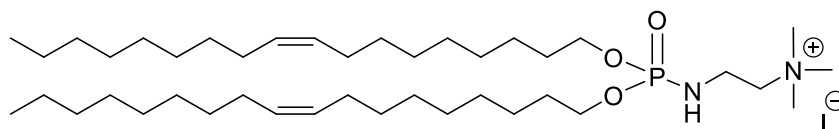


Phospholipids for the design of liposomes – synthesis and applications.

Montassar Khalil,¹ Amal Bouraoui,¹ Mathieu Berchel,¹ Laure Deschamps,¹
 Paul-Alain Jaffrès¹

¹ Univ Brest, CEMCA UMR CNRS 6521, 6 Avenue Victor Le Gorgeu, F-29238, Brest, France
 e-mail: pjaffres@univ-brest.fr

Liposomes are supramolecular assemblies of amphiphilic compounds. This type of dynamic supramolecular aggregates were studied for a large panel of applications including nano-reactors, vectorization or membrane models. In our group, we developed synthetic phospholipids that are glycerol-free mimics of natural glycerophospholipids. Their interest is that they can be prepared on large scale following a modular synthesis thus permitting to design fluorescent phospholipids[1], red-ox sensitive systems[2] or cationic amphiphilic compounds[3]. These amphiphiles were used to deliver nucleic acid and applied for tendon repair [4], cancer vaccination [5] or gene delivery in lungs [6]. More recently, we have incorporated in these structures new lipid chains (sulfur containing lipid chains [7], branched lipid chains [8]) that deeply affect their supramolecular properties (fluidity, supramolecular structure). We also developed clickable liposomes in order to modify their surface in water. The synthesis aspects of these phospholipids will be presented with the illustration of some applications.



Scheme 1. Example of synthetic phospholipid.

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