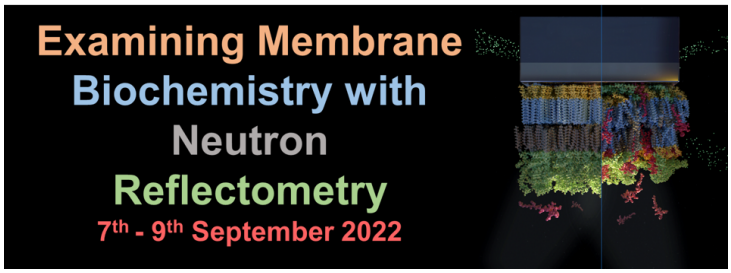

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Examining the interactions of polyphenols with model bacterial and epithelial membranes

Wednesday, 7 September 2022 11:10 (20 minutes)

This work focuses on understanding interactions of polyphenolic compounds with model membrane systems. We selected a simple bacterial membrane model, a simple epithelial membrane model, and a complex epithelial membrane model (DOPC/DOPG (7:3), DOPC/DOPS (8:2), and DOPC/DOPS/Chol/SM (5:2:2:1) respectively). The interactions of these bilayers with three polyphenols, (-)-EGCg, Tellimagrandin I and Tellimagrandin II, were investigated. Membrane interactions were probed qualitatively using both ATR-FTIR and QCM-D. Neutron reflectometry was used to investigate the interactions that showed promise with the FTIR and QCM-D pre-characterisation by showing where the polyphenols reside in the membrane system post-interaction. These results take steps towards structurally understanding the lipid-polyphenol interactions, with the bacterial membrane model showing agreement with previously published NMR data. The interactions were consistent across membrane models given the polyphenol chemical structure.

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