

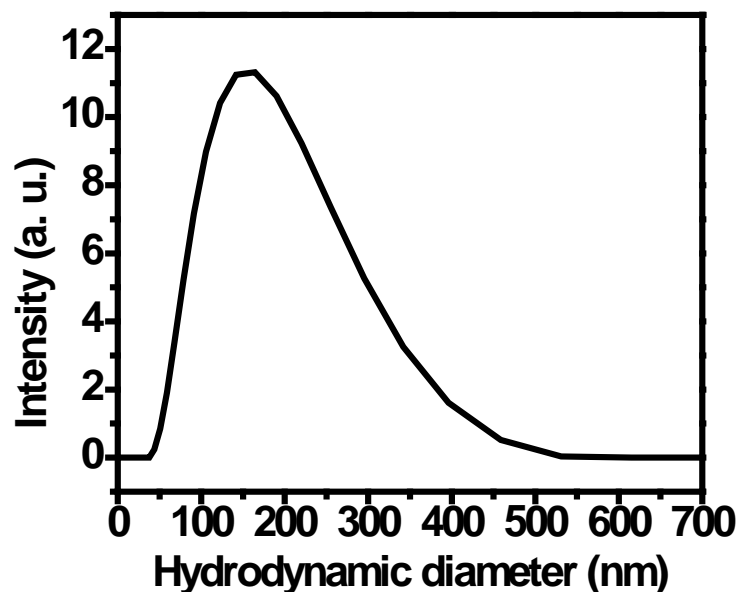
## Supporting Information

# Design of bio-molecular interfaces using liquid crystals demonstrating Endotoxin interactions with bacterial cell wall components

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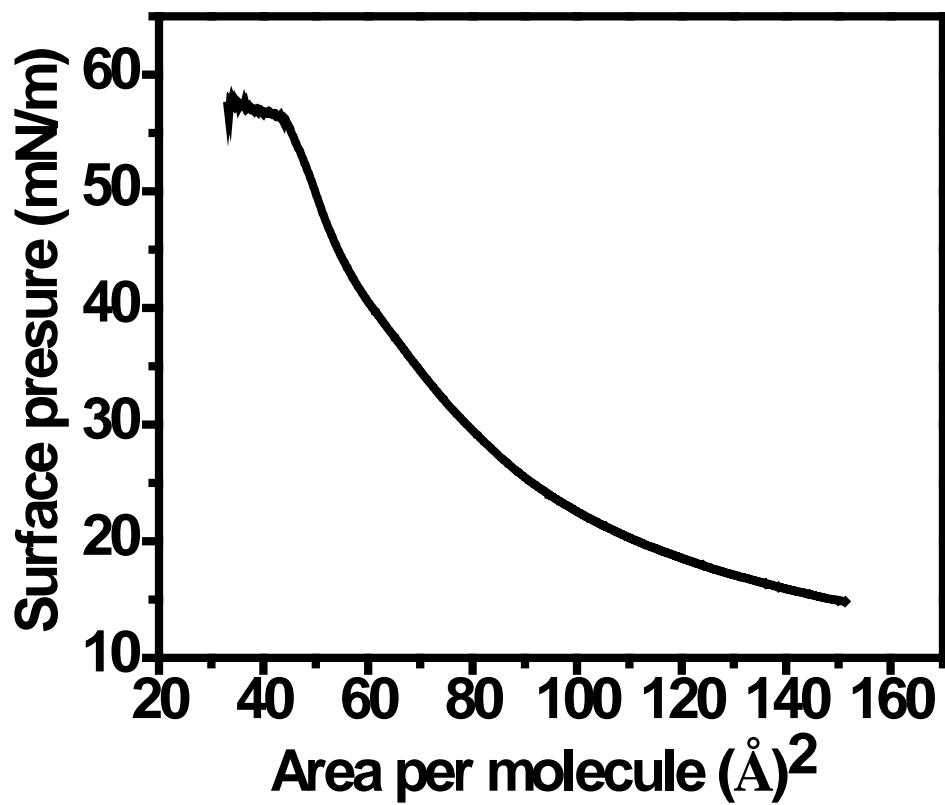
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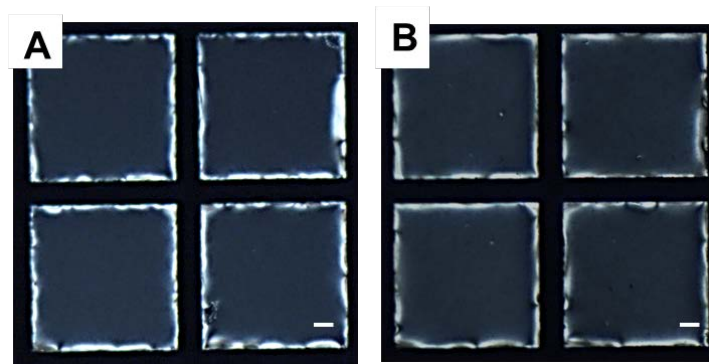
**Figure S1.** Graphical representation describing the LPS vesicle size distribution using dynamic light scattering.

Biomolecule	Zeta potential (mV)
LPS	-5.2 ± 1.4
PG	-4.7 ± 0.2
LTA	-11.7 ± 0.9
LPS+LTA	-9.8 ± 2.2
PG+ LPS	-4.4 ± 0.1

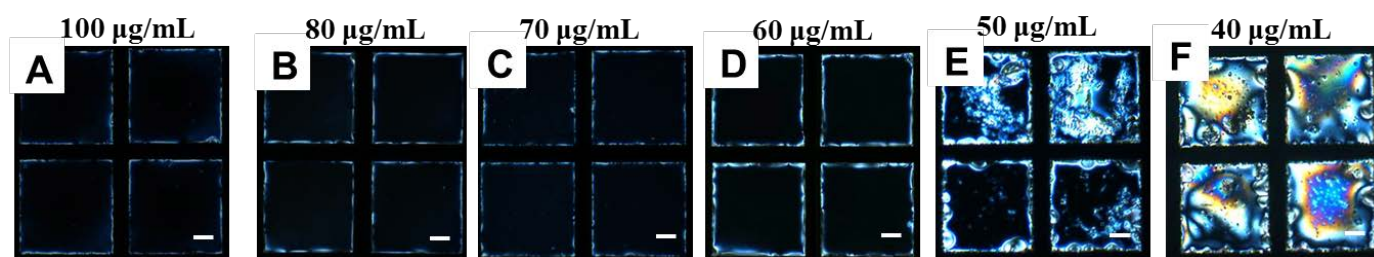
**Table S1.** Zeta potential measurements of different biomolecules used in the study.



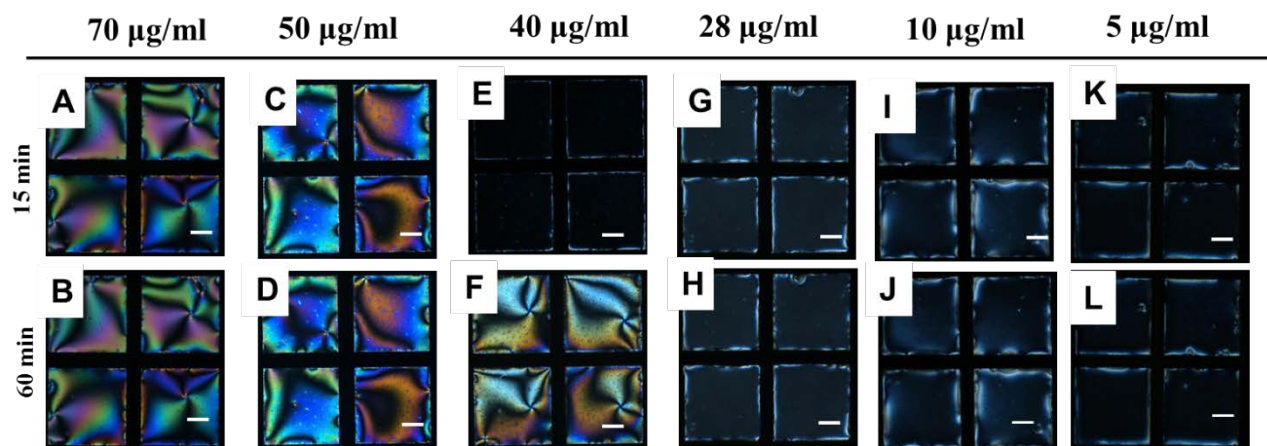
**Figure S2.** Surface pressure ( $\pi$ )-area per molecule ( $A_m$ ) isotherm for LPS on NaCl based sub phase at 25 °C.



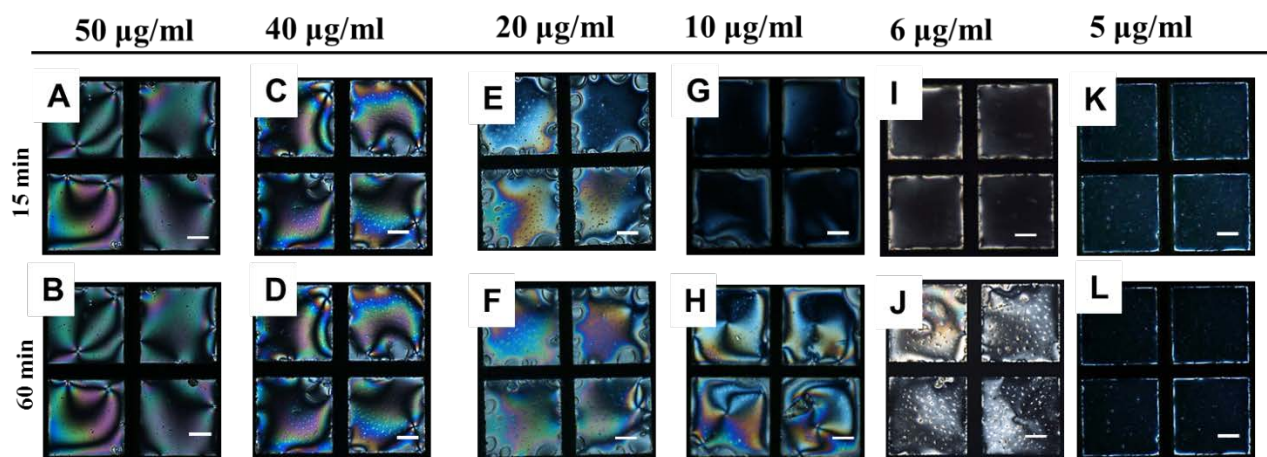
**Figure S3.** Represents polarized optical microscopic images of 5CB decorated with LPS at aqueous/LC interface, (A) before and (B) after addition of 500 µg/mL aqueous solution of starch respectively. Scale bar = 40µm.



**Figure S4.** Represents polarized optical images of 5CB contained in gold grids supported on DMOAP-treated glass slides and placed in contact with A) 100 µg/mL, B) 80 µg/mL, C) 70 µg/mL, D) 60 µg/mL, E) 50 µg/mL, and F) 40 µg/mL concentrations of LPS at 5CB/aqueous interface after washing with Tris buffer followed by 24 h of incubation. The Figure is reproduced from the Supporting Information of our previous work (D. Das, S. Sidiq and S. K. Pal, *ChemPhysChem*, 2015, **16**, 753–760) for convenience to the readers. Scale bar = 40µm.



**Figure S5.** Represents polarized optical micrographs of 5CB decorated with LPS at aqueous/LC interface, after exposing aqueous PG solution with varying concentrations. (A, B) 70  $\mu\text{g/ml}$ , (C, D) 50  $\mu\text{g/ml}$ , (E, F) 40  $\mu\text{g/ml}$ , (G, H) 28  $\mu\text{g/ml}$ , (I, J) 10  $\mu\text{g/ml}$ , (K, L) 5  $\mu\text{g/ml}$ . Top and bottom row represents incubation of PG solution on LPS decorated aqueous/5CB interface over period of 15 min and 60 min respectively. Scale bar = 40  $\mu\text{m}$ .



**Figure S6.** Represents polarized optical images of 5CB laden with LPS at aqueous/LC interface, after exposing aqueous LTA solution with varying concentrations. (A, B) 50  $\mu\text{g/ml}$ , (C, D) 40  $\mu\text{g/ml}$ , (E, F) 20  $\mu\text{g/ml}$ , (G, H) 10  $\mu\text{g/ml}$ , (I, J) 6  $\mu\text{g/ml}$ , (K, L) 5  $\mu\text{g/ml}$ . Top and bottom row represents incubation of LTA solution on LPS laden aqueous/5CB interface over period of 15 min and 60 min respectively. Scale bar = 40  $\mu\text{m}$ .