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Title: Recombinant membrane protein production in microbial hosts

Abstract

Despite many high-profile successes, recombinant membrane protein production remains a technical challenge; it is still the case that many fewer membrane protein structures have been published than those of soluble proteins. However, progress is being made because empirical methods have been developed to produce the required quantity and quality of these challenging targets. Microbial expression systems are a key source of recombinant prokaryotic and eukaryotic membrane proteins for structural studies. A combination of rational construct design and host cell choice can dramatically improve membrane protein yields suitable for structural and functional characterization. In addition to traditional detergents, polymer-based systems are available for solubilization and biophysical characterization of these proteins, with polymers providing opportunities to investigate protein-lipid interactions.