

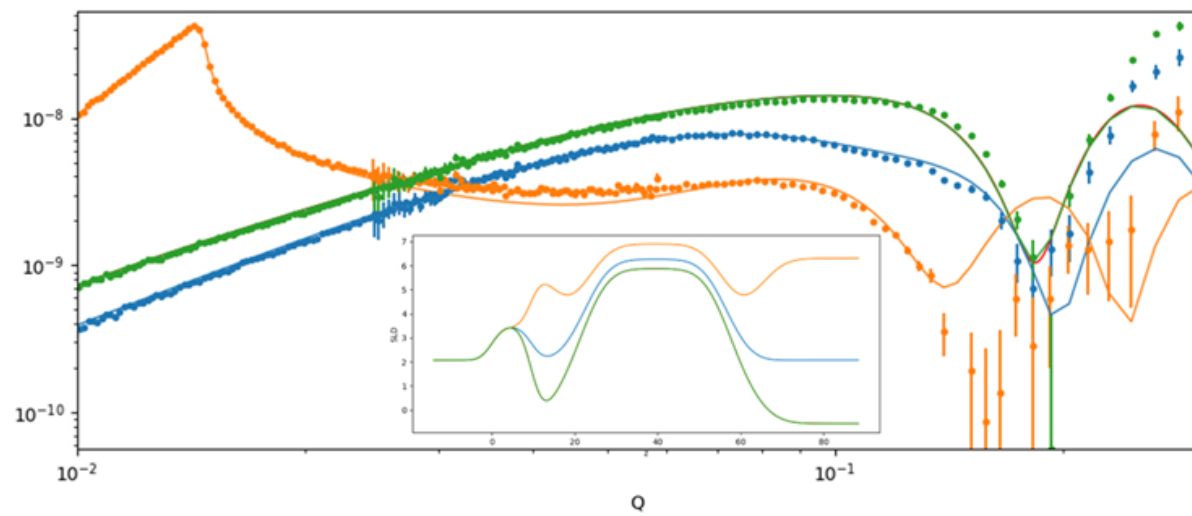
# Spike SARS-coV-2 Protein Removes Lipids From Model Membranes and Interferes with the Capacity of High Density Lipoprotein to Exchange Lipids

## Supporting Information

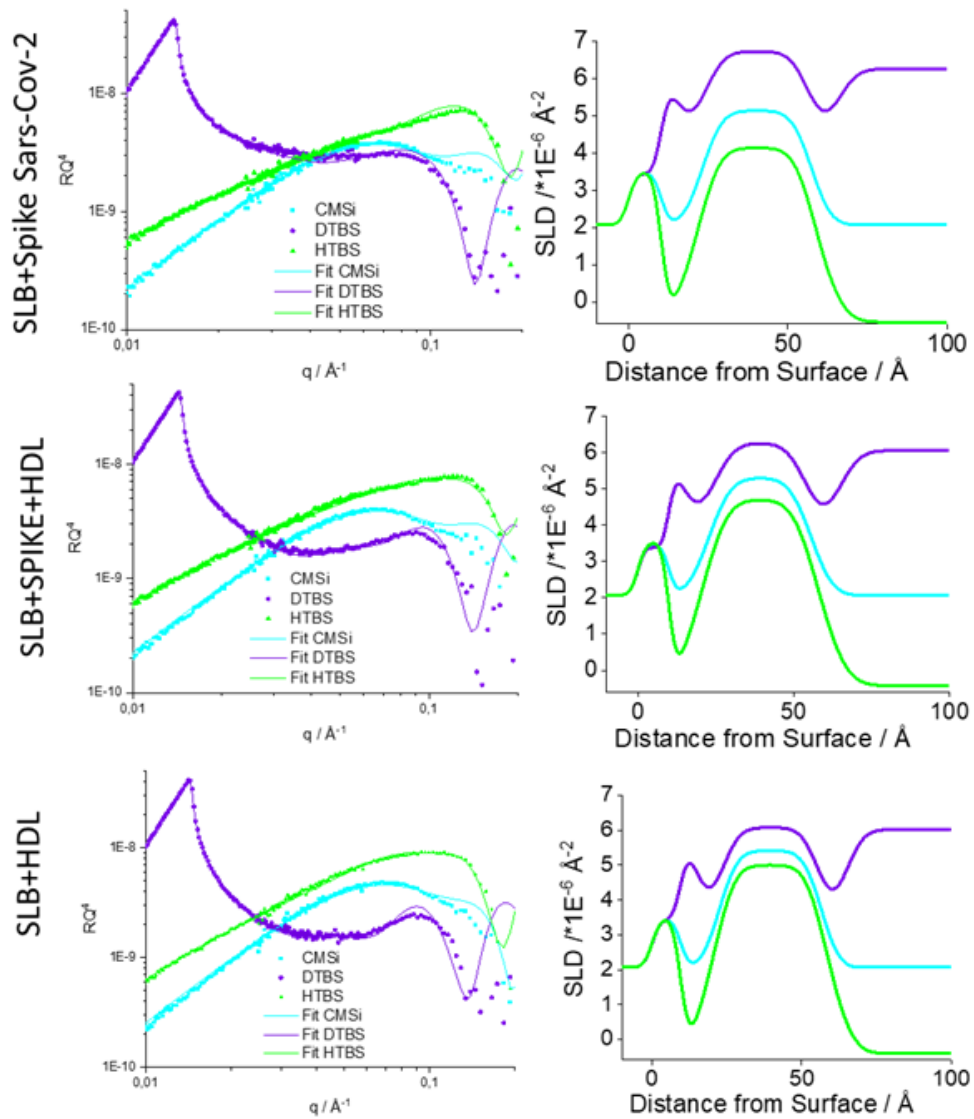
**Table S1. Parameters used for fitting.**

	SLD * 10 <sup>-6</sup> / Å <sup>-2</sup>	Volume / Å <sup>3</sup>
<b>dDMPC tail</b>	6.9	782
<b>dDMPC headgroup</b>	1.89	326
<b>dcholesterol</b>	7.2	622
<b>HDL</b>	2.02	
<b>Spike protein</b>	3.1 (D <sub>2</sub> O) – 1.9 (H <sub>2</sub> O)	173138

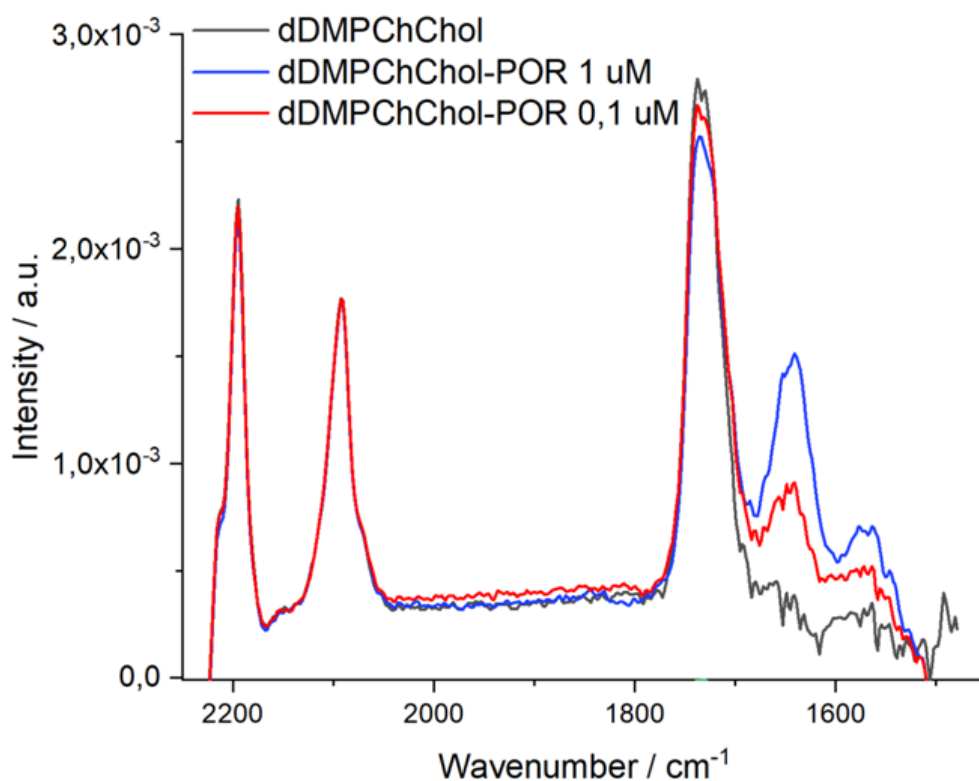
## Supporting Figures



**Figure S1.** Neutron Reflection profiles ( $\log R^*Q^4$  vs  $\log Q$ ) including best fits and corresponding scattering length density profiles (inset) for a model membrane composed of dDMPC and cholesterol to a molar ratio of 80:20 mol% measured at 37 °C in d-TBS (orange), cmSi-TBS (blue) and h-TBS (green).



**Figure S2.** Neutron Reflection profiles ( $\log R \cdot Q^4$  vs  $\log Q$ ) including best fits (left) and corresponding scattering length density profiles (right) for model membranes exposed to 0.05 mg/mL S, 0.132 mg/mL HDL and fresh mixture of these after 5 hours of incubation in h-TBS at 37 °C and exposed to excessive rinsing in h-TBS (green), cmSi-TBS (cyan) and d-TBS (purple).



**Figure S3.** ATR-FTIR data for dDMPC and hCholesterol model membrane, before (Black) and after the soluble domain of the Cytochrome P450 Reductase (POR) protein incubation (blue 0,1  $\mu\text{M}$  and red 1 $\mu\text{M}$ ). Amide peak I ( $\sim 1640\text{ cm}^{-1}$ ) is observed as soon as the protein is injected, there is no appreciable change in the asymmetric and symmetric  $\text{CD}_2$  bands (occurring at  $\sim 2194$  and  $\sim 2090\text{ cm}^{-1}$ , respectively). This suggests that, despite POR binding to the model membrane, lipids were not removed from the membrane. This POR (from *Sorghum bicolor*) is produced recombinantly in *E. coli* and purified to remove the transmembrane domain. Here only the soluble domain was used to match the conditions for the experiments done with the S protein. POR has a hydrophobic patch close to the TM region, which binds to lipid membranes (We have unpublished QCM-D data on this, separate research project).