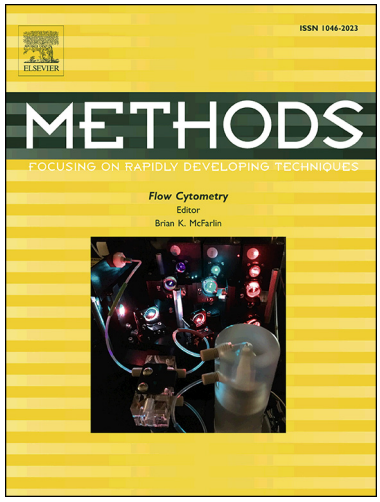

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MICROBIAL EXPRESSION SYSTEMS FOR MEMBRANE PROTEINS

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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. This review focuses on the microbial expression systems that are a key source of recombinant prokaryotic and eukaryotic membrane proteins for structural studies. We provide an overview of the host strains, tags and promoters that, in our experience, are most likely to yield protein suitable for structural and functional characterization. We also catalogue the detergents used for solubilization and crystallization studies of these proteins. Here, we emphasize a combination of practical methods, not necessarily high-throughput, which can be implemented in any laboratory equipped for recombinant DNA technology and microbial cell culture.