Shigeomi Horito, J Glycobiol 2015, 3:3
http://dx.doi.org/10.4172/2168-958X.S1.002

OMICS International
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Glycobiology World Congress

August 10-12, 2015 Philadelphia, USA

Reconstruction of a transmembrane protein tetraspanin (CD9) into lipid bilayer by interaction of ganglioside GM3 and tetraspanin

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Tetraspanin is four times transmembrane protein which constructs a super molecular complex with ganglioside GM3 and CD81 to regulate cell proliferation. Cancer proliferation is also regulate this super molecular complex. It is exciting challenge to elucidate the role of ganglioside GM3 in the super molecular complex. Guofei Son et al reported reconstruction of transmembrane protein aquaporine Z into lipid bilayer by interaction of nickel chelate and histidine tag. We tried to reconstruct tetraspanin by interaction of only natural compounds. GM3/dipalmitoylphosphatigylcholine/dioreoilphosphatigylcholine(1/9/9) lipid-monolayer indicate 2 types domains (0.9 nm high and 2.1 nm high). Hetero-bilayer indicates 2 types domains (6.7 nm high and 12.5 nm high), which is given tetraspanin to indicate 3 types domains (6.1 nm high, 11.7 nm high and 15.6 nm). The highest domain indicates the reconstruction of tetraspanin into the lipid-bilayer.

Biography

Horito has completed his PhD from Tokyo Institute of Technology in organic synthesis of carbohydrates and postdoctoral studies from Hamburg University of Germany as Humboldt researcher. He is an Associate Professor in the Dept. of Biological Science & Technology at Tokyo University of Science. He has published more than 25 papers in reputed journals.

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