

Supplementary material

The perturbation of pulmonary surfactant by bacterial lipopolysaccharide and its reversal by polymyxin B: function and structure

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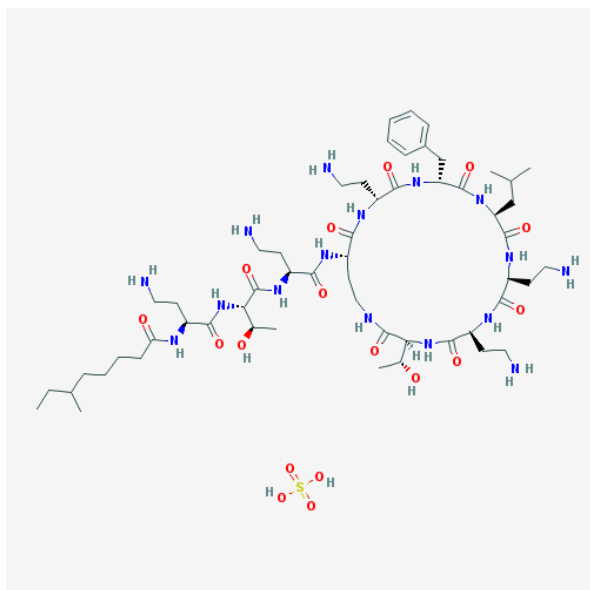


Figure S1. Structure of polymyxin B (PxB).

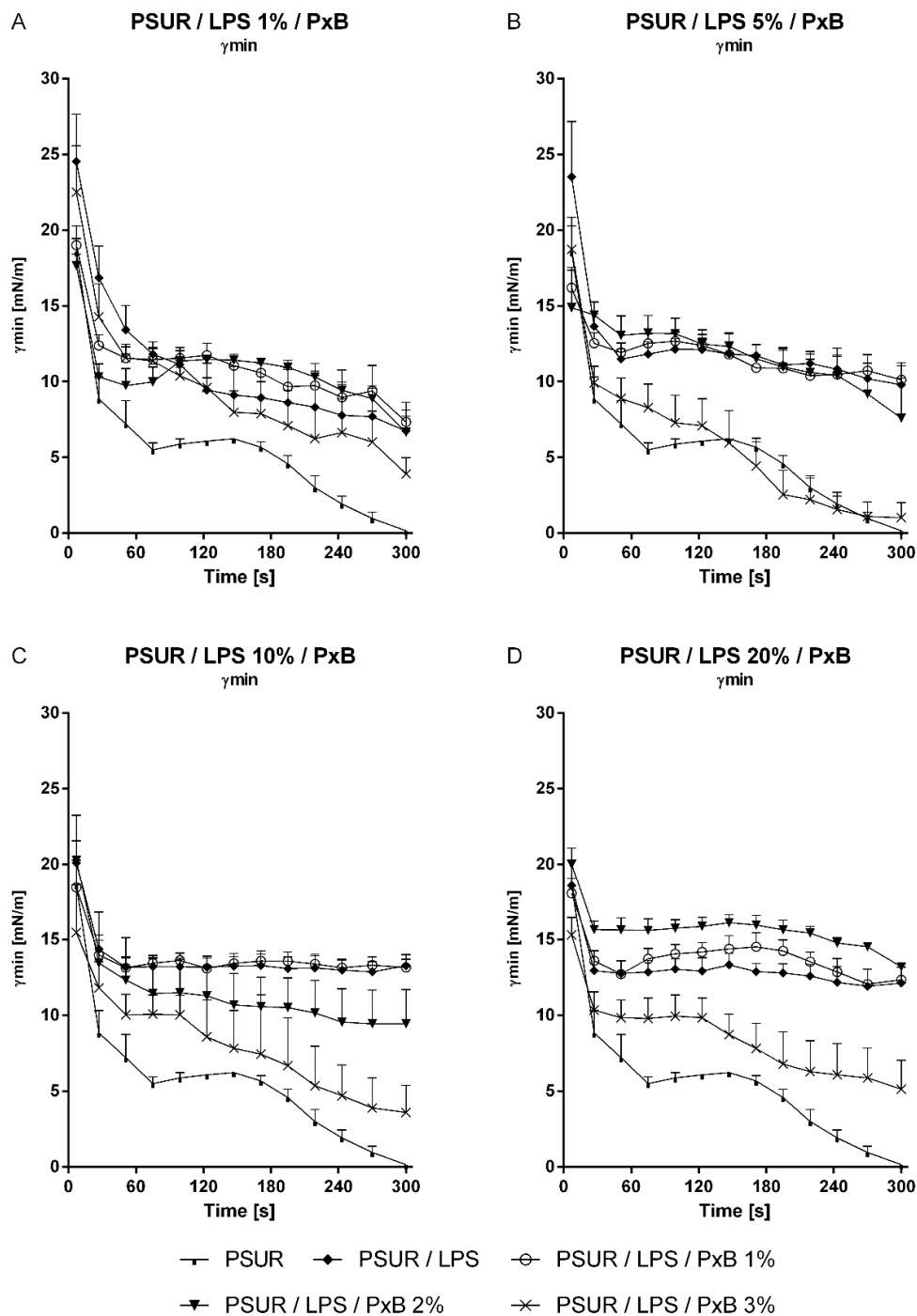


Figure S2. Minimum surface tension (γ_{min}) of modified porcine surfactant (PSUR) at phospholipid concentration 1.75 mg/ml with lipopolysaccharide (LPS) 1 % and polymyxin B (PxB) 1, 2, 3 % (A), LPS 5 % and PxB 1, 2, 3 % (B), LPS 10 % and PxB 1, 2, 3 % (C) and LPS 20 % and PxB 1, 2, 3 % (D) during the whole period of pulsation 5 minutes. Values are given as mean \pm SEM.

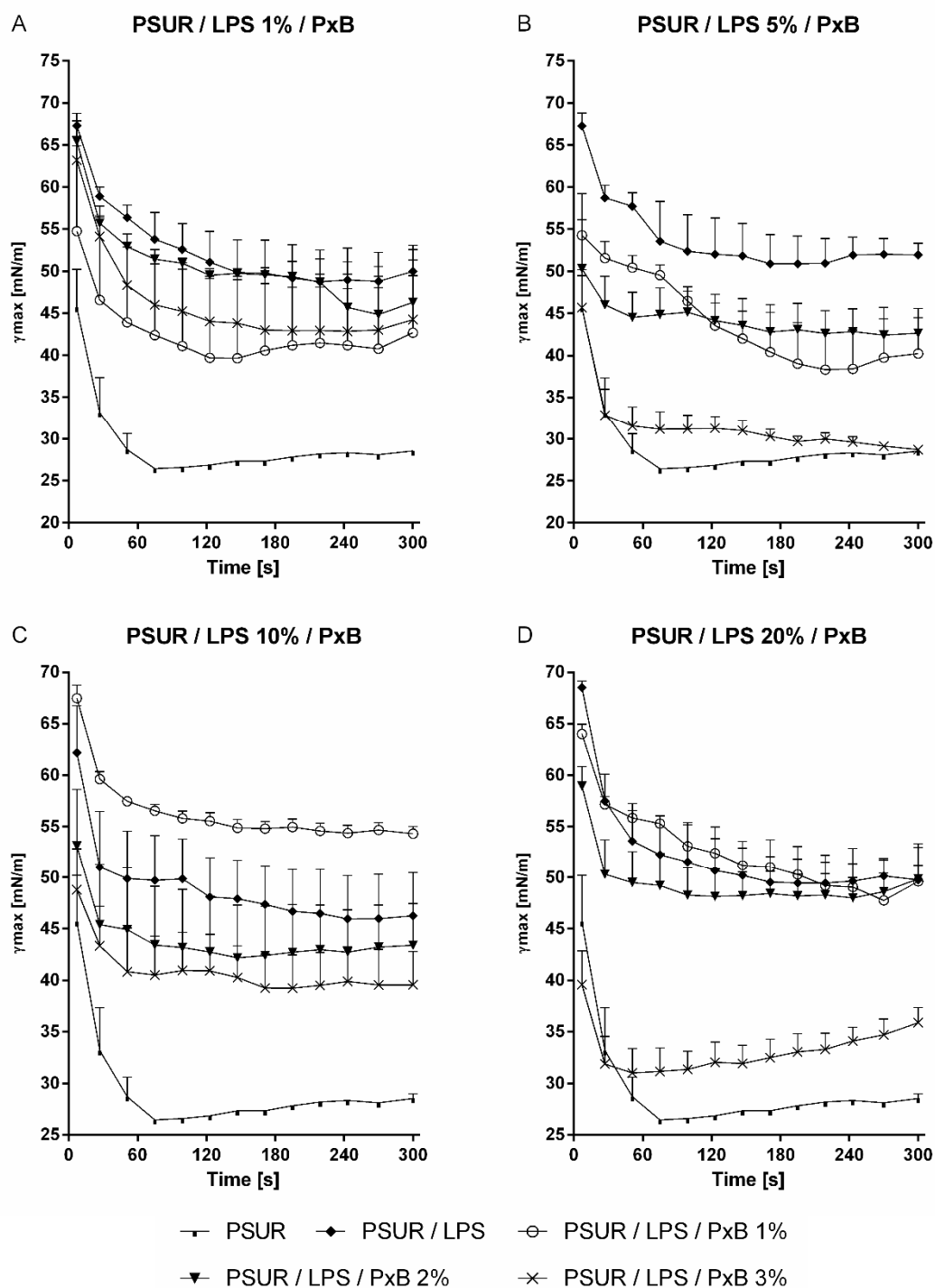


Figure S3. Maximum surface tension (γ_{max}) of modified porcine surfactant (PSUR) at phospholipid concentration 1.75 mg/ml with lipopolysaccharide (LPS) 1 % and polymyxin B (PxB) 1, 2, 3 % (A), LPS 5 % and PxB 1, 2, 3 % (B), LPS 10 % and PxB 1, 2, 3 % (C) and LPS 20 % and PxB 1, 2, 3 % (D) during the whole period of pulsation 5 minutes. Values are given as mean \pm SEM.

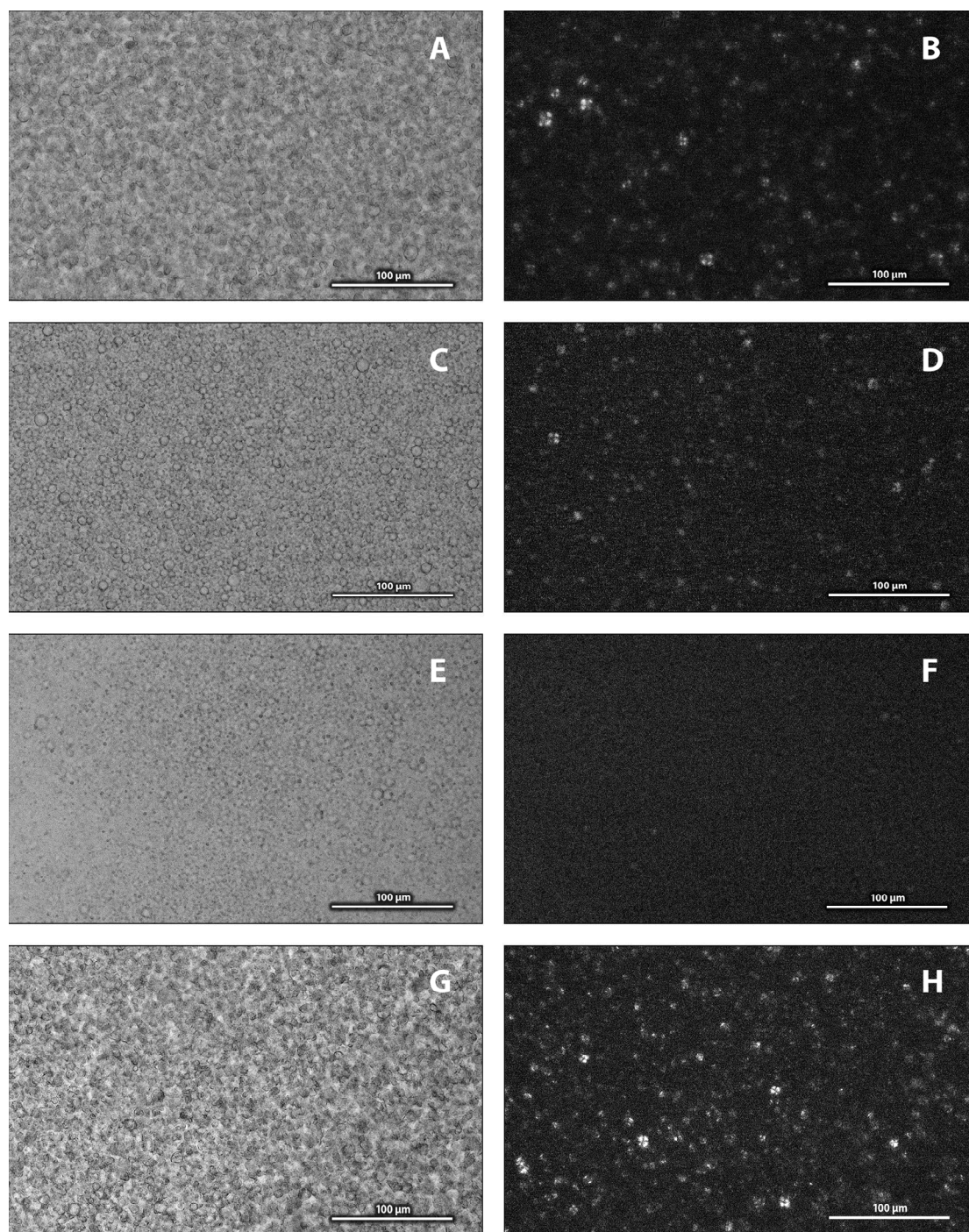


Figure S4. Microscopy photos recorded in normal and polarized light for aqueous dispersion of modified porcine surfactant (PSUR) (A and B); PSUR and 10 % LPS incubated for 30 min at 37 °C (C and D); PSUR and 10 % LPS incubated for 2 hours at 37 °C (E and F); PSUR/ 10 % LPS and 3 % PxB (G and H).

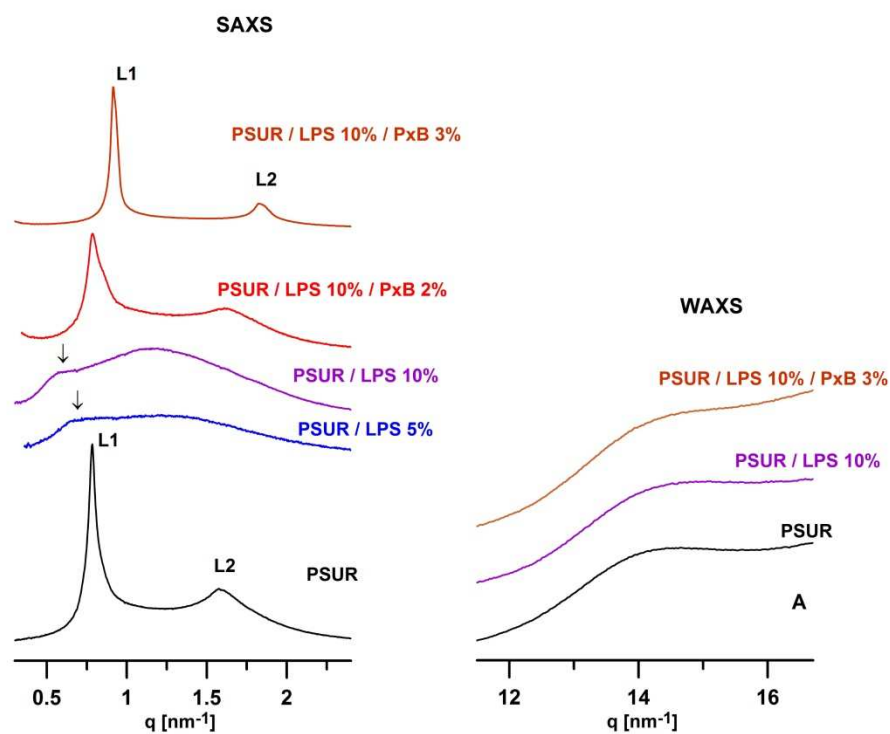


Figure S5. SAXS patterns of modified porcine surfactant (PSUR); PSUR and 5 % LPS; PSUR and 10 % LPS incubated for 2 hours; PSUR/10 % LPS and 2 % PxB; PSUR/10 % LPS and 3 % PxB at 37 °C. An arrow indicates the first order peak of a lamellar phase with $d \sim 12$ -13 nm. WAXS patterns of PSUR, PSUR/10% LPS, PSUR/10 % LPS and 3 % PxB (37°C).

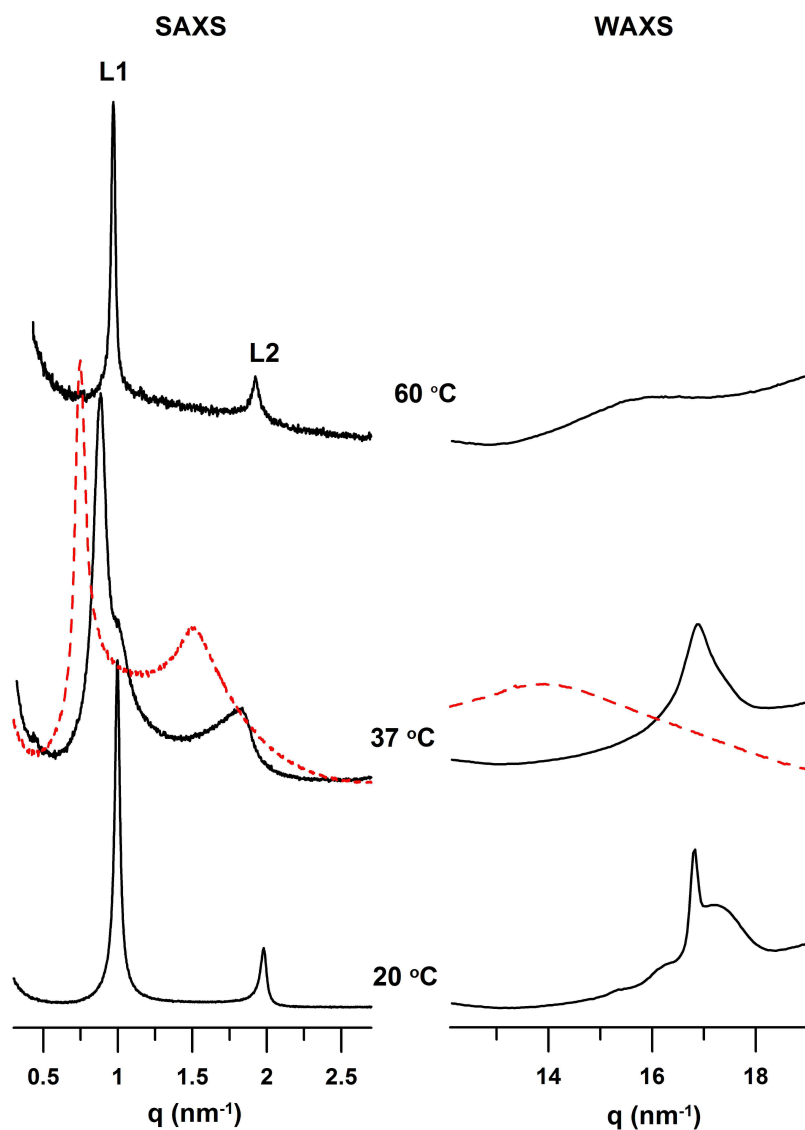


Figure S6. SAXS/WAXS patterns of fully hydrated DPPC: tilted gel $L_{\beta'}$ phase at 20 °C (repeat distance $d \sim 6.3 \text{ nm}$); rippled gel P_{β} phase at 37 °C (repeat distance $d \sim 7.3 \text{ nm}$); liquid-crystalline L_{α} phase at 60 °C (repeat distance $d \sim 6.6 \text{ nm}$). Dashed red lines represent patterns of PSUR at 37 °C.