HATANAKA LAB.

[Glyco-Biotechnorogy]

Department of Materials and Environmental Science

http://www.chembio.t.u-tokyo.ac.jp/labs/hatanaka.html

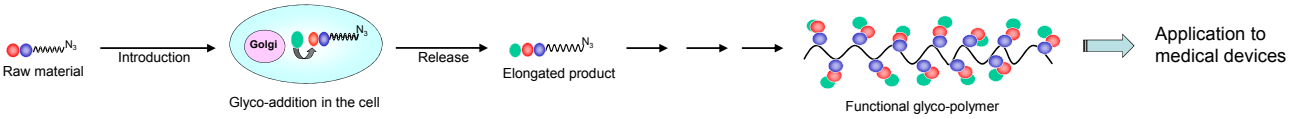
Biomaterial Engineering

Department of Chemistry and Biotechnology

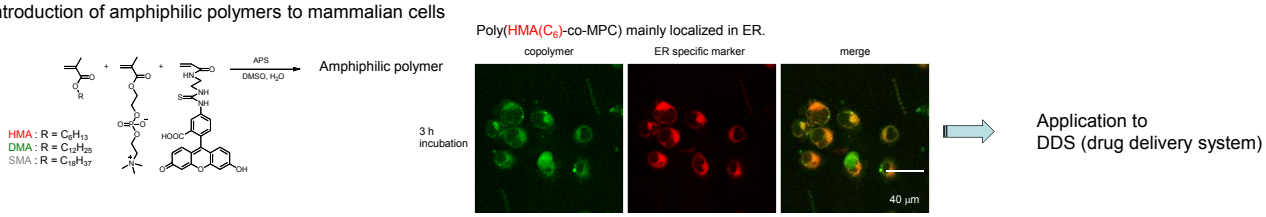
3rd Biomacromolecules

【To make saccharide chains and glyco-polymers】

★ Production of oligosaccharide by using mammalian cells

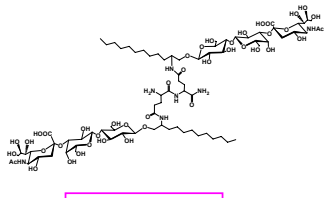


★ Introduction of amphiphilic polymers to mammalian cells

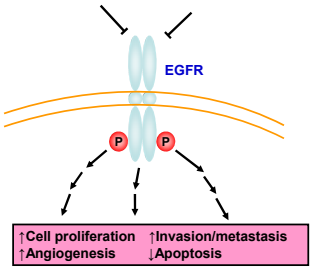


【To know the functions of saccharide chains】

★ Synthesis of glycolipid dimer analog and its inhibitory effect on epidermal growth factor-induced receptor tyrosine kinase → Development of new antitumor agent



GM3 mimetic dimer



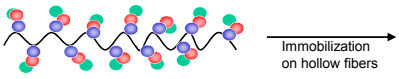
Inhibition of phospholylation of EGFR
→ Inhibition of cell growth

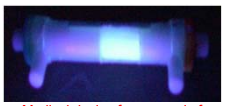
GM3 mimetic dimer inhibited cancer cell growth

	FBS	G_0/G_1 (%)	S (%)	G_2/M (%)
Control (EGF negative)	-	85.9	5.1	9.0
Control (EGF positive)	+	71.5	13.3	15.2
GM3	+	76.0	8.7	15.3
m-dimer	+	83.4	6.8	9.8

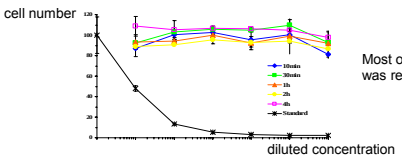
【To use saccharide chains and biomass】

★ Development of Vero-toxin removal apparatus

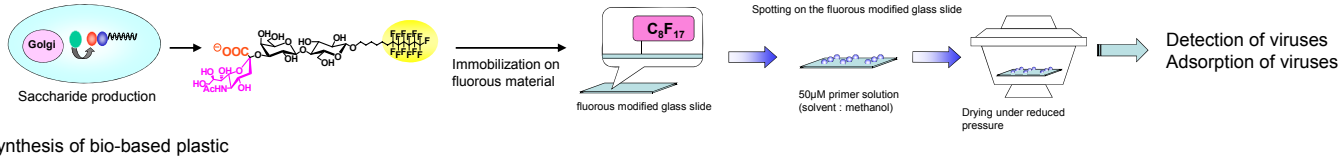




Medical device for removal of Vero-toxin from the blood



★ Immobilization of oligosaccharides by using fluorous interaction



★ Synthesis of bio-based plastic