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Amphiphilic cyclodextrins able to form slow releasing drug loaded vesicles and study on *in vitro* model

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Among biodegradable and non-toxic compounds that are able to form nanoparticles for drug delivery, amphiphilic cyclodextrins are very promising. Apart from ionic cyclodextrins extensively studied and reviewed because of their application in gene delivery, our purpose is to study the potential of the supra-molecular assemblies of amphiphilic non-ionic cyclodextrins which are able to form nano-assemblies with controlled drug release. A new route to prepare lipophosphoramidyl-β-CD will be discussed that can yield large quantity of pure products with various chain lengths. Moreover, we focused our research on the relationship of structure and physico-chemical characteristics, which is crucial for auto-assembling and drug delivery. Studies of interaction with biomimetic membranes (Tensiometry, Membranotropic effect, Fusogenicity) will be presented to compare compounds and discuss structure-activity relationship. We also highlighted the importance of the preparation of nanoparticles on the stability and the application of this nano-device. The most interesting compounds were prepared as nanoparticles or vesicles with natural phospholipids and then loaded with atazanavir, an anti-HIV drug. Their toxicity against the endothelial cells of BBB was demonstrated as being low and the transport tests of the drug through the BBB will be discussed.

Biography

Veronique Bonnet has completed her PhD from Nantes University and Postdoctoral studies from ETH Zurich with Professor Vasella and University Rene Descartes Paris with Professor Dhimane. She is an Associate Professor of Chemistry at University of Picardie Jules Verne. She has published more than 25 papers in reputed journals. She has been involved in cyclodextrin modifications and their pharmaceutical use for more than 10 years.

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