Supporting Information:

Solid-supported polymer-lipid hybrid membrane for bioelectrochemistry of a membrane redox enzyme

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Fig. S1 Representative cyclic voltammetry (CV) of solid-supported polymer-lipid hybrid membrane (SSHM) on template-stripped gold with different ratio of the mixture 6-mercapto-1-hexanol (MH):1-hexanethiol (HT) at different ratios (a: 100:0, b: 75:25, c: 25:75 and d: 0:100), (black) before and (red) after incubation with HV (0.5 mg/mL for 1 h at 20°C, 10 mM CaCl₂, 20 mM MOPS, 30 mM Na₂SO₄) containing 1.5% molar ratio DQ.



Fig. S2 (a) Representative Cole–Cole plot of mixed self-assembled monolayers (MH:HT, 50:50) on template-stripped gold (black) before and (red) after incubation with *E. coli* polar lipid extract liposomes (0.5 mg/mL, for 1 h at 20°C, 10 mM CaCl₂, 20 mM MOPS, 30 mM Na₂SO₄, pH 7.4). (b) QCM-D Δf (black) and ΔD (red) shifts of gold sensors with mixed MH:HT (50:50) SAM upon addition of *E. coli* polar lipid extract liposomes (0.5 mg/mL at 40 μ L/min, 22°C, 20 mM MOPS, 30 mM Na₂SO₄, pH 7.4).



Fig. S3 Cole–Cole plots and cyclic voltammograms (10 mV/s) of SSHM prepared from HVs with a polymer molar ratio of 25% on EO₃C/MH (~60:40) SAM (a, b) and on MT:HT (50:50) SAM (c, d). The data shown represent before (black) and after (red) incubation with HVs (0.5 mg/mL of total PBd₂₂-b-PEO₁₄ polymer and lipid components, for 1 h at 20 °C, 10 mM CaCl₂, 20 mM MOPS, 30 mM Na₂SO₄, pH 7.4).



Fig. S4 Cyclic voltammetry of SSMH prepared from cyt bo_3 /HV samples that are 1, 7 and 385 days old, as indicated.



Fig. S5 Cole–Cole plots and cyclic voltammograms (10 mV/s) of SSHM prepared from HV with (a and b) and without (c and d) cyt bo_3 on MT:HT (50:50). The data shown represent before (black) and after (red) incubation with HVs, and after 24 hours (blue) of storage as SSHM at 4°C.