

# Novel amphiphilic compounds for construction of stimulus-sensitive liposomal containers

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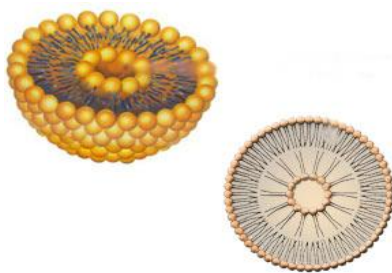
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The development of methods for the directed transport of physiologically active compounds to target cells and organs is one of the key problems in modern pharmacology [1]. Liposomes, spherical lipid bilayer vesicles are widely used for the controllable encapsulation and release of drugs.

In this work we describe the synthesis of lipid-like amphiphilic compounds, capable to be incorporated into a liposomal membrane, and their ability to be conformationally reorganized in the following conditions: (1) the pH change, (2) the addition of the water solution of bivalent copper salt [2] and cause the release of compounds encapsulated in the internal volume.

The molecular switchers were designed on the basis of 3,7-diazabicyclo[3.3.1]nonan-9-one (bispidone) with two long alkyl substituents at nitrogen atoms. Bispidone derivatives of this kind in the absence of significant steric hindrance caused by other substituents adopt a chair-boat conformation in neutral or weak-alkaline media while a chair-chair conformation with different orientation of substituents is preferable in the acidic media or after complexation with bivalent metal cations [3].



1. Narang A.S., Mahato R.I. (eds.), Targeted delivery of small and macromolecular drugs. Boca Raton. CRC Press. 2010.
2. Veremeeva P.N., Lapteva V.L., Palyulin V.A., Davydov D.A., Yaroslavov A.A., Zefirov N.S., Doklady Chemistry, 2012, v. 447, p.2, 275-277.
3. Zefirov N.S., Palyulin V.A., Top. Stereochem. 1991, 20, 171-230.