



Bio Nano Robo Seminars

Thursday, July 24, 2008, 17h-18h

Room Dw601, Block D, 6th floor
IIS-University of Tokyo, Komaba 4-6-1,
Meguro-ku, Tokyo 153-8505.



Dr. Teruyuki NAGAMUNE

Dept of Bioengineering, Dept of Chemistry & Biotechnology
and Center for NanoBio integration, The University of Tokyo, JAPAN

In Situ Enzymatic Labeling Methods for Membrane Proteins on a Living Cell

Abstract

Membrane proteins on the surface of mammalian cells are involved in many cellular processes such as growth, differentiation, immune response, cell-cell communication, and reversible adhesion to the extra-cellular matrix. The cell surface engineering has a high potential for tremendous number of applications, from functional genomics, diagnosing diseases at the molecular and cellular levels, therapeutics, to gene therapy and cell-based therapies, including tissue engineering. As for cell surface engineering, many kinds of technologies such as gene fusion and gene transfer method, chemical protein modification method on cell surface and the method for incorporation of exogenous molecules with GPI anchor motif into cell membrane, have been developed.

In this seminar, I will introduce our general strategy for site-specific in situ labeling of cell surface proteins with small or large molecules using Sortase, a transpeptidase from *Staphylococcus aureus*. The short peptide tag, LPETGG was genetically introduced to the C-termini of the target proteins and expressed on the cell surface. Then addition of Sortase and GG-containing probes proceeded site-specific labeling reaction toward the tagged protein. We have succeeded C-terminal specific labeling of ODF (osteoclast differentiation factor) and adiponectin receptor with GG-containing biotin, Alexa 488 or GFP. Labeling reaction was efficiently and rapidly occurred in the serum containing medium, as well as serum-free medium or PBS.

FREE ENTRANCE

a banquet will follow



More info <http://limmshp.iis.u-tokyo.ac.jp>
Contact celine@iis.u-tokyo.ac.jp
olivier@iis.u-tokyo.ac.jp