

## Supporting Information:

### Structure of DPPC-hyaluronan interfacial layers – effects of molecular weight and ion composition.

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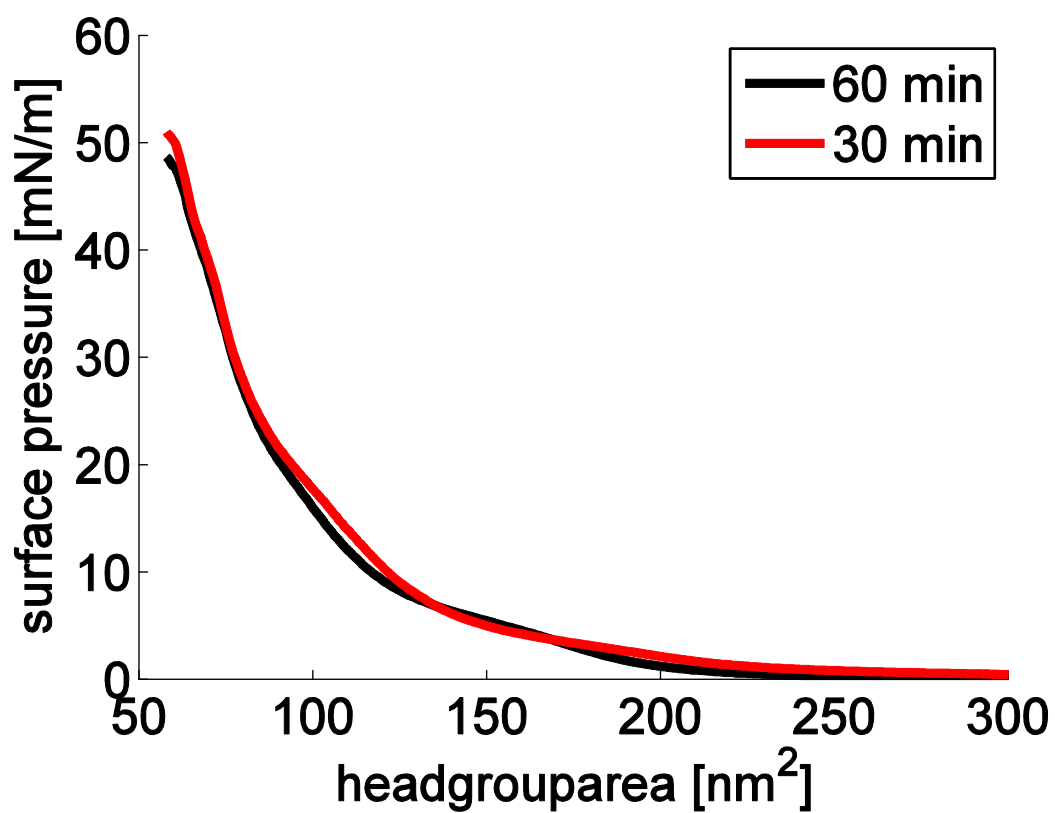


Figure S1 Isothermes of DPPC on 155mM NaCl solution compressed at different adsorption times. No significant change in the isothermes can be seen for a waiting time of 30 min and 6 min.

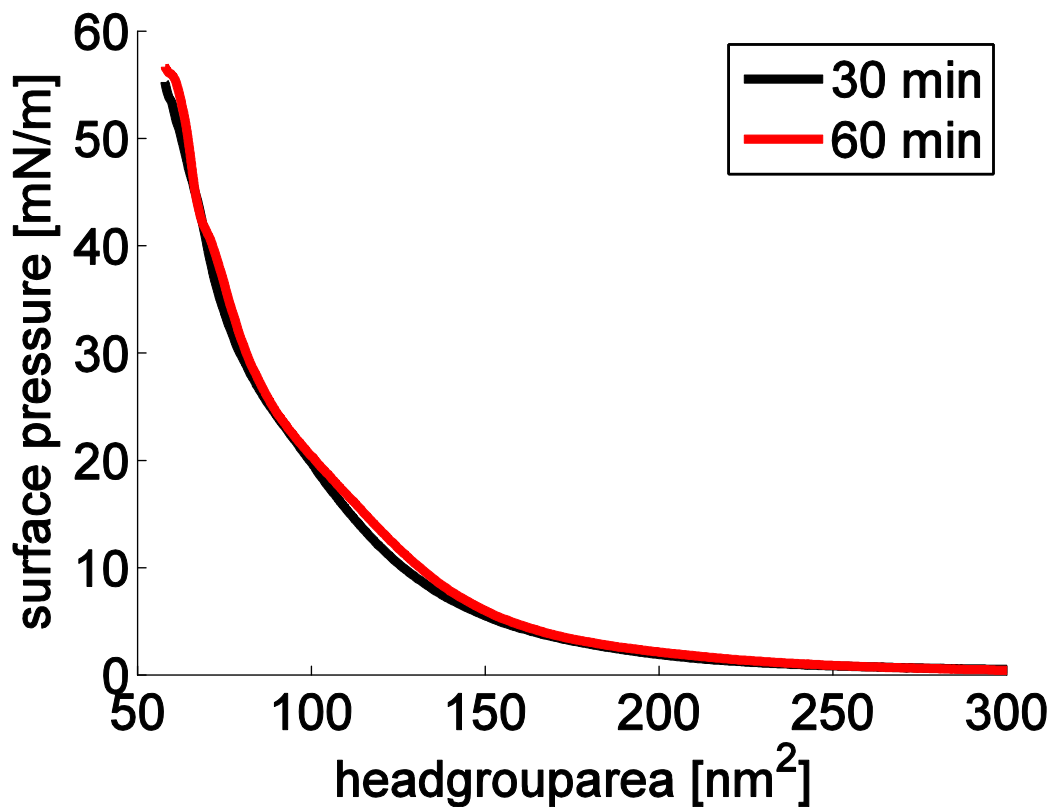


Figure S2 Isothermes of DPPC on 155mM NaCl and CaCl<sub>2</sub> solution compressed at different adsorption times. No significant change in the isothermes can be seen for a waiting time of 30 min and 6 min.

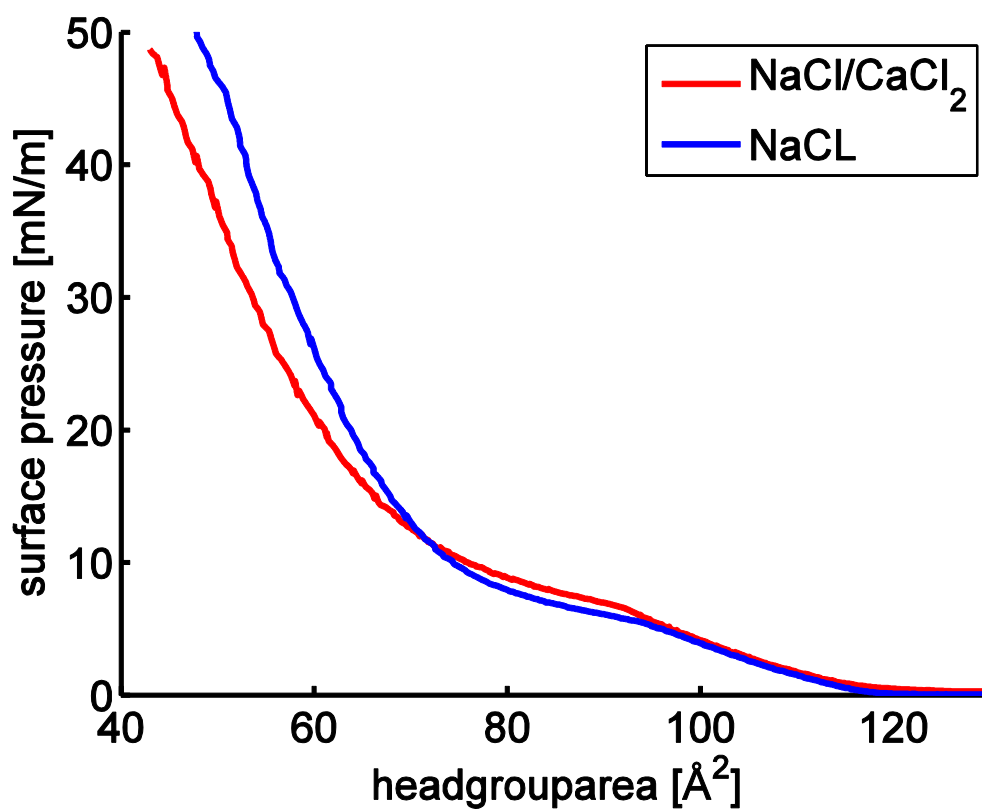


Figure S3 Isothermes of DPPC on 155mM NaCl solution with varying calcium concentration. The calcium ions mostly effect the phase behaviour of DPPC at low areas per molecule. The Langmuir layer can be better compressed whereas

the surface tension keeps lower compared to subphases without calcium.

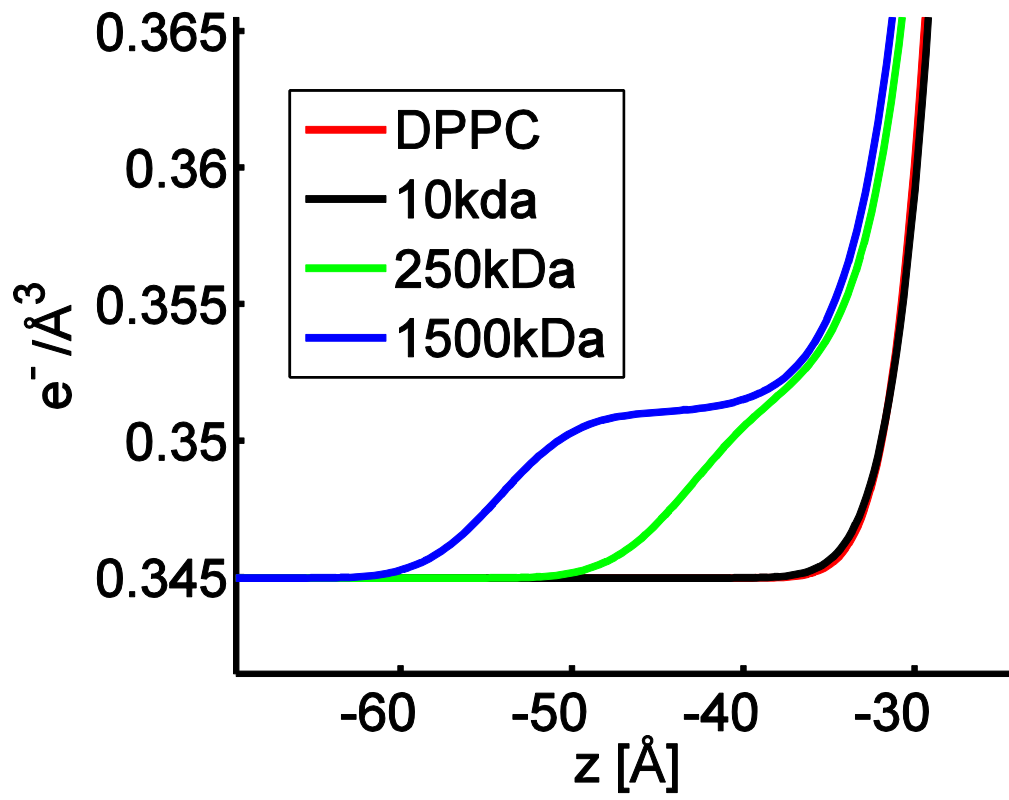


Figure S4 Magnified electron density profile of DPPC on top of HA solutions with varying MW. The area was  $55 \text{\AA}^2$ .

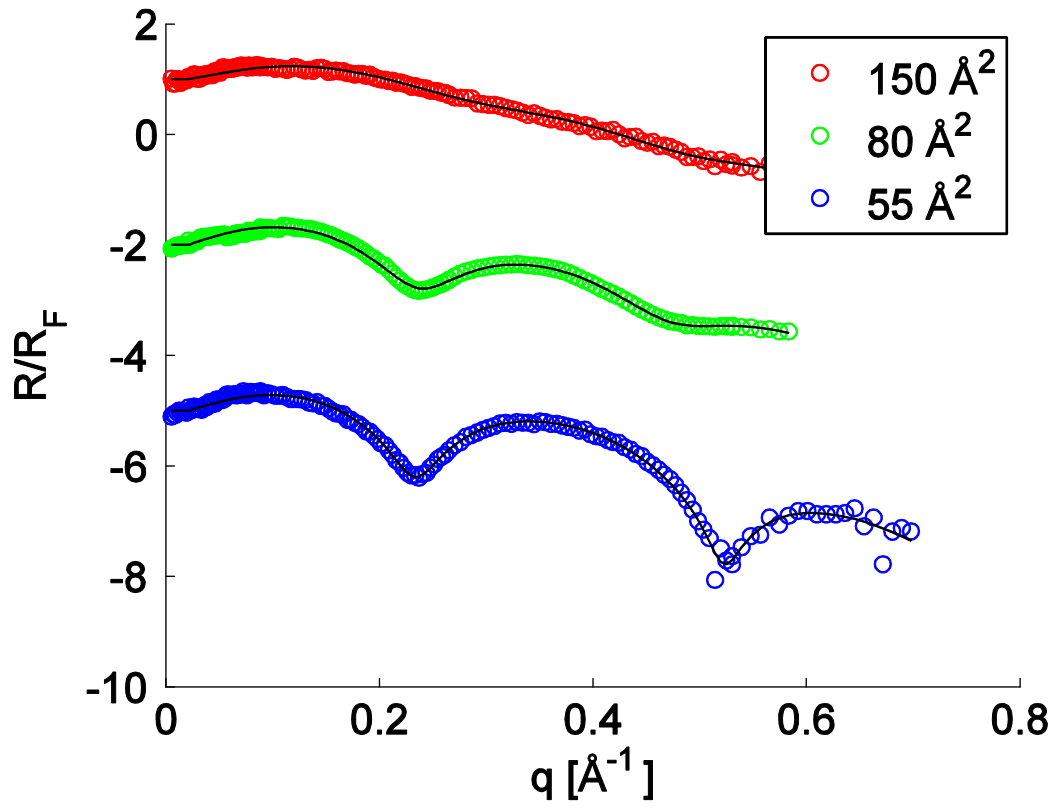


Figure S5 Fresnel normalized reflectivity curves of DPPC on HA solutions with a MW of 10 kDa. Sodium chloride concentration: 155mM; calcium chloride concentration 10mM. The black lines denote the fit to the data.

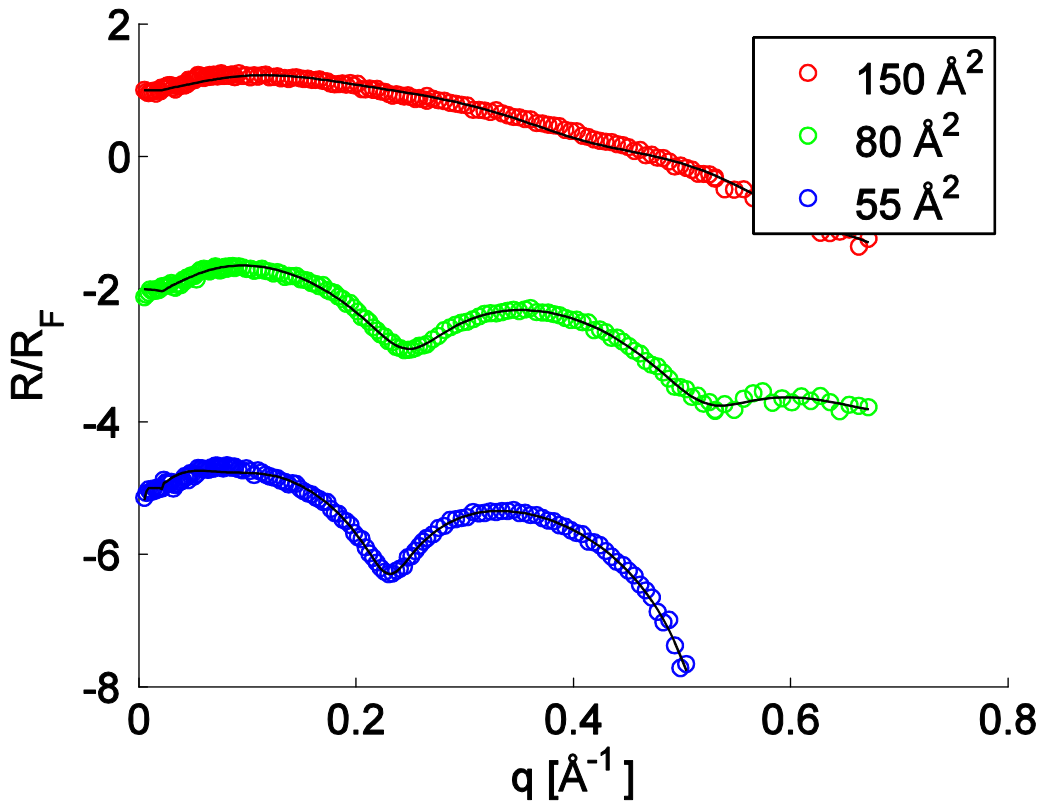


Figure S6 Fresnel normalized reflectivity curves of DPPC on HA solutions with a MW of 250 kDa. Sodium chloride concentration: 155mM; calcium chloride concentration 10mM. The black lines denote the fit to the data.

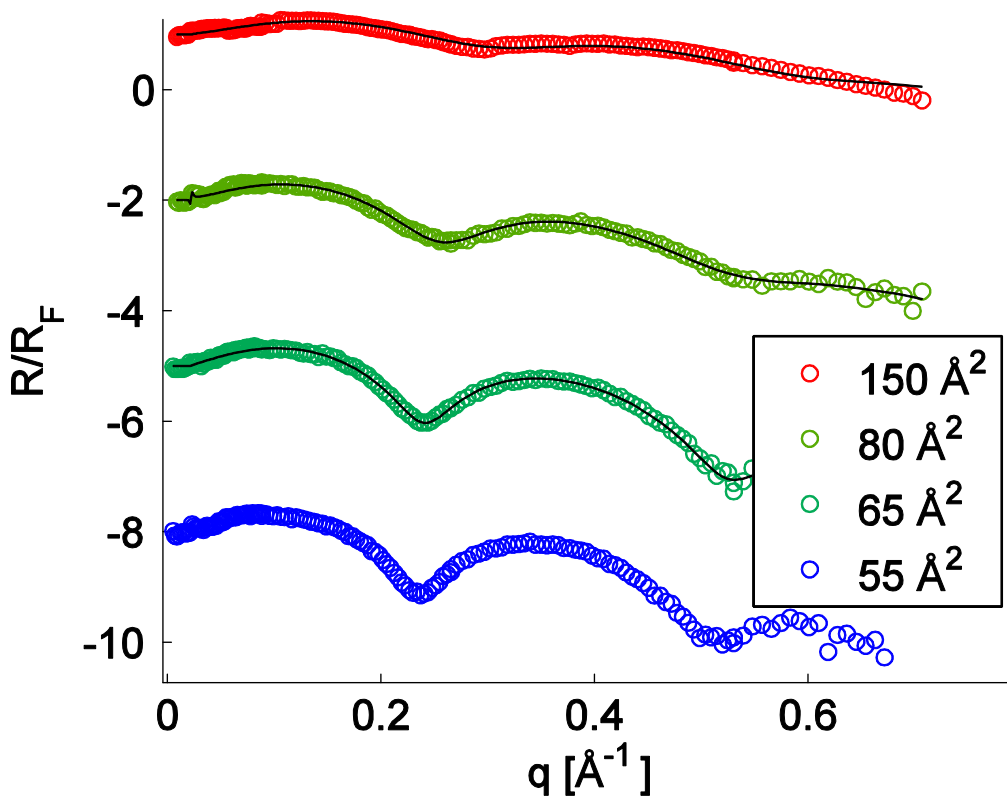


Figure S7 Fresnel normalized reflectivity curves of DPPC. Sodium chloride concentration: 155mM; calcium chloride concentration 10mM. The black lines denote the fit to the data.

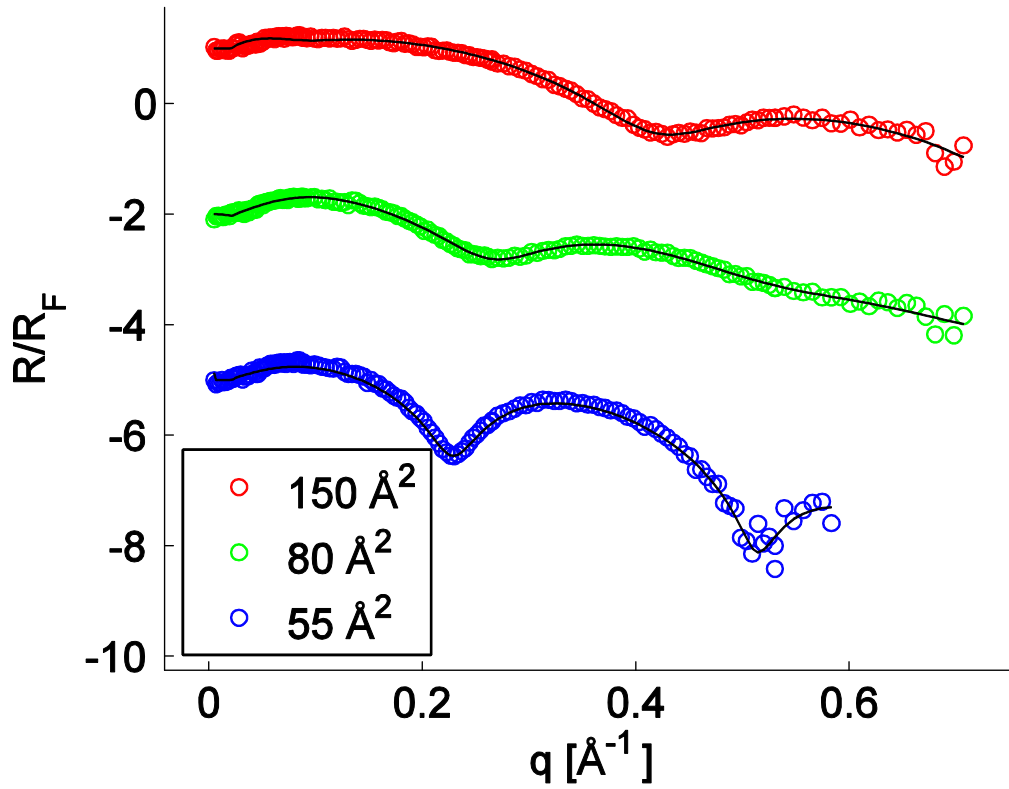


Figure S8 Fresnel normalized reflectivity curves of DPPC on HA solutions with a MW of 1500 kDa. Sodium chloride concentration: 155mM; calcium chloride concentration 10mM. The black lines denote the fit to the data.

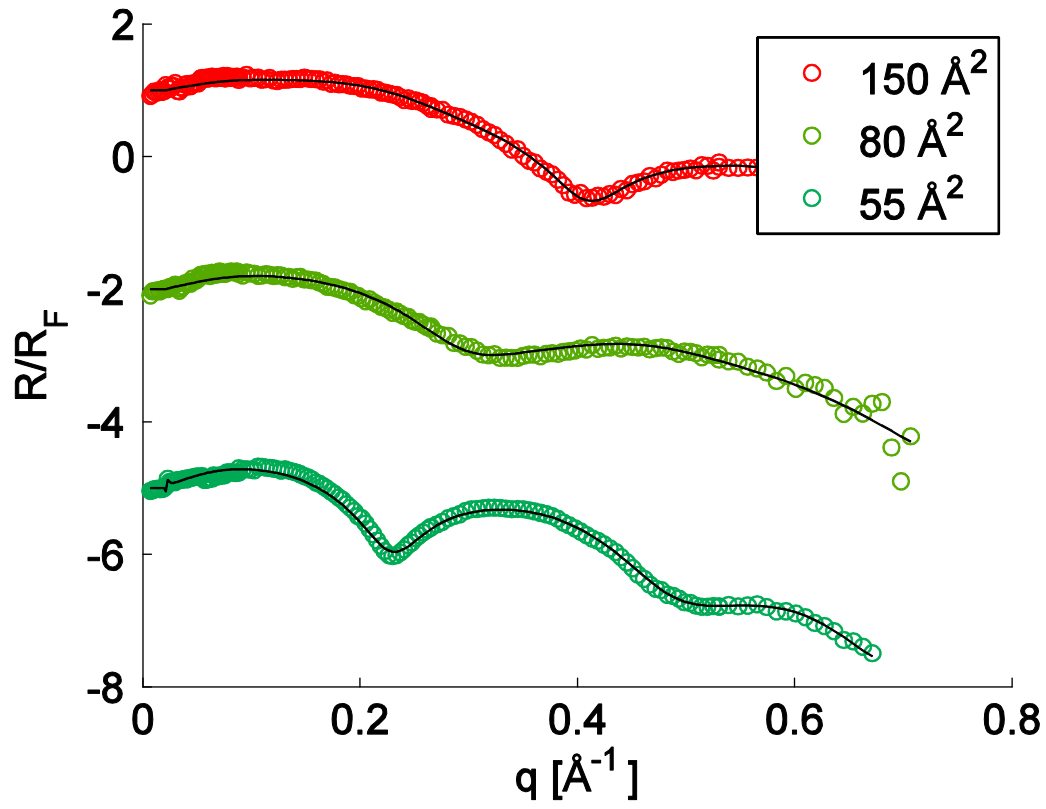


Figure S9 Fresnel normalized reflectivity curves of DPPC on HA solutions with a MW of 1500 kDa. Sodium chloride concentration: 155mM. The black lines denote the fit to the data.



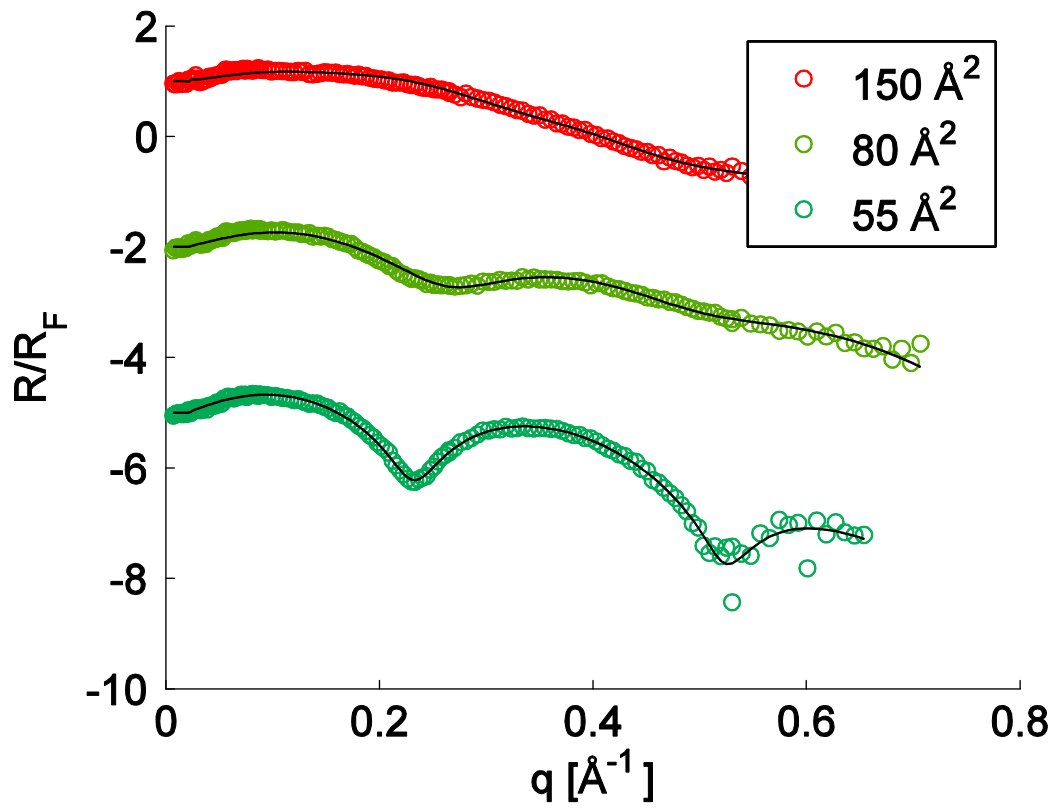


Figure S10 Fresnel normalized reflectivity curves of DPPC on HA solutions with a MW of 250 kDa. Sodium chloride concentration: 155mM. The black lines denote the fit to the data.

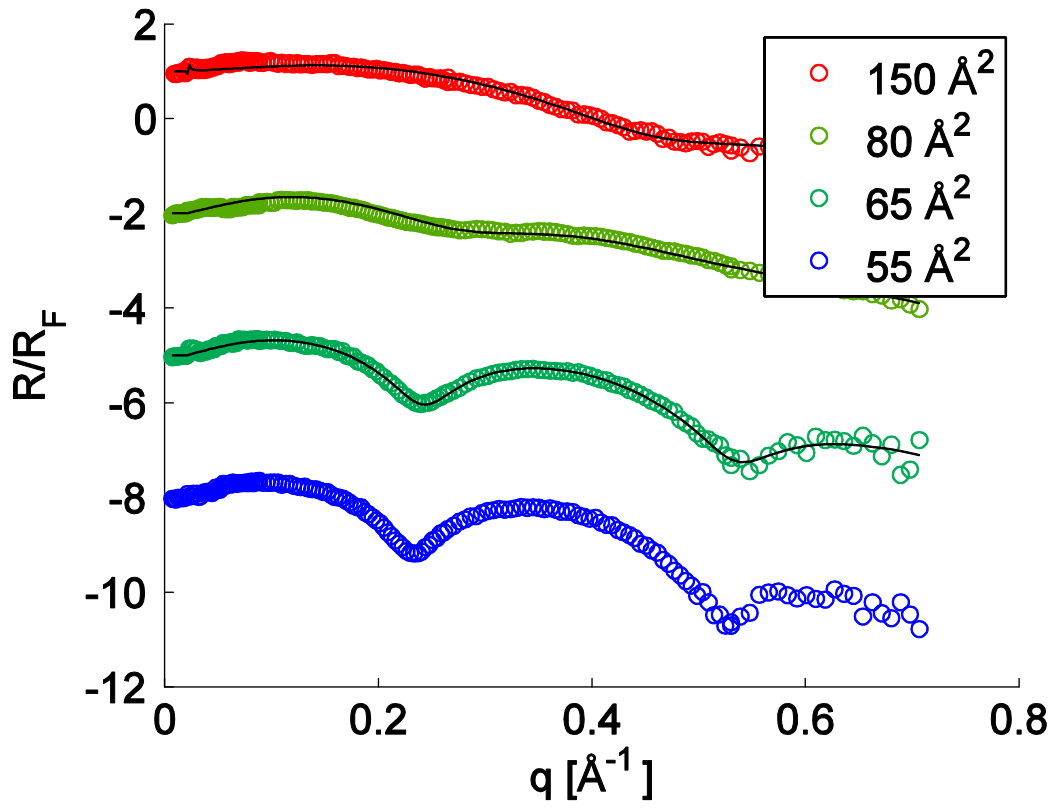


Figure S11 Fresnel normalized reflectivity curves of DPPC. Sodium chloride concentration: 155mM. The black lines denote the fit to the data.

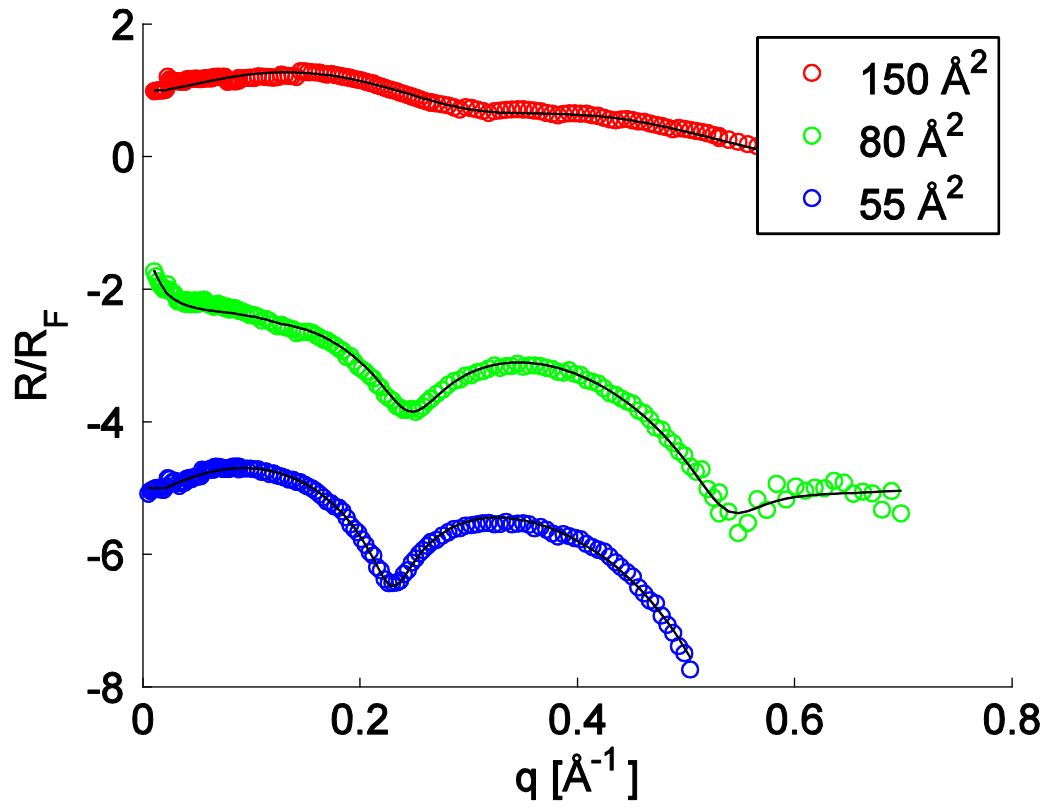


Figure S12 Fresnel normalized reflectivity curves of DPPC on HA solutions with a MW of 10 kDa. Sodium chloride concentration: 155mM. The black lines denote the fit to the data.