OIST OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY GRADUATE UNIVERSITY

OIST SEMINAR

Date: Tuesday, August 4, 2015

Time: 11:00 – 12:00

Venue: OIST Campus Lab 1, Meeting Room C015 (Level C)

Speaker: Shizuya Saika, M.D., Ph.D.
Affiliation: Professor, Department of Ophthalmology Wakayama Medical University School of Medicine

Title: "EMT and myofibroblast generation in an injured lens: modulation of TGFb/Smad signal by extracellular matrix"

Abstract:

Epithelial-mesenchymal transition (EMT) and myofibroblast appears in the fibrotic tissues that are undergoing wound healing process. The process is characterized by tissue fibrosis and contraction by myofibroblast production of extracellular matrix (ECM). In the eye it is observed in the crystalline lens or other ocular tissues. Transforming growth factor beta (TGFb)/Smad signal plays a central role in the process of EMT and myofibroblast generation in an injured mouse lens as revealed by a study by using a Smad3-null mouse. However, EMT is further modulated by signals derived from binding of ECM to cell surface receptors. In the current talk the mechanisms of modulation of EMT by matricellular proteins, i. e., osteopontin, tenscin-C and lumican through modulation of TGFb signal. Lacking one of these component suppressed activation of TGFb signal and EMT in an injured lens as revealed by projects with mutant mouse lines in vivo. Although overall signals derived from these ECM components support Smad signal and positively modulate EMT, the detailed mechanisms of actions examined in cell culture studies seem differ among each other.