Functional surfaces through immobilization of polymersome nanocompartments

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Amphiphilic block copolymers possess the ability to self-assemble into planar membranes and nanometer-sized spherical architectures such as micelles and vesicles.[1,2] The intrinsic properties of polymers and the variety of monomers available to synthesize block copolymers give access to a library of functionalities that are explored to specifically modulate interactions. The covalent immobilization of polymer vesicles on solid support is realized using a thiol-ene reaction, and the conditions are optimized towards maintaining structural integrity of the hollow polymer architectures.[3] Thus, functional surfaces can be generated when immobilized polymer vesicles act as protected compartments to perform enzymatic reactions.

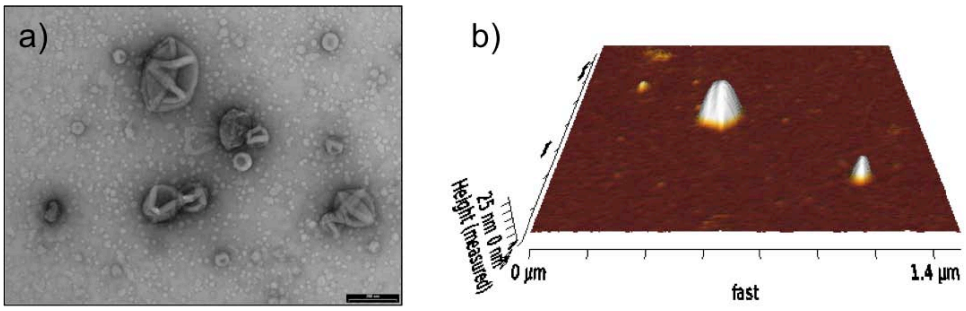

Figure 1. a) Visualization of polymer vesicles composed of polydimethylsiloxane-polyoxazoline triblock copolymers by transmission electron microscopy (scale bar 200 nm) and b) visualization of a surface immobilized polymer vesicles by atomic force microscopy.

[1] G. Gunkel-Grabole, S. Sigg, M. Lomora, S. Lörcher, C. Palivan, W. Meier; *Biomater. Sci.* **2015,** *3*, 25-40.
[2] T. Einfalt, G. Gunkel, M. Spulber, A. Najer, C. Palivan, *CRC Concise Encyclopedia of Nanotechnology*, **2015**, 1055-1072.
[3] G. Gunkel-Grabole, C. Palivan, W. Meier; *Macromol. Mater. Eng.* **2017,** *302*, 1600363.