Supported Lipid Bilayer Membrane Arrays on Micro-patterned ITO Electrodes

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Supporting Information

Atomic force microscopy (AFM) and force curve of lipid bilayer on bare ITO surface

The ITO substrates before and after the incubation with 0.1 mg/mL DLPC vesicles solution for 1 h were imaged by contact and tapping mode in 20mM Tris buffer (pH=7.01), as shown in Fig. S1. Before vesicle addition, the bare ITO surface shows many defects (the black dots) (Fig. S1a). After vesicle adsorption for 1 h, a smooth surface with only a few defects was observed (Fig. S1b). The presence of the bilayer after vesicle adsorption was verified by taking force versus distance curves at different points on the surfaces. In the force curves taken on the lipid bilayer a jump is visible when the force reaches 2.7 nN. This is the point where the cantilever pushes the lipid bilayer aside and jumps into contact with the underlying ITO substrate. The 4.1 nm of this jump corresponds very well with the thickness of DLPC bilayers measured by other groups.[1-3] The AFM images and force curves confirmed the formation of lipid bilayer on the ITO surface.

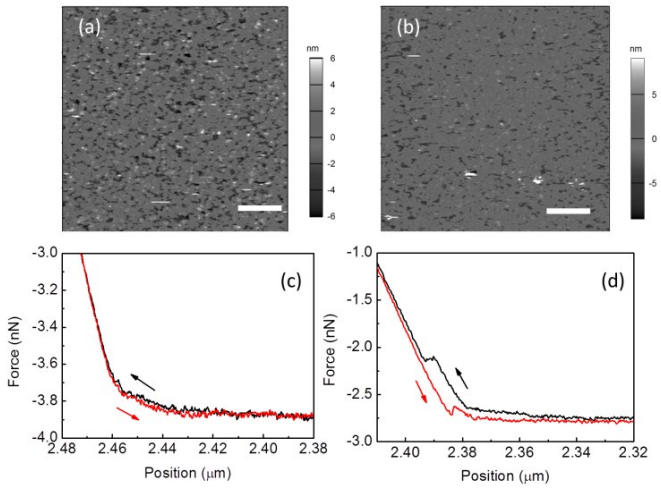

Fig. S1 (a) Topographic AFM height images of bare ITO surface and (b) after deposition of a lipid bilayer. The scale bar is 2 μm. (c) Typical force curve on bare ITO. (d) Typical force curve after deposition of a lipid bilayer. The black lines in (c) and (d) were recorded during approach and the red ones during retraction.

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3. H. Mueller, H. J. Butt and E. Bamberg, *Journal of Physical Chemistry B*, 2000, **104**, 4552-4559.