

## **A Deeper Insight into the Interfacial Behavior and Structural Properties of Mixed DPPC/POPC Monolayers: Implications for Respiratory Health**

**Figure S1** The structural formula of DPPC and POPC.

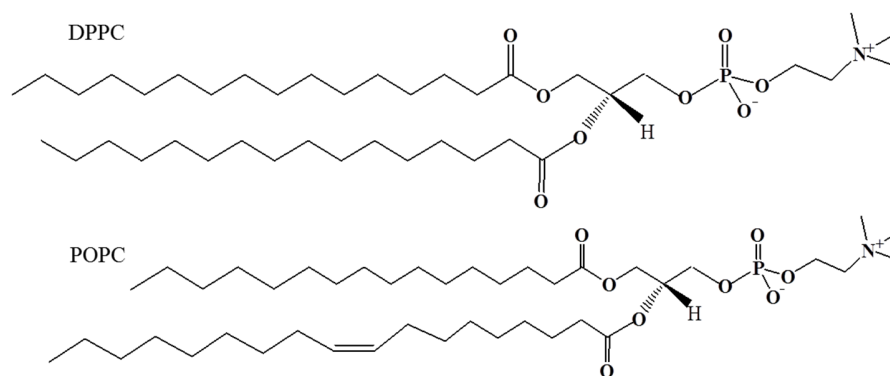
**Figure S2** The hysteresis curves of DPPC and POPC monolayers

**Figure S3** Fitting curves of  $(\pi A/kT)$  vs.  $\pi$  for the mixtures of DPPC/POPC.

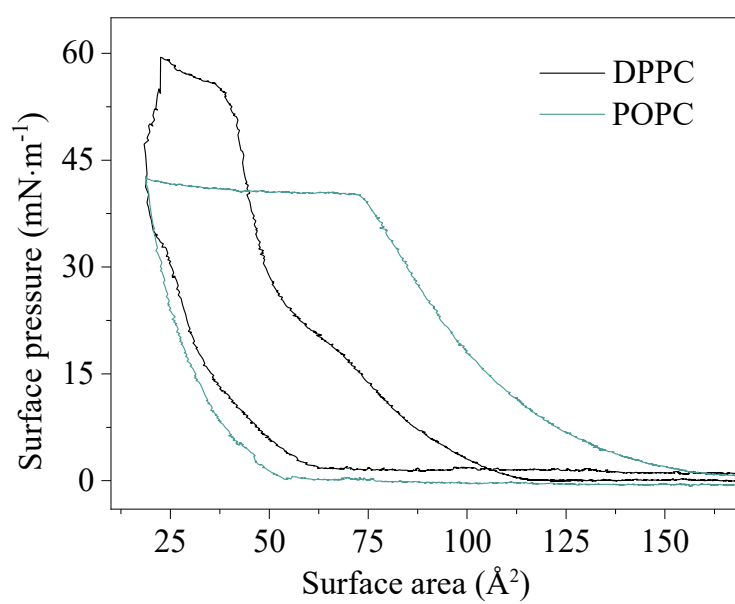
**Figure S4** BAM images of the investigated DPPC monolayers at different surface pressures.

**Figure S5** Raman spectra of the mixed DPPC/POPC monolayers at the air-water interface.

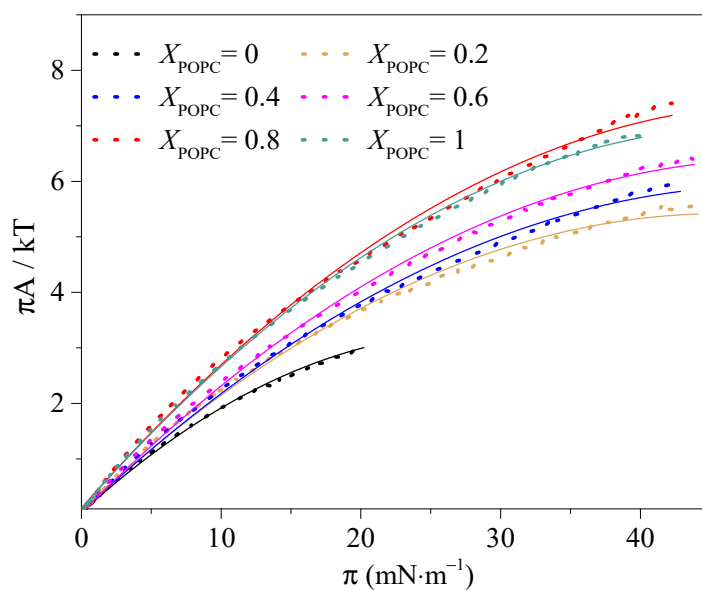
**Table S1** Particle size and dispersion index (PDI) of the mixed DPPC/POPC liposomes



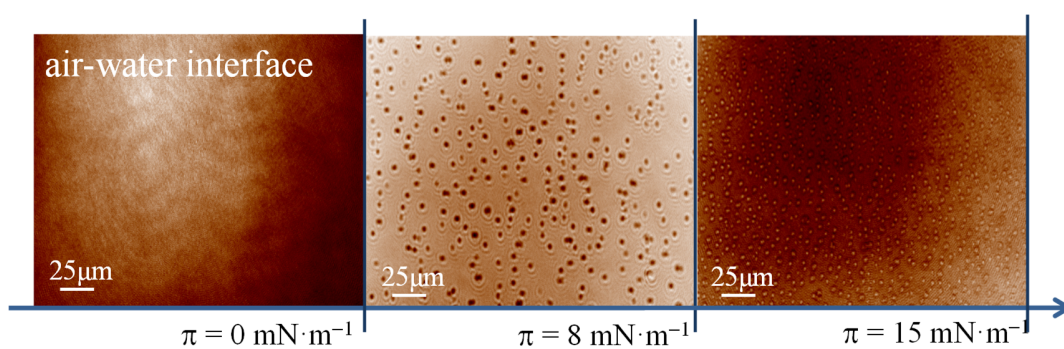
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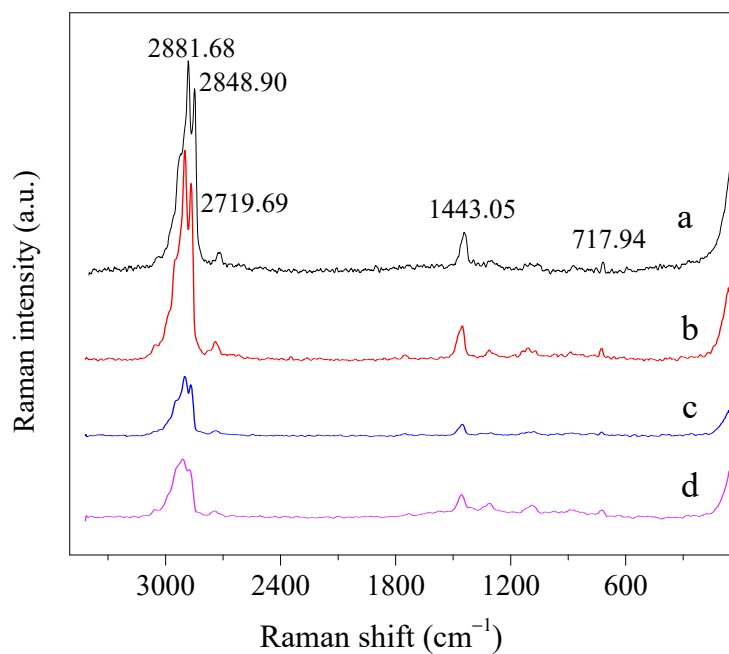
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**Figure S3.** Fitting curves of  $(\pi A/kT)$  vs.  $\pi$  for the mixtures of DPPC/POPC. The dot lines represent the experimental data, and the solid lines represent the regression results of eq (4).



**Figure S4.** BAM images of the investigated DPPC monolayers at different surface pressures.



**Figure S5.** Raman spectra of the mixed DPPC/POPC monolayers at the air-water interface.

a: DPPC, b: DPPC/POPC ( $X_{\text{POPC}}=0.4$ ), c: DPPC/POPC ( $X_{\text{POPC}}=0.6$ ), d: POPC.

**Table S1** Particle size and dispersion index (PDI) of the mixed DPPC/POPC liposomes

$X_{\text{POPC}}$	Average particle size (nm)	PDI
0.0	1458	0.445
0.5	1085	0.313
1.0	874	0.156