CMSI Center for Medical System Innovation

THE UNIVERSITY OF TOKYO

20120717

# 医工薬融合 GCOE Seminar Series

*Center for Medical System Innovation*
*through Multidisciplinary Integration*
*The University of Tokyo*

# Initiation of protein *O*-glycosylation: A Novel Function and Characterization of ppGalNAc-T18


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**Date: Tuesday, July 17, 2012**
**Time: 17:00 - 18:00**
**Venue: W5 5F. Seminar room, Faculty of Pharmaceutical Sciences Bldg., the University of Tokyo**


Mucin-type O-glycosylation is one of the most important post-translational modifications of proteins. A large family of UDP-GalNAc: polypeptide α-N-acetylgalactosaminyltransferase (ppGalNAc-T) catalyzes the initial step in the biosynthesis of mucin-type O-glycan by transferring GalNAc from UDP-GalNAc to the Ser and Thr residue of polypeptide acceptors. Several ppGalNAc-T isoforms have been reported to be important for many cellular and developmental processes under physiological or pathological conditions by modifying specific target proteins. In our study, we identified 20 distinct isoforms present in the human genome database. Each ppGalNAc-T isoforms has unique enzymatic activity, and characterizing their acceptor peptide specificity will be critical for understanding the biological role and significance of each other. Here we will review the structure and characterization of 20 human ppGalNAc-Ts and report a novel isoform of ppGalNAc-T18, which localizes in the endoplasmic reticulum (ER) of lung carcinoma cells, consists the Y subfamily with ppGalNAc-T8,-T9 and -T17, and restrictively exist in the vertebrate. We found ppGalNAc-T18 was a new regulator or co-activator of other ppGalNAc-Ts, and that imply a novel regulatory mechanism of protein *O*-glycosylation may exist in the ER.


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GPLLI Graduate Program for Leaders in Life Innovation

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