



VIRTUAL BIOLOGY COLLOQUIUM

Friday, 9 Oct 2020 | 4pm | Online Zoom Session

Hosted by Dr Shi Jian

Peptide Based Drug Discovery for Human Disease Related Membrane Proteins



By Tian Changlin

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Peptide drugs are of medium size between small compounds and antibodies. They have many advantages of biological drugs and can also be efficiently large scale produced through chemical synthesis. The world annual revenue of peptide drugs has reached 70 billion dollars and its annual growth rate is as high as 12-14% in recent years. However, the low stability, short life-time in blood vessels and low membrane permeability of peptide drugs still preclude their wide applications. Aiming at these issues, we have developed and applied the new chemical methods, such as native chemical ligation, sulfur-ester replacements, palmytolation and mirror-image protein production, to improve stability and drug affinity of peptide based drug candidates. At the same time, we are trying to obtain three dimensional structures of disease related membrane protein complexes with peptide based drug targets, to illustrate the peptide drug binding interface and physico-chemistry mechanism of peptide's influences to these membrane protein drug targets. All of these efforts could be applied to speed up high efficient peptide based drug discovery for neuro- or immuno- diseases.

About the Speaker

Tian Changlin is a principal investigator in School of Life Sciences, University of Science and Technology of China Hefei National Research Center for Physical Sciences at MicroScale.

Changlin received his PhD in Molecular Biophysics in 2003 from Florida State University. Research Interests in his groups include:

- (1) Peptide based drug discovery for neuro and immune disease related membrane proteins*
- (2) Chemical synthesis and modifications of polypeptides and proteins.*
- (3) Unnatural amino acid for 19F-NMR/fluorescence based protein dynamic and mechanism studies*
- (4) Electronic spin resonance for electron transfer in biological systems*

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