

# User Meeting 2020

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## Protein-Lipid interactions and protein structures in multi-component systems

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Understanding protein-lipid interactions and the resulting protein structures is crucial for evolving food technology, biological and biomedical applications of nanomaterials. Knowledge regarding the effect of the multiple components in the system on the nanostructure, within the context of the application, is needed. Lyotropic liquid crystal design rules<sup>1</sup> were developed and the effect of protein encapsulation on lipid self-assembly materials was extensively studied by us in recent years. We used this to obtain a protein-eye view of the in meso crystallisation method of integral membrane proteins from the bicontinuous cubic phase over time.<sup>2</sup> Recently there has been a shift towards using biomimetic cubic phases,<sup>1,3,4</sup> and SAXS studies at the Australian Synchrotron were used to investigate encapsulation of biologically relevant proteins and peptides.

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