

**W0008**

**Understanding Membrane Proteins Through Crystallography.** M. Caffrey, School of Science, Univ. of Limerick, Limerick, Ireland, Biochemistry, Biophysics, Chemistry, The Ohio State Univ., Columbus, OH 43210, USA.

A breakthrough has occurred in that lipidic mesophases have been used to produce crystals of membrane proteins that diffract to high resolution (review: Caffrey, M., 2003. *J. Struct. Biol.* 142:108-132). The corresponding 3-D structure (and function) of several integral membrane proteins has thus been elucidated. Some of these structures have been sought after for decades and it is by way of this novel (in meso) approach that crystals of diffraction quality were produced. And so, the prospect exists that the same methodology can be used for the crystallization of other membrane proteins and complexes, many of which serve essential signal-transducing, structural and transport roles, and are targets of disease causative and treatment agents. In my presentation, I will describe advances we have made in miniaturizing and robotizing the in meso method, in understanding how it works at a molecular level, in the rational design of lipids that support in meso crystallogenesis, and in applying the method to entirely new membrane protein types.

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