Center for Molecular Spectroscopy and Dynamics, IBS-Korea University

IBS Center for Molecular Spectroscopy and Dynamics

Seminar

- **SPEAKER**
  Prof. Yongwon Jung (KAIST)

- **TITLE**
  Protein models to study biomolecular liquid-liquid phase separation

- **ABSTRACT**
  Phase separation of specific biomolecules into liquid droplet-like condensates (process called liquid-liquid phase separation, LLPS) is a key mechanism to form membrane-less organelles, which spatio-temporally organize diverse biochemical processes in cells. For more clear analysis and ultimately precise manipulation of these condensates, it is critical to have diverse but simplified model systems. Our group have been developing various protein-based in vitro LLPS models to elucidate distinct behaviors of biomolecular membrane-less organelles. For example, we designed a strategy for metal ion-induced clustering of minimal protein modules to produce liquid protein condensates, the properties of which can be widely varied by simple manipulation of the protein clustering systems. In addition, various cellular protein condensates were formed with tandemly repeated intrinsically disordered proteins (IDPs) or light-controllable IDPs in vitro as well as in cells. These strategies provide highly versatile protein condensates, which will greatly facilitate investigation of molecular and structural codes of droplet-forming proteins. For example, we were able to reveal highly enhanced client protein proximity inside cellular membrane-less compartments by using these models.

- **DATE AND VENUE**
  Jan. 11, 2022 (Tuesday, 11:00 - 12:00)
  Virtual Seminar

- **LANGUAGE**
  Korean

- **INVITED BY**
  Professor Seok-Cheol Hong