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Functional Surfactants and Macromolecular Architectures for Catalysis, Encapsulation, and Transport

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KAUST Catalysis Center

King Abdullah University of Science and Technology

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Free Admission

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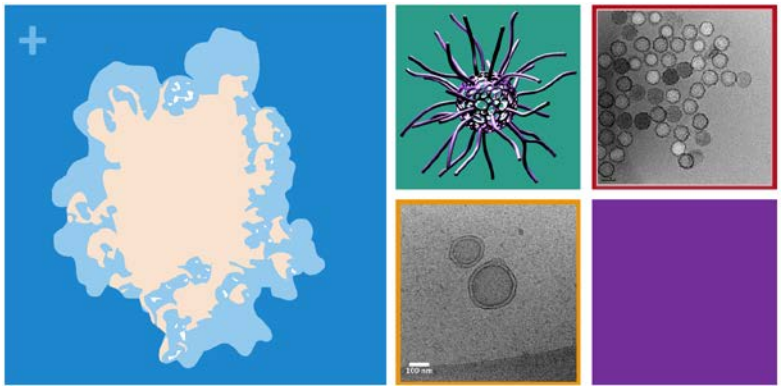
Abstract

Nature's enzymes are extremely efficient catalysts. Their remarkable properties result from precise preorganization of the local solvent environment and functional groups around the catalytic sites, and close participation of metal ions, prosthetic groups, and cofactors. *De novo* design of functional proteins is still out of reach of modern chemistry, to a significant extent due to the complexity of the problem of protein folding. However, the globular structures and nanoscale dimensions of natural biopolymers provide useful boundary conditions for the rational design of enzyme mimics. Micelles and emulsion droplets are some of the simplest and most versatile systems of this kind. In this presentation, I shall discuss several examples enzyme-inspired macromolecules and functional surfactants, both organocatalytic and bearing metal catalytic sites, reported recently by our group. The catalytic activities and properties of such systems are often unattainable with small-molecule versions of the same catalytic moieties.



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