

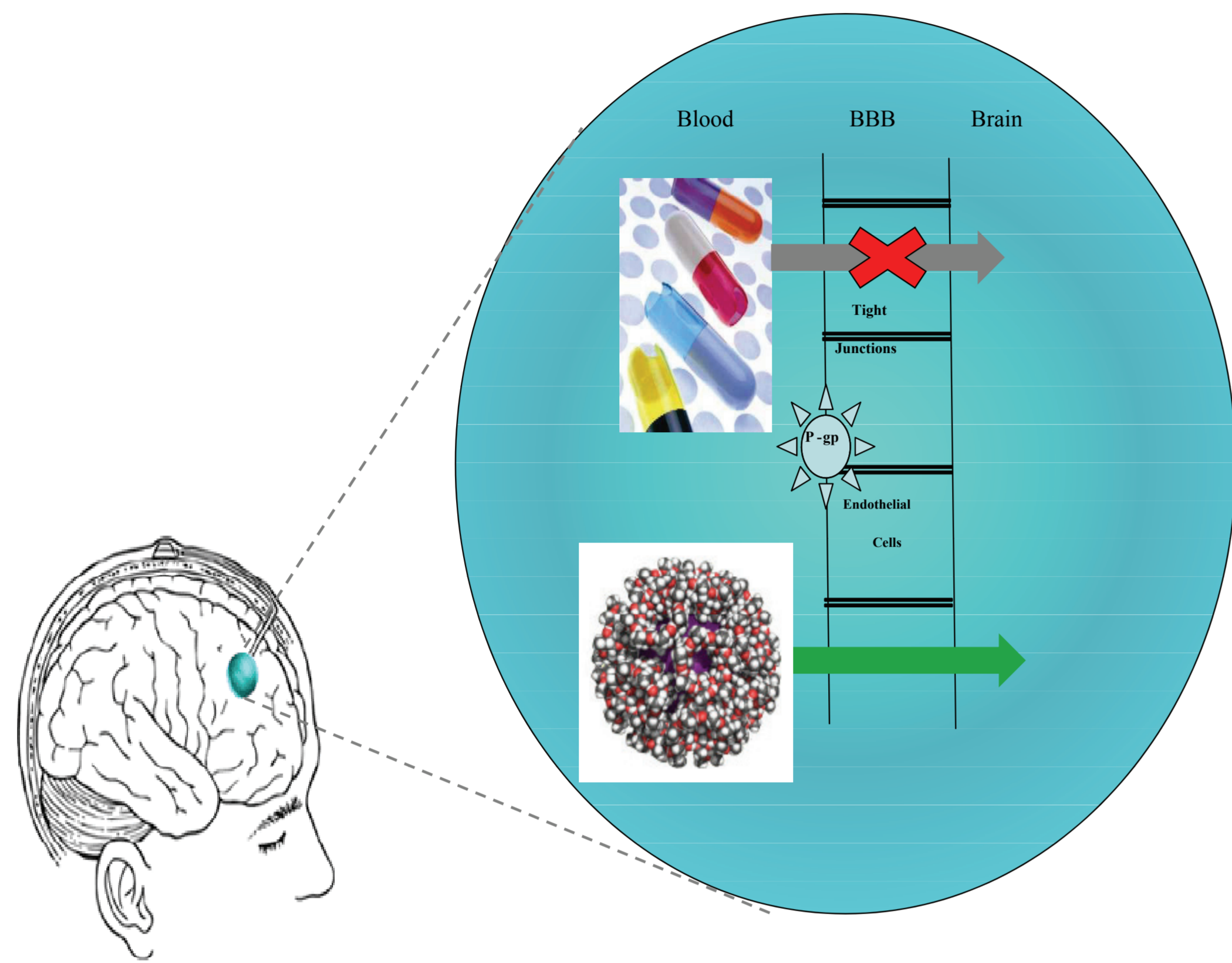
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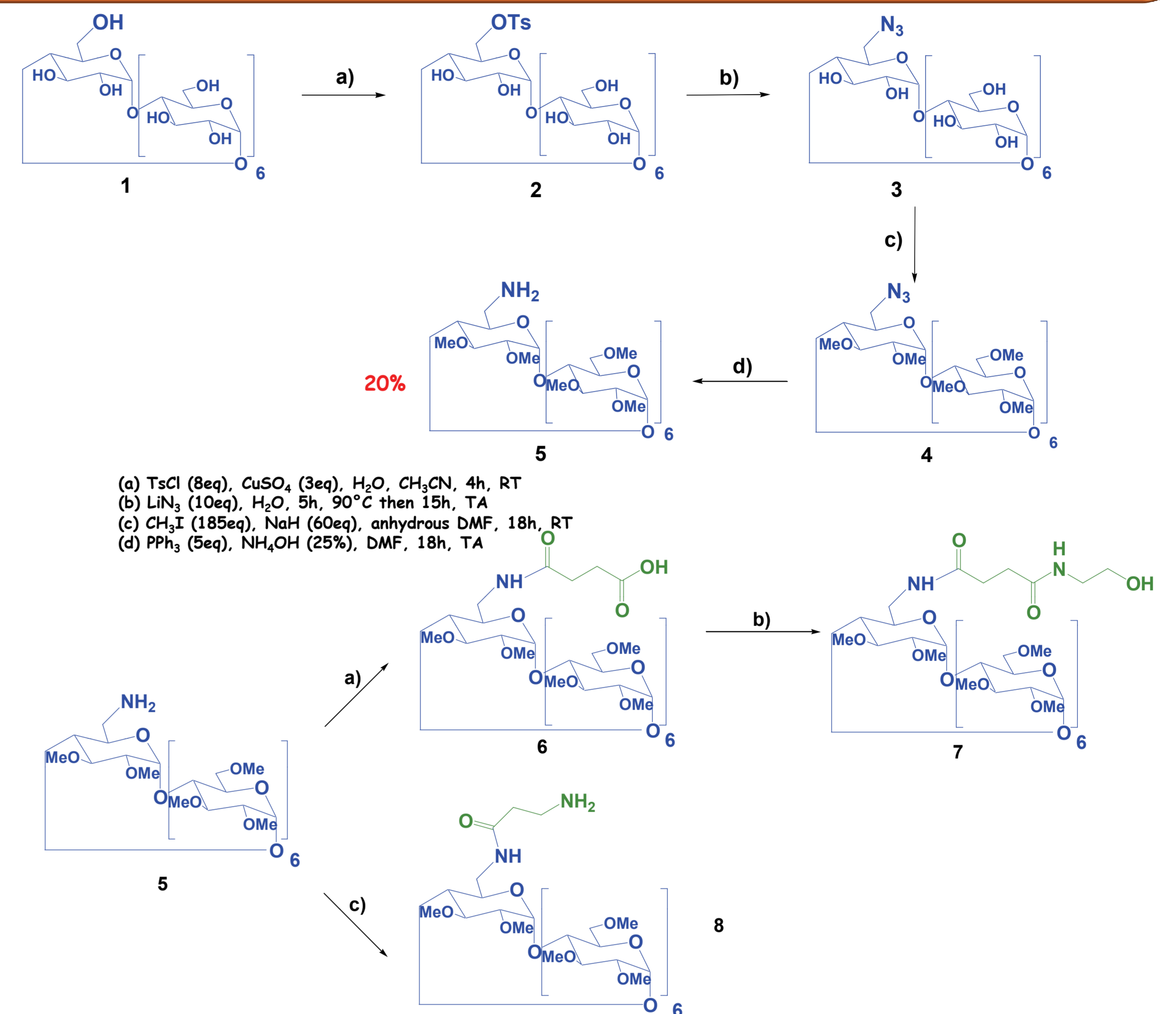
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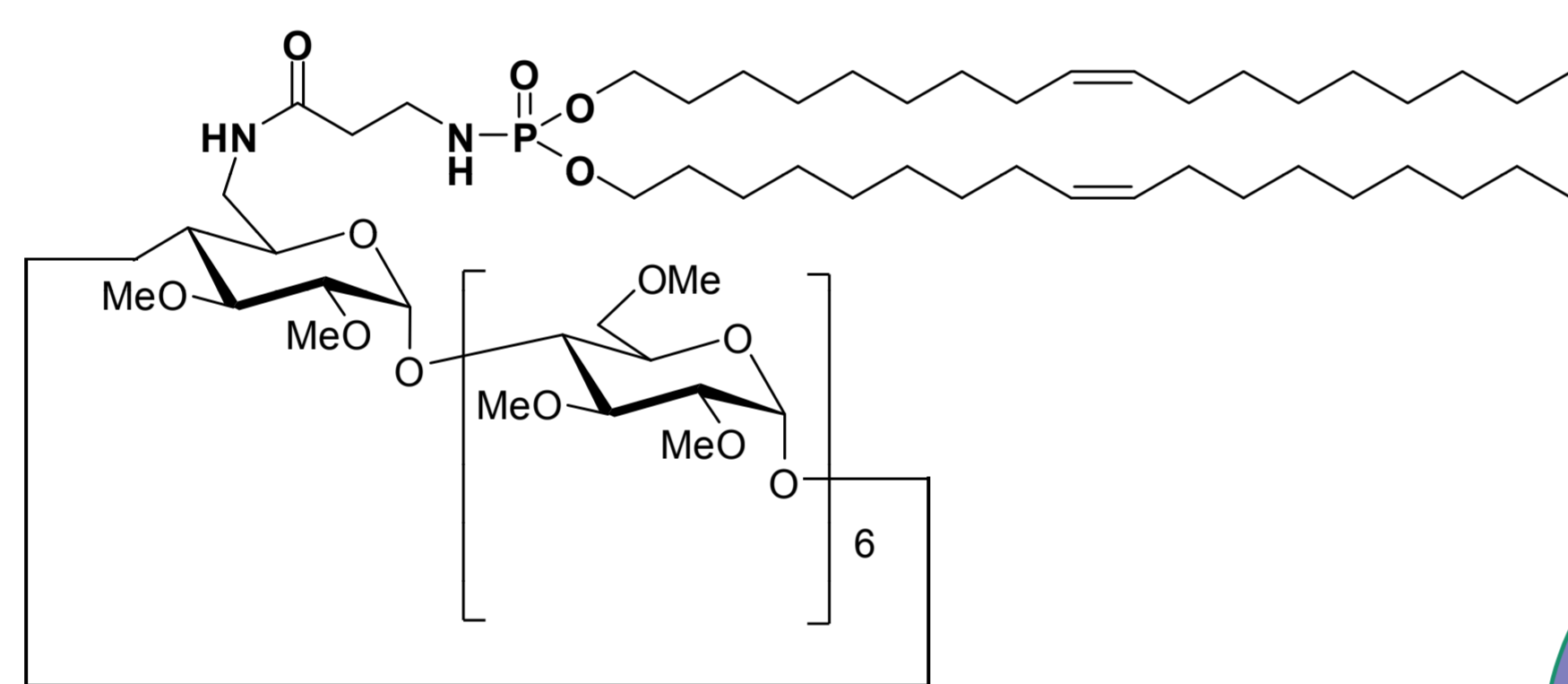
Aim of this work : The formation of nanoparticles able to cross the BBB To improve the bioavailability of drugs.



Mono-substitution of CD : The synthesis of raw material with or without spacer arm.



A first family of amphiphilic cyclodextrins as nanovectors : liposphoramidyl-CDs

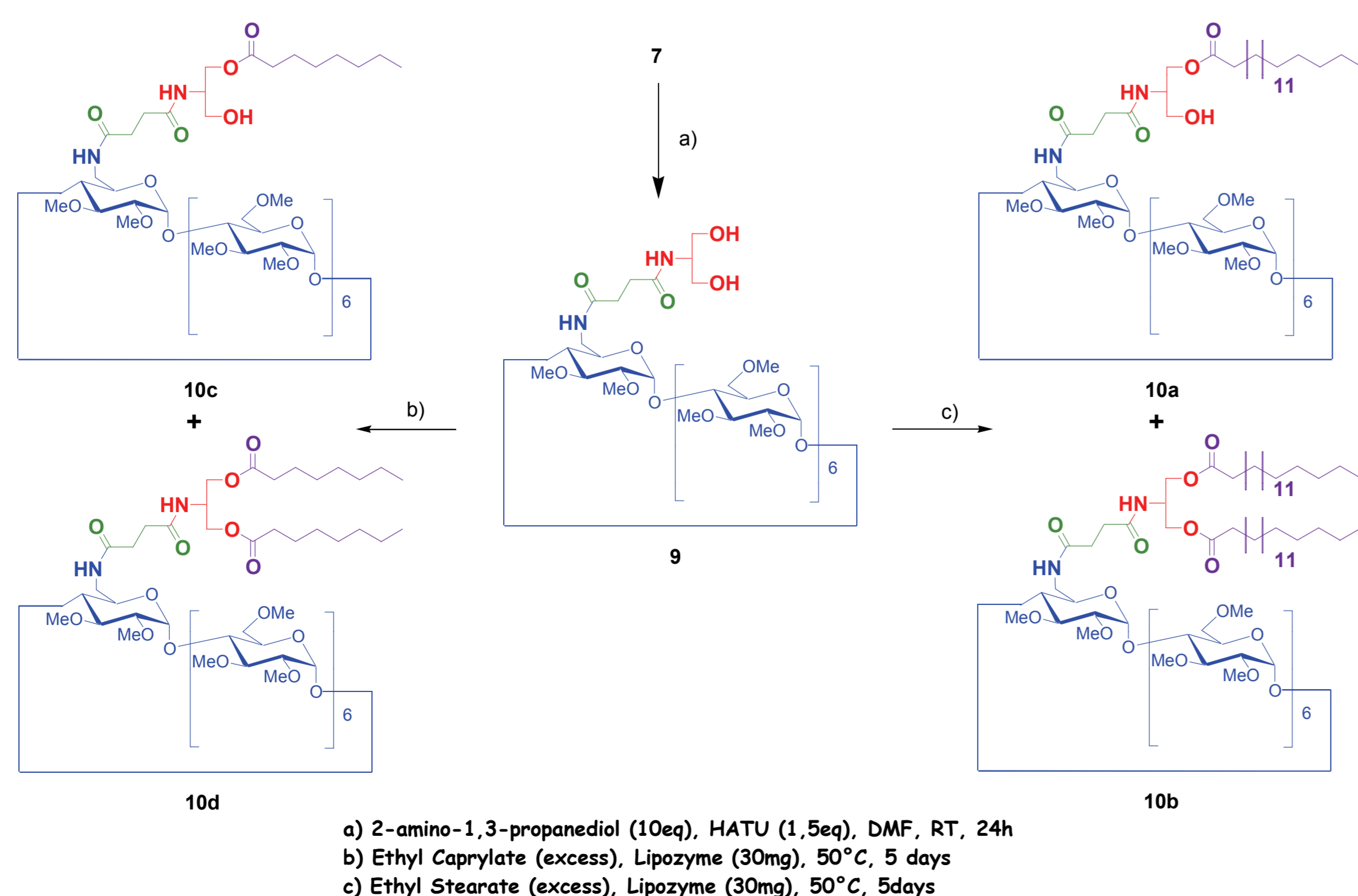


- > Nanoparticles (Np) formation by lipid film hydration method
- > Conversion of amphiphilic CD in Np : 84%
- > Hydrodynamic Radius by DLS

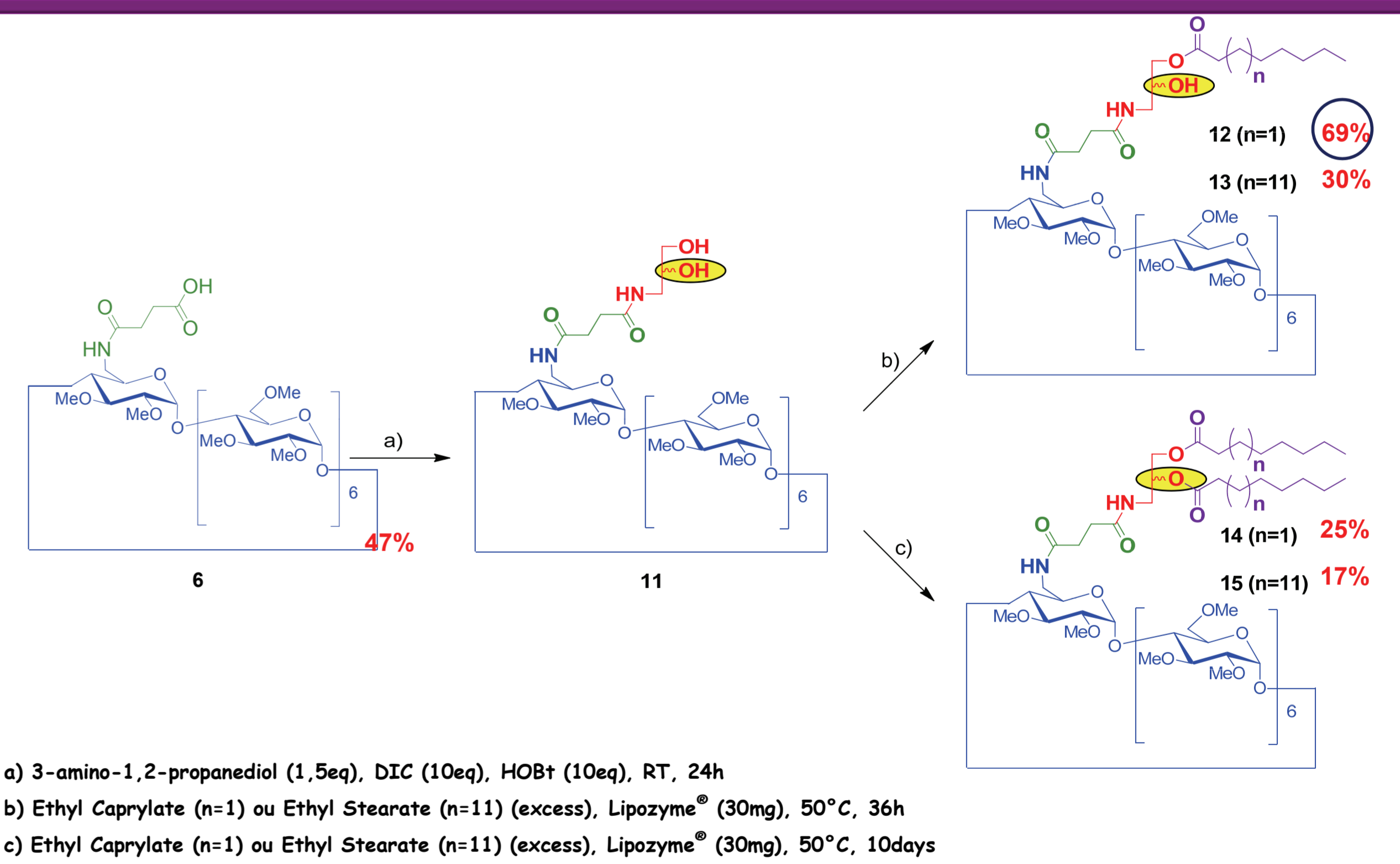
	Radius (nm)	Polydispersity Index
Water	191±19	0,192
Glucose 5%	282±25	0,119
NaCl 0,9%	175±20	0,202
Phosphate Buffer	197±23	0,119

- > BBB *in vitro* (LBHE Université d'Artois) 30% of CD has been found in the inner compartment of the BBB
- Improvement of passage of N-Méthyl-Scopolamine (x 1,8)

Glycerolipidyl-CD : The 2-amino-1,3-propanediol used as glycerol analogue and enzymatic O-acylation.

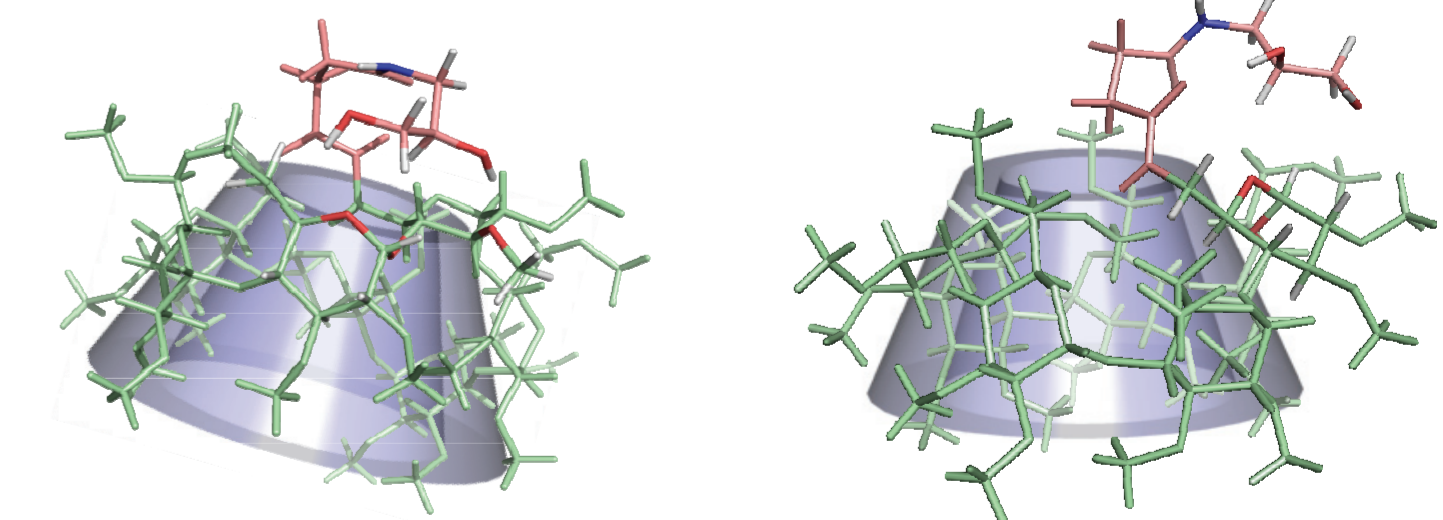


Glycerolipidyl-CD : The 3-amino-1,2-propanediol used as glycerol analogue and enzymatic O-acylation.



Diastereoselectivity : Cyclodextrin Effect ?

- > Modelling realized in vacuum (Collaboration with C. Cézard) :



- > For CD-R: H Bond between secondary alcohol of glycerol and O of glucopyranoside of CD which is closed to modified unit.
- > For CD-S : arm goes out of the CD ring.
- > 5 kcal difference energy between the most stable form of CD-R and CD-S.

Tensioactive properties :

Cyclodextrins	CAC	Cyclodextrins	CAC
	1,1.10 ⁻⁴ M		5,6.10 ⁻⁵ M
	1,6.10 ⁻⁴ M		4,9.10 ⁻⁶ M