"Primitive" membrane from polyprenyl phosphates and polyprenyl alcohols.

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Streszczenie

Polyprenyl phosphates, as well as polyprenyl alcohols bearing different isopentenyl C_5 units, have been synthesized. The pH range of spontaneous vesicle formation of polyprenyl phosphates with or without polyprenyl alcohols was defined by fluorescence microscopy. A variety of the acyclic or monocyclic polyprenyl phosphates studied formed stable vesicles in water over a wide range of pHs, and the addition of polyprenyl alcohols allowed the vesicle formation of polyprenyl phosphates at higher pHs. Osmotic swelling of a suspension of unilamellar vesicles using the stopped-flow/light-scattering method enabled us to evaluate the water permeability of polyprenyl phosphate vesicles with or without 10 mol% of free polyprenyl alcohol. The addition of many polyprenyl alcohols to polyprenyl phosphate vesicles decreased the water permeability, and some reduced it even more efficiently than cholesterol.

Adres publiczny

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