

GLYCENLI

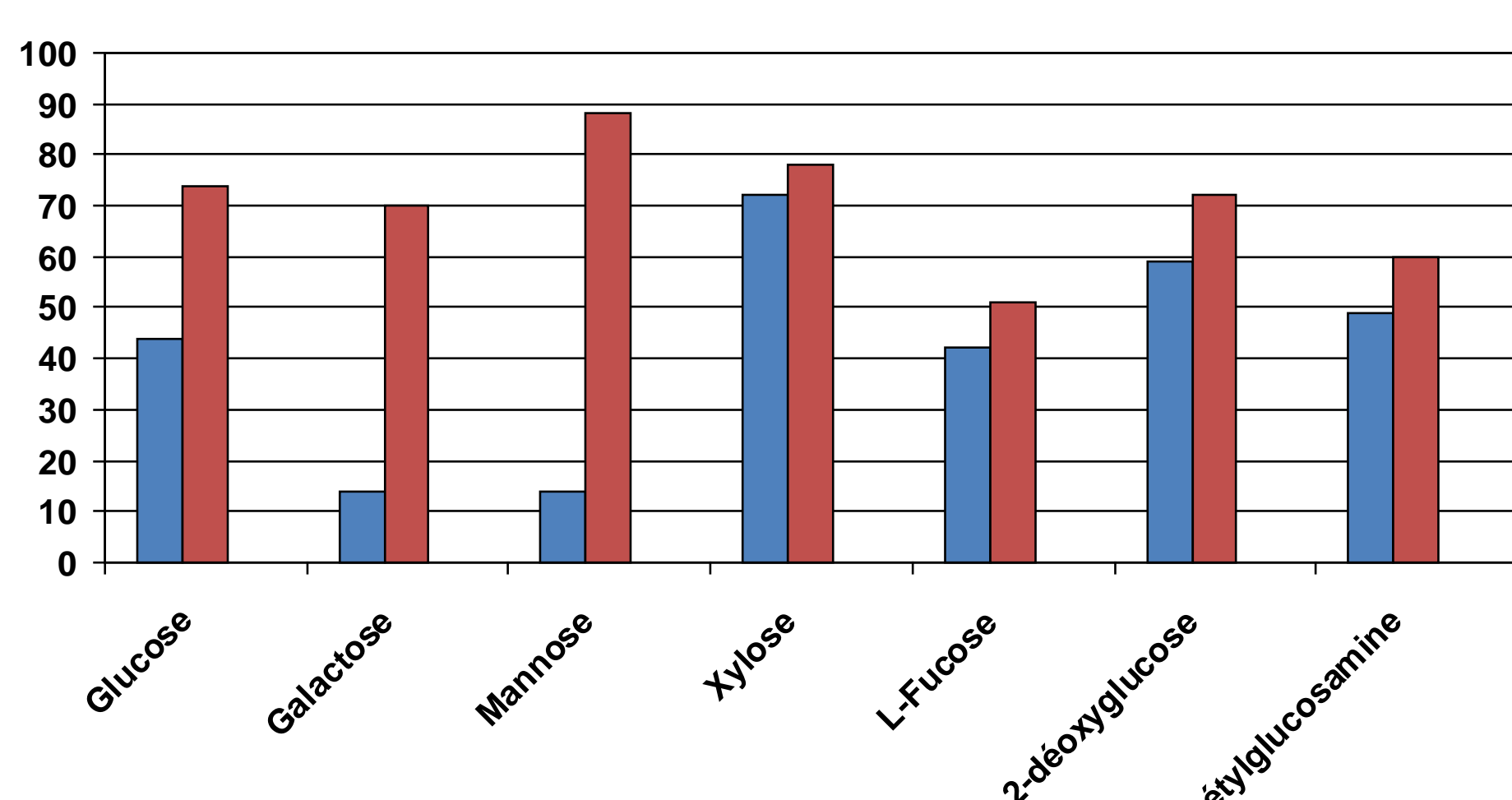
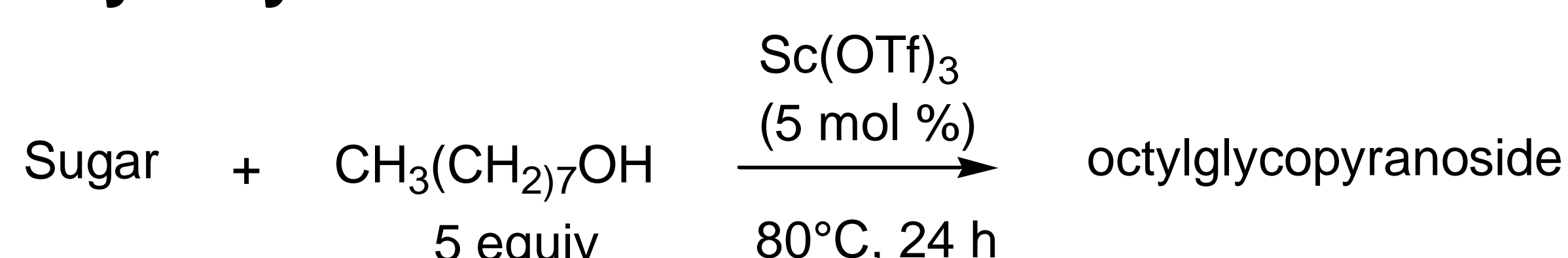
Glycosylation en présence de liquides ioniques (CP2D 2007)

Jacques Augé, University of Cergy-Pontoise (coordinator) - Claude Rabiller, University of Nantes-CNRS (partner)
G. Sizun-Thomé, O. Monasson, N. Lubin-Germain, J. Uziel (University of Cergy-Pontoise)
M. Ionita, S. Ferdjani, B. Roy, C. Tellier (University of Nantes)

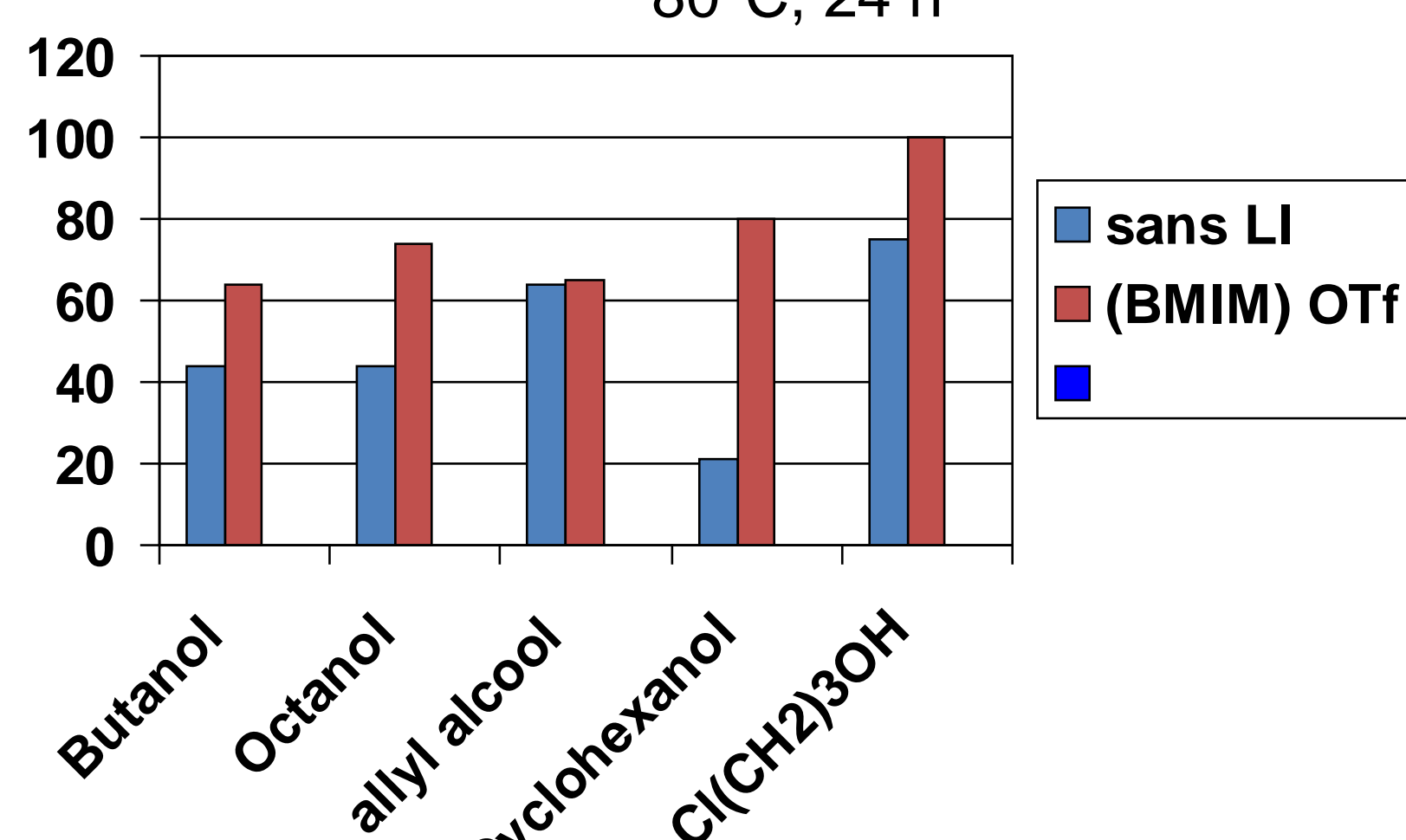
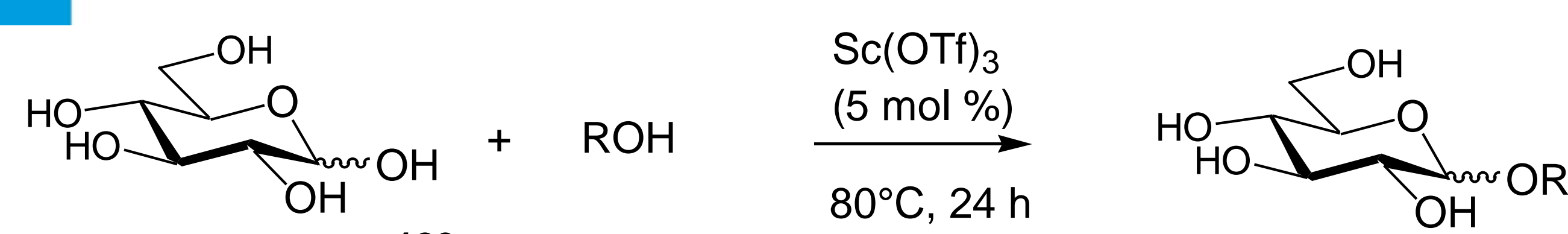
Objectives

Eco-friendly glycosylation with an optimal overall atom economy and reduction of waste by avoiding protection/deprotection steps

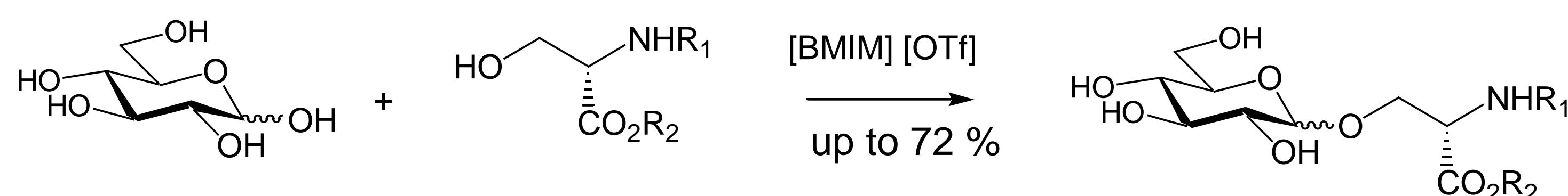
Glycosylation of octanol



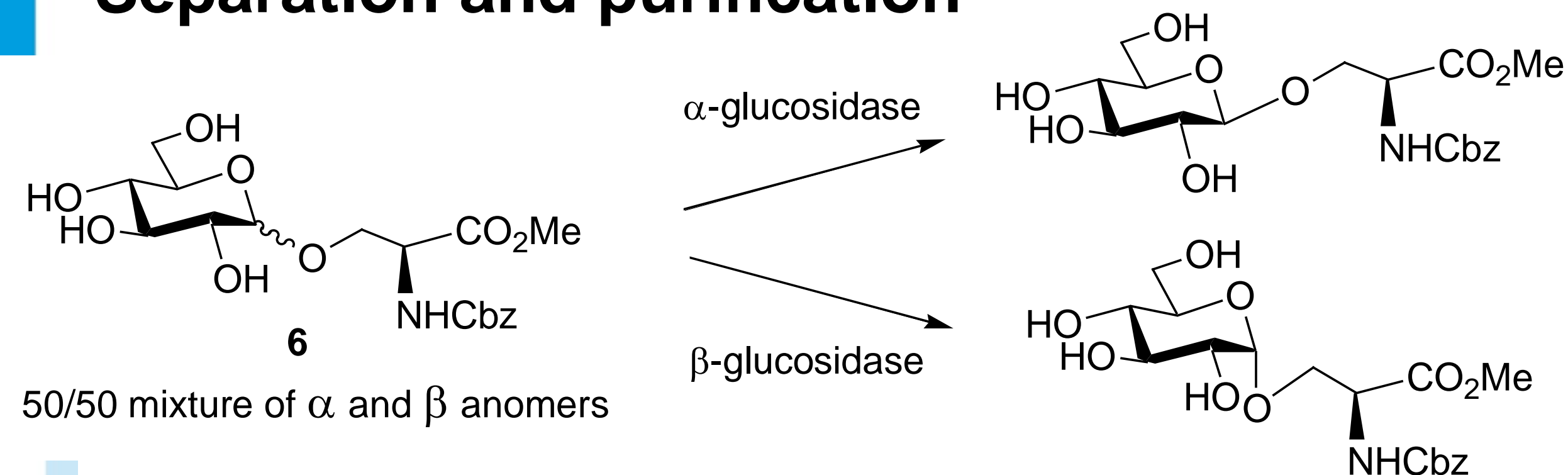
Extension to other alcohols



Sugar-peptide coupling



Separation and purification

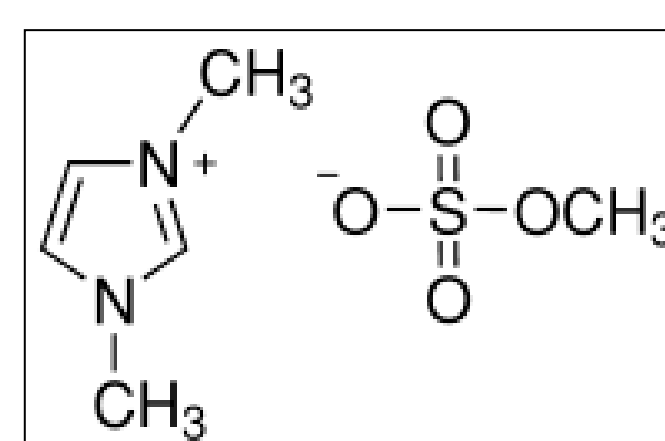


Ionic liquid recycling

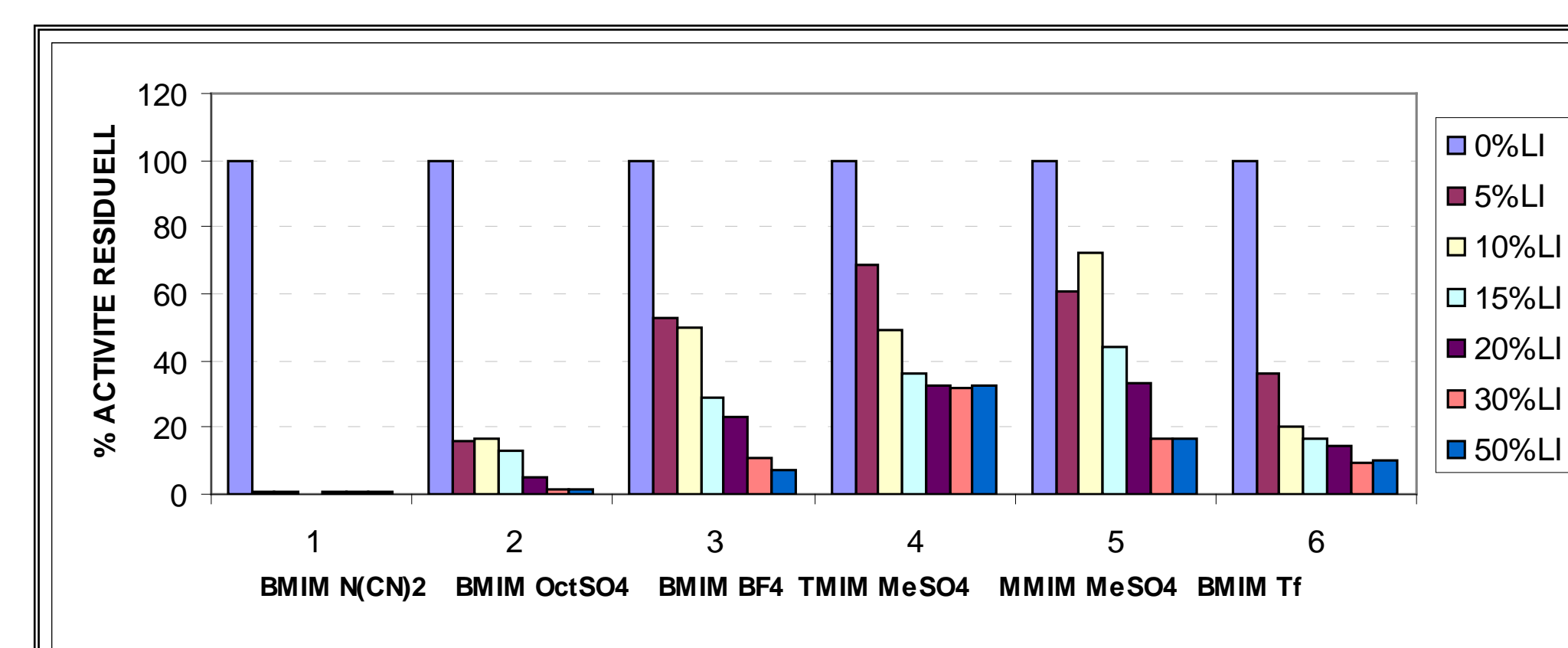
- Filtration on silica pad: recovery of the excess of reagent, the product and then the ionic liquid
- Enzymatic separation of α and β anomers if needed
- Reuse of the ionic liquid at least 3 times without loss of activity

J. Augé, G. Sizun, *Green Chem.* **2009**, *11*, 1179.
B. Roy, S. Ferdjani, C. Rabiller, C. Tellier, *Tetrahedron*, **2011**, *67*, 5176.
S. Ferdjani, M. Ionita, B. Roy, M. Dion, Z. Djeghaba, C. Rabiller, C. Tellier, *Biotechnol. Lett.* **2011**, *33*, 1215.
J. Augé, N. Lubin-Germain, O. Monasson, G. Thomé-Sizun, J. Uziel, *Carbohydr. Res.* **2012**, *352*, 202.

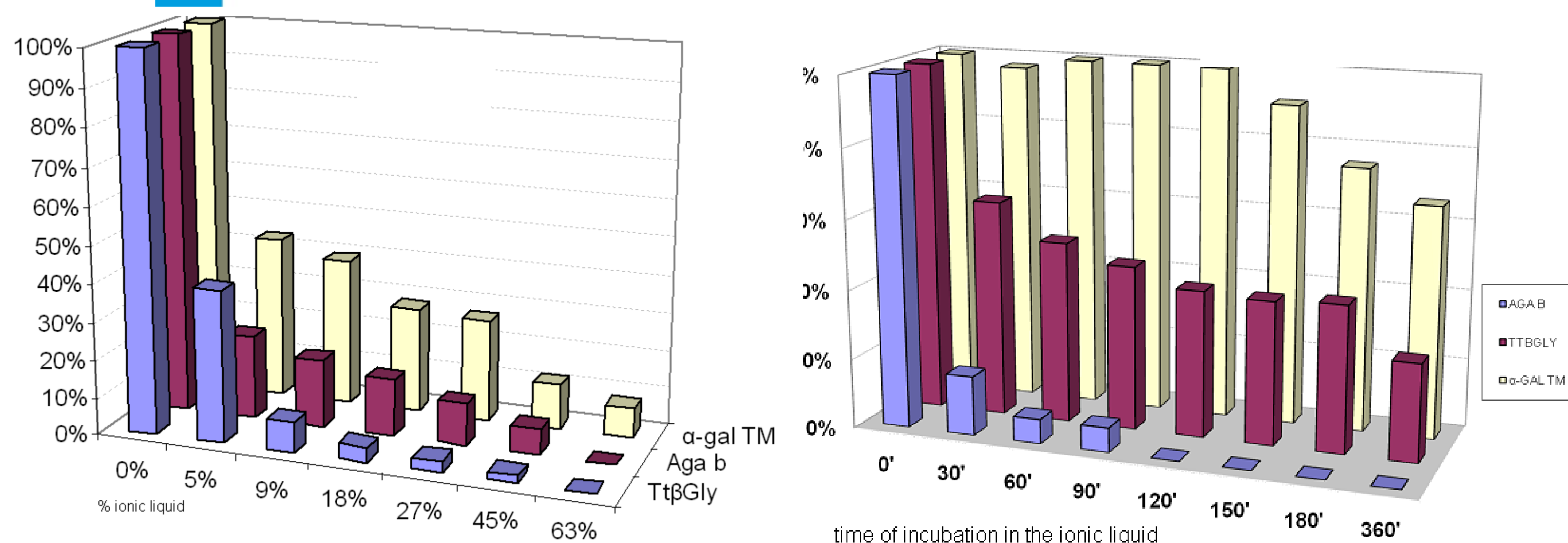
Enzymatic activity of Tt β -Gly (β -galactosidase of *Thermus thermophilus*) in different ionic liquids



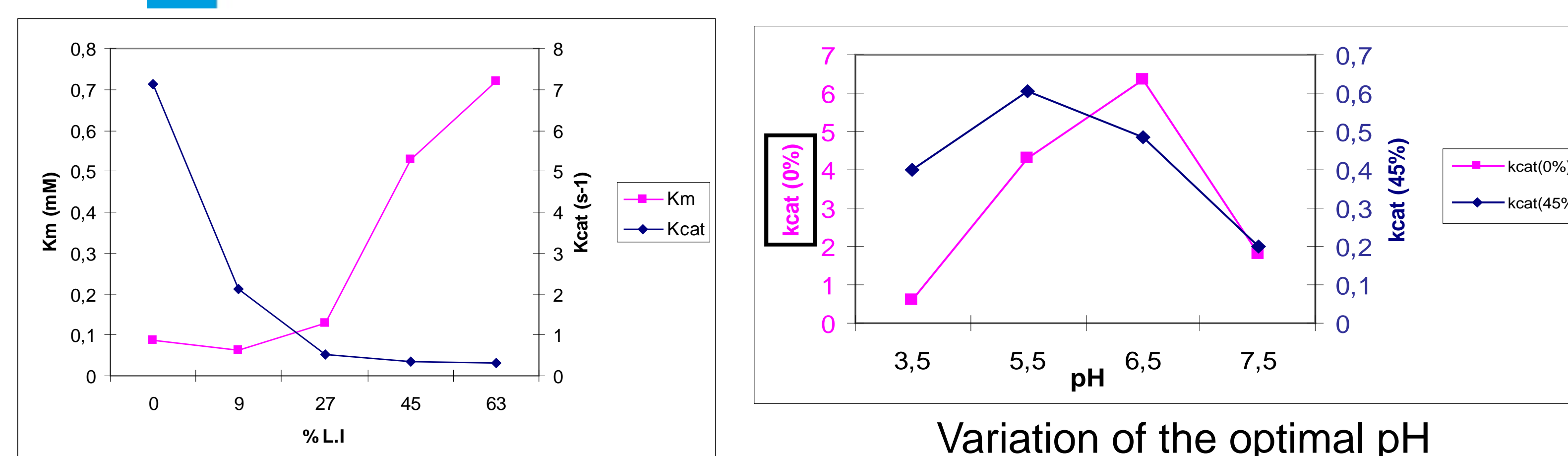
Aga B : α -galactosidase of *Bacillus stearothermophilus*
 α -Gal TM: α -galactosidase of *Thermotoga maritima*



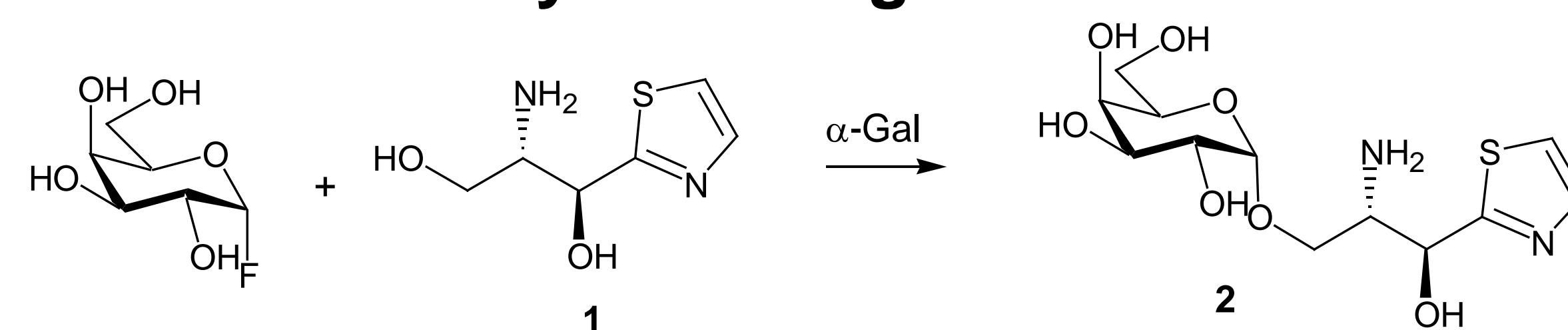
Enzymatic activity in MMIM MeSO₄ and reversibility



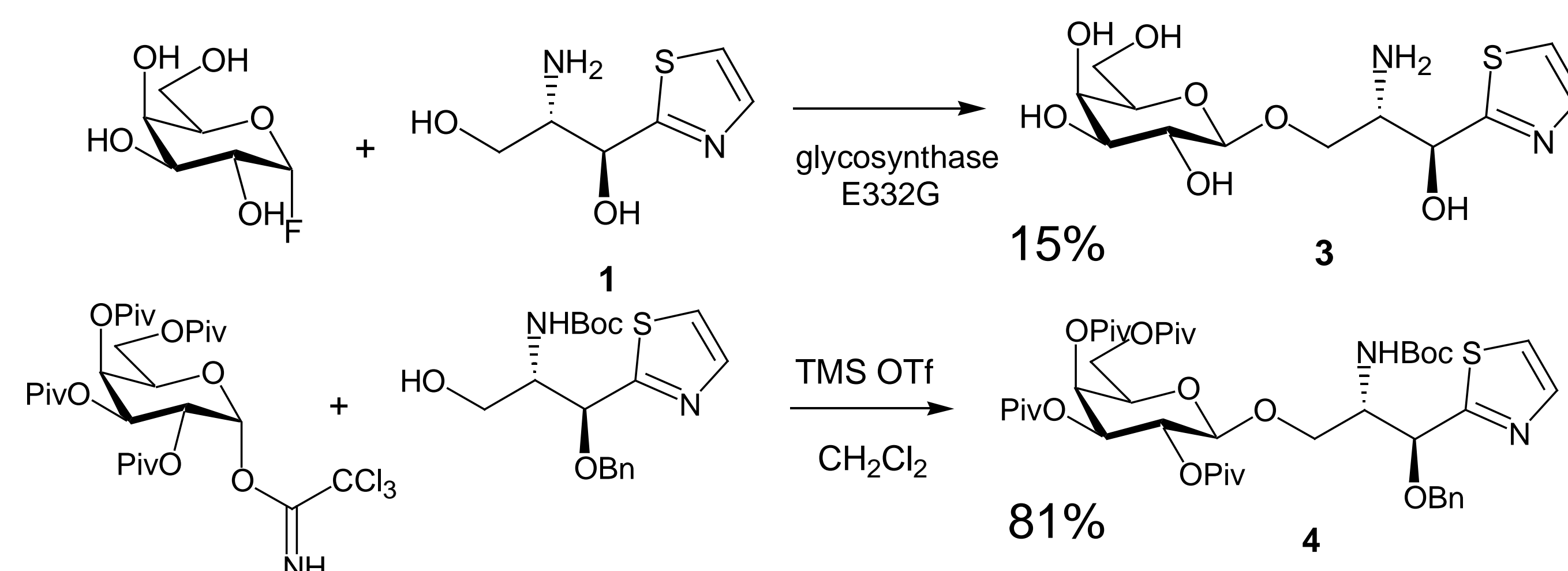
Kinetics for α -Gal-TM



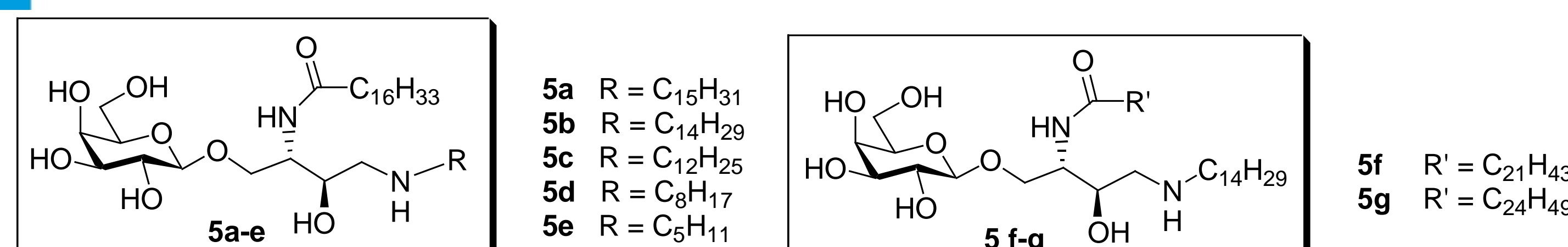
Access to a library of analogs of KRN7000



Enzymatic versus chemical synthesis



Products which were obtained



CONTACT :

jacques.auge@u-cergy.fr and
clauderabiller@univ-nantes.fr