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(54) Title: PEPTIDE-ATTACHED PILLAR[5]ARENE FOR HIGHLY PERMEABLE AND SELECTIVE ARTIFICIAL WATER CHANNEL, AND ITS SYNTHESIS AND CHARACTERIZATION

(57) Abstract: According to the present disclosure, there is provided for a method of synthesis and isolation of peptide-attached (pS)- and (pR)-pillar[5]arenes. The peptide-attached (pR)-pillar[5]arenes can form a single-molecular channel with nanotubular structure for water transport. The synthesis method of developing peptide-attached (pR)-pillar[5]arene for highly permeable and selective water channel is discussed herein, and includes incorporating peptide-attached (pR)-pillar[5]arene into a liposomal membrane, measuring the water permeability of peptide-attached (pR)-pillar[5]arene by stopped-flow light scattering experiment, determining the single-channel water permeability by circular dichroism and UV-vis techniques, calculating activation energies by measurement of the water permeability at different temperatures, and evaluating the relative solute rejection by employing different solutes as osmolytes.



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