

Oral Contributions

[MS7 - 03] Membrane Protein Crystallization in Lipidic Mesophases. The Host Lipid Screen
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The default lipid for the bulk of the crystallogenes studies performed to date using the cubic mesophase method is monoolein. There is no good reason however, why this 18-carbon, cis-monounsaturated monoacylglycerol should be the preferred lipid for all target membrane proteins. The latter come from an array of biomembrane types with varying properties that include hydrophobic thickness, intrinsic curvature, lateral pressure profile, lipid and protein makeup, and compositional asymmetry. Thus, it seems reasonable that screening for crystallisability based on the identity of the lipid creating the hosting mesophase would be worthwhile. For this, monoacylglycerols with differing acyl chain characteristics, such as length and olefinic bond position, must be available. A lipid synthesis and purification program is in place in the PI's laboratory to serve this need. In the studies reported here, the utility of host lipid screening as a means for generating high resolution structure-grade crystals of several integral membrane proteins is demonstrated[1-7]. Host lipid screening is likely to prove a generally useful strategy for mesophase-based crystallisation of membrane proteins. Some novel features of the cubic mesophase as a membrane mimetic will also be described[8].

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