Preparation and characterization of supramolecular systems based on amphiphilic β-cyclodextrin vesicles and liposomes functionalized with adamantyl guanidines for gene delivery

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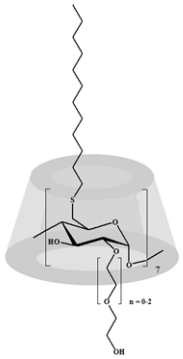
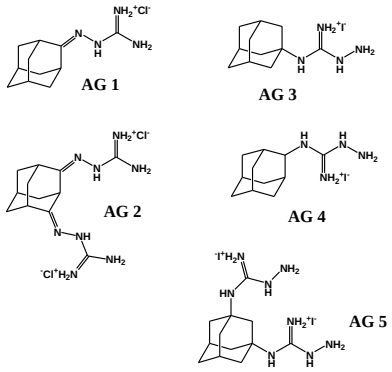
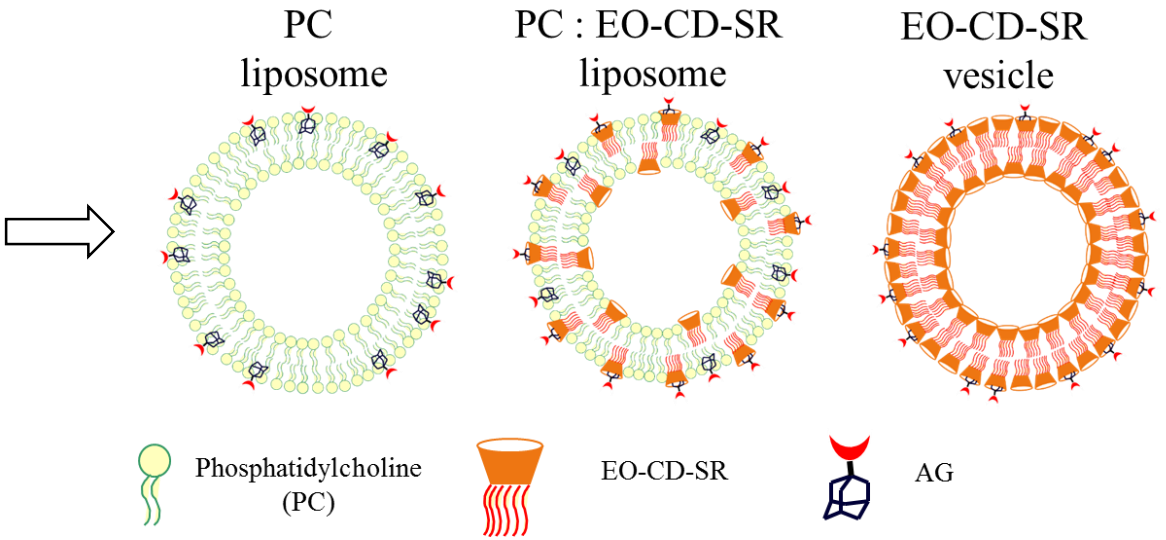
- **Preparation of supramolecular systems funcionalized with adamantyl guanidines AG 1-5**



Amphiphilic cyclodextrin, EO-CD-SR



Adamantyl guanidines AG **1-5**

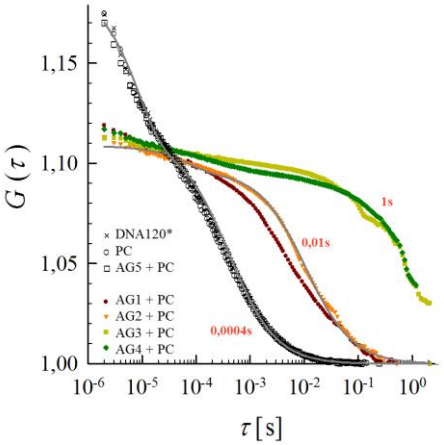


- **Characterization of functionalized supramolecular systems by:**
  a) Determination of entrapment efficiency of AG - all tested compounds were successfully incorporated into prepared supramolecular systems except AG **5**

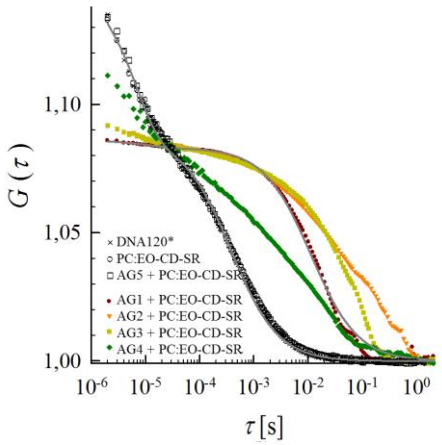
  b) Determination of size and zeta potential of supramolecular systems –incorporation of AG **1-4** significantly affect the surface charge of prepared supramolecular systems
  → guanidinium groups of AG **1-4** are exposed on the surface of supramolecular systems

- **Testing of interaction of prepared supramolecular systems with DNA by using Fluorescence correlation spectroscopy (FCS)**

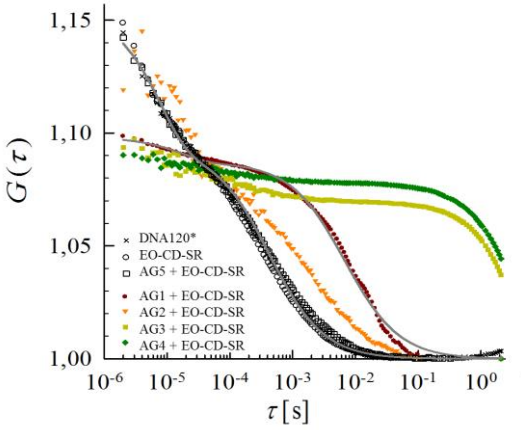
PC liposome



PC : EO-CD-SR

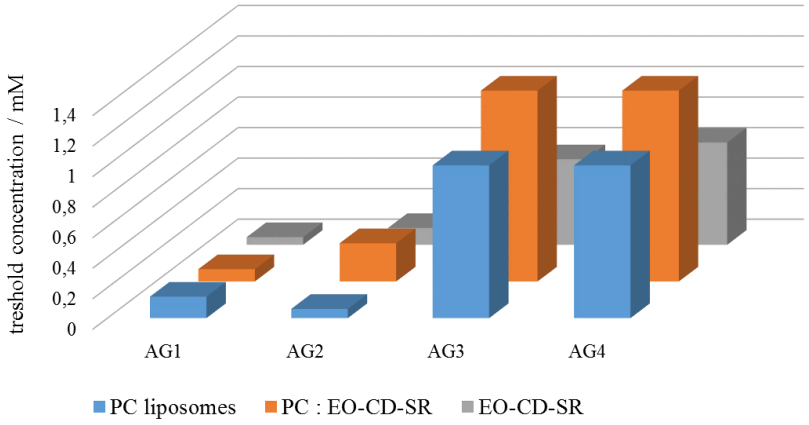


EO-CD-SR vesicles



- supramolecular systems with incorporated AG **1-4** effectively bind DNA120*

- Titration of DNA120* with supramolecular systems modified with AG **1-4** were performed in order to determine threshold amphiphile concentrations which lead to an increase in diffusion time of DNA120*



- Interactions between AG **1-4** functionalized supramolecular systems with DNA120* via specific phosphate–guanidine interaction was confirmed by FCS