



IBS Center for Molecular Spectroscopy and Dynamics

Seminar

- **SPEAKER**

Prof. Woon Ju Song (Seoul National University)

- **TITLE**

Coordination Chemistry with Proteinaceous Ligands

- **ABSTRACT**

Nature utilizes numerous transition metal ions for dedicated chemical reactions. To explore the chemical reactivities of transition metal ions in proteinaceous environments, we have treated proteins as multi-functional ligands of which sequence can be easily altered by site-directed mutagenesis and directed evolution. We have designed Zn-dependent metallo-hydrolases from a structurally and functionally unrelated alpha-helical protein. From the comparative studies of two de novo metalloenzymes, we propose that at least three factors might be involved in the determination of catalytic activities and/or evolvability. In addition, we recently expand the targets from alpha-helical proteins to beta-barrel membrane proteins for protein engineering. Due to the intrinsic structural and chemical features of the protein platform, unprecedented metal-coordination and enzymatic activities have been observed with the de novo metalloenzymes. Our works suggest that proteins are versatile ligands of which function and structure can be modulated by the introduction of metal-ligand coordination bonds and that we can develop novel protein-based catalysts and materials.

- **DATE AND VENUE**

January 30, 2019 (Wednesday, 4:00 - 5:00 pm)

Seminar Room A (116), KU R&D Center

- **LANGUAGE**

Korean

- **INVITED BY**

Professor Kyungwon Kwak