

Seminar

Topic: Development of Enzymatic Site-specific Labeling Method of Membrane Proteins and Its Application to Protein Tracking in a Living Cell

Speaker: Dr. Teruyuki Nagamune

Professor of the University of Tokyo, Japan

Date & Time: 9:30-10:30 (am) July. 9, 2012 (Monday)

Venue: Meeting Room 308, IPE Mansion



Research Interest

The catalytic and molecular recognition functions of biomolecules have been utilized in the fields of bioconversion, biosensor, immunoseparation and immunoassay. In most of these cases, natural proteins themselves such as enzymes and antibodies have been used as functional units. From the viewpoint of application, however, these proteins are not often the optimal biomolecules with optimized functions and characteristics. On the other hand, owing to recent progresses in genetic and protein engineering, it has been quite easier than ever to identify the functional domains or functional subunits in the proteins or their complex, which are accompanied by the isolation of genes corresponding to these functional and structural units by PCR amplification. By using the techniques such as site directed mutagenesis, random mutagenesis, gene fusion, cofactor replacement, and chemical and enzymatic modifications, it has become quite feasible to alter, improve or integrate functions and characteristics of these various units and construct the biomolecules with suitable functions and characteristic for application.

What we attempt are, in short, the development of new chemical and enzymatic modification methods and the creation of optimized biomolecules consisting of enzymes, electron transfer proteins, antibodies, receptors, luciferases and fluorescent proteins, DNAs, lipids for the use in biotechnological fields.