



IBS Center for Molecular Spectroscopy and Dynamics

COLLOQUIUM

- **SPEAKER**

Dr. Seungeun Oh (Harvard Medical School, Department of Systems Biology)

- **TITLE**

Visualizing Cell and Tissue Growth in Developing Bones by Quantitative Stimulated Raman Scattering (QSRS) Microscopy

- **ABSTRACT**

Biological control of tissue growth is important for normal animal development and homeostasis and, when disturbed, may cause tumors or pathological hypertrophy or dissipation. Cellular hypertrophy, cell number increase and secretion of extracellular matrix work together to drive tissue growth, and the accumulation, turnover and transport of proteins, lipids and water are tightly regulated as part of human physiology. However, there weren't adequate measurement methods to quantify total proteins, lipids and water at single cell resolution in tissues. Hence, we developed optical imaging method based on Stimulated Raman Scattering microscopy to visualize and quantify subcellular, cellular and tissue scale growth in situ by measuring absolute levels of total protein, lipid and water content. I will discuss the principles of QSRS imaging and its application in biomedical field, focusing on a case study of bone growth where quantitative observation of tissue growth at single cell resolution revealed novel biological processes.

- **DATE AND VENUE**

December 23, 2016 (Friday, 4:00–5:00 p.m.)
Asan Science Bldg. Room 433

- **Language**

English/Korean