HATANAKA LAB.

[Cell Engineering with Carbohydrates and Fluorous Solvents]

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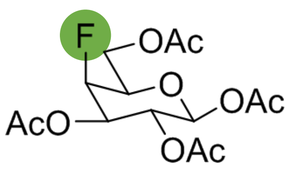
Cell Engineering with Carbohydrates and Fluorous Solvents

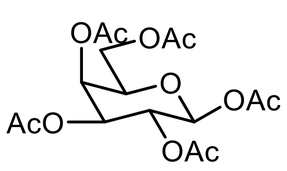
◆GlycoCompounds: Inhibition of Cancer Cell Growth by Controlling the Carbohydrates Biosyntheses

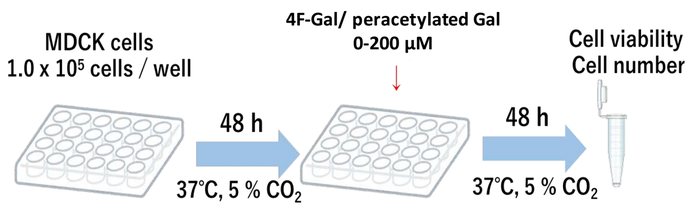
Effects of Carbohydrate Profile on Cell Function → Inhibition of Cancer Cell Growth
→ Kill neither the Normal Cell nor the Cancer Cell
→ A New Type of Anticancer Agent without the Side Effect !

4F-Gal

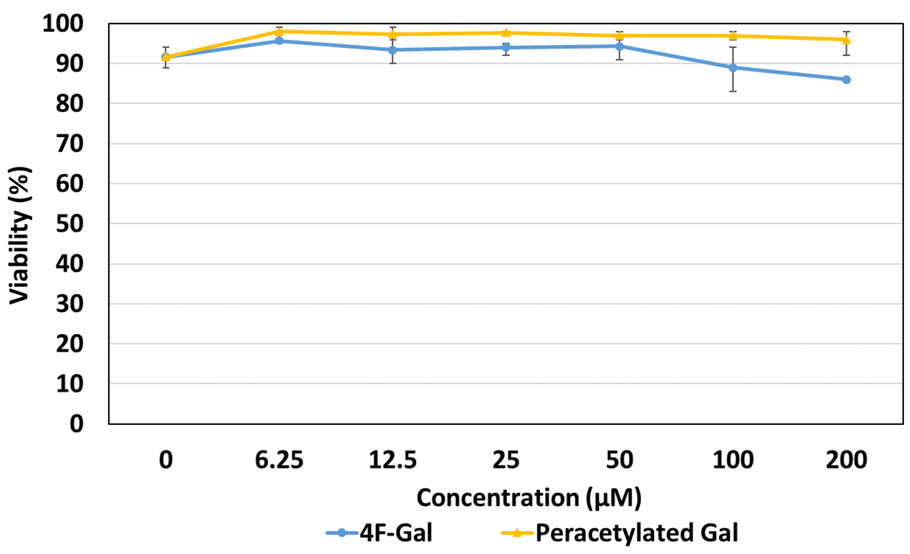


Peracetylated Gal



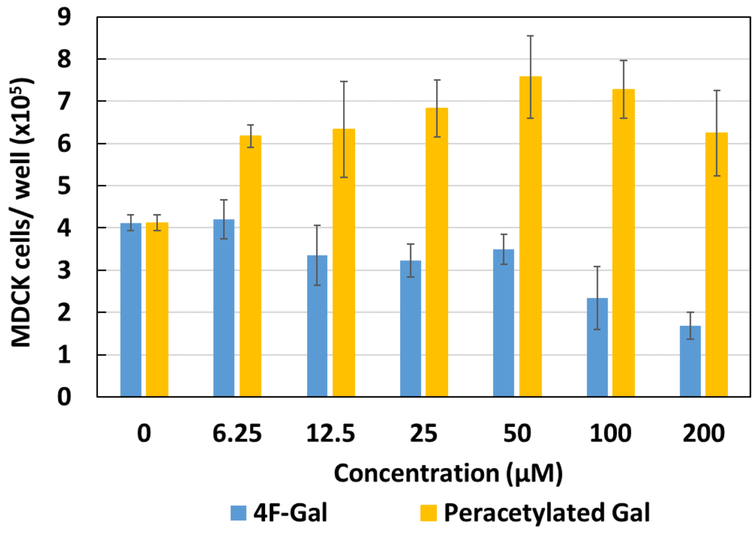


Results: Effect on cell viability



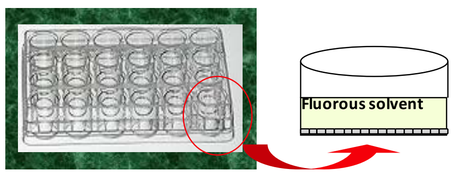
✓ 4F-Gal did not affect cell viability.

Results: Effect on cell proliferation

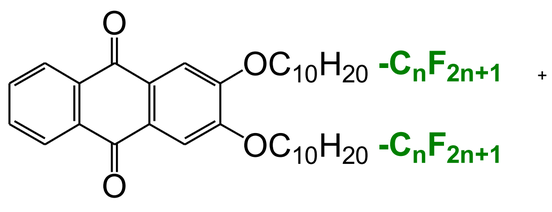


✓ Cell proliferation was inhibited at high concentration of 4F-Gal
✓ Cell proliferation was inhibited only in 4F-Gal

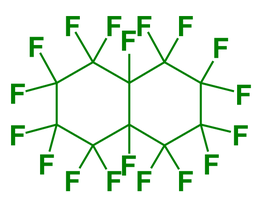
◆Fluorous Compounds: Cell Culture in Fluorous Solvents



Fluorous solvents contain high concentration of O_2.
→ Development of new cell culture system
(Perfluorodecalin was most suitable solvent for cell culture.)
→ Preparation of perfluorodecalin gel and its application for cell culture

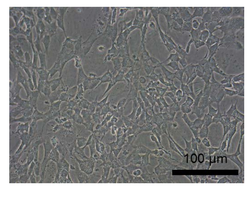


Fluorous gelator



Fluorous solvent
(perfluorodecalin)

Fluorous gel



NIH 3T3 cells in the presence
of perfluorodecalin gel