HATANAKA LAB.

[Glyco-Biotechnology and Fluorous Biotechnology]

Department of Materials and Environmental Science

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

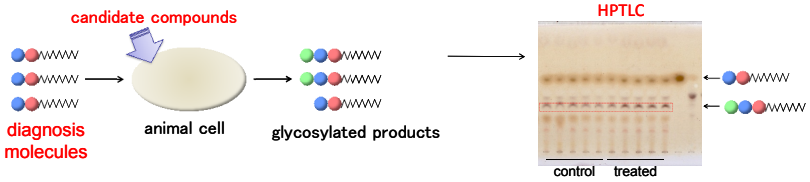
Biomaterial Engineering

Department of Chemistry
and Biotechnology

Glyco-Biotechnology & Fluorous Biotechnology

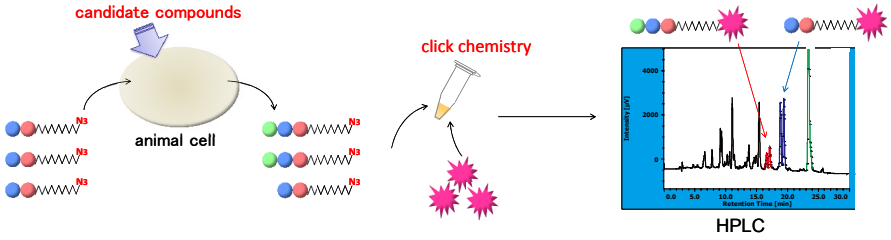
◆Glyco-Biotechnology: Novel Method of Searching for Glycosylation-Regulating Compounds

carbohydrate chain abnormality causes a disease → searching for glycosylation-regulating compounds
→ It is difficult to check quantitative change of carbohydrates in a cell. → monitoring using diagnosis molecule!

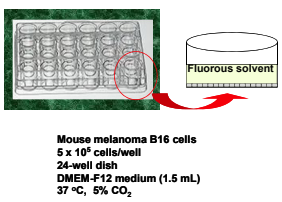


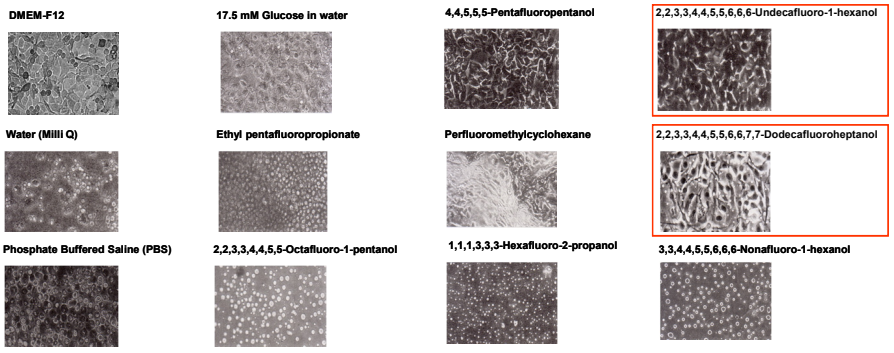
Advantages of this method are (1) detection without cell homogenization, (2) amplification of the signal, (3) detecting the effect on cabohydrate synthesis right after addition of candidate compound.

Moreover, the glycosylated products by using azidododecyl lactoside could be conjugated with fluorescent molecule by click chemistry, and the obtained fluorescent oligosaccharides were quantitatively analyzed by HPLC.



◆Fluorous Biotechnology: Cell Culture in Fluorous Solvents





Fluorous solvents contain high concentration of O_2.
→ Development of new cell culture system