

Poster Presentations

[MS7-P08] NMR crystallography of membrane proteins Anthony Watts

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Solid state NMR methods are very versatile with respect to sample geometry and form, and both amorphous and (2D and 3D¹) crystalline materials can be studied to give high resolution spectra of use in deriving structural models. Being a short-range technique (dipolar interactions exist over Å only), these crystals can be very small (nano- or amorphous), and certainly much smaller than can be manipulated for conventional single crystal diffraction approaches – powder samples still contain short-range order. Indeed, biomolecules that crystallize into sub-µm crystals but of little use for diffraction, can be ideal for study by solid state NMR.

Here some examples will be given of how we have devised methods and resolved high-resolution structural information from both 2D and 3D crystals of membrane proteins^{2,3,4}. Both backbone², and ligand/prosthetic group details^{5,6} have been obtained, usually ahead of the XRD or EM structures – some comparison will be presented where the crystal structures have been subsequently resolved.

References

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