)
- Inhibiting and quantifying protein aggregation in disease (5,6).

Recommended Readings

1. Mamidi et al (2019) Org Biomol Chem 17(42):9284-9290; Mayer et al (2019) Nature Comm 10(1):1261
2. Bressler et al (2025) Org Biomol Chem 23(29):6912-6923
3. Mayer et al (2022) ACS Chem Biol 17(7):1811-1823
4. Sohn et al (2022) Chem Sci 13(23):6929-6941
5. Garfagnini et al (2024) Chemistry – A European Journal 30(52):e202400080
6. Aragones Pedrola et al (2025) PNAS 122(44):e2502847122