

The synthesis of recombinant membrane proteins in yeast for structural studies

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Abstract

Historically, recombinant membrane protein production has been a major challenge meaning that many fewer membrane protein structures have been published than those of soluble proteins. However, there has been a recent, almost exponential increase in the number of membrane protein structures being deposited in the Protein Data Bank. This suggests that empirical methods are now available that can ensure the required protein supply for these difficult targets. This review focuses on methods that are available for protein production in yeast, which is an important source of recombinant eukaryotic membrane proteins. We provide an overview of approaches to optimize the expression plasmid, host cell and culture conditions, as well as the extraction and purification of functional protein for crystallization trials in preparation for structural studies.

Keywords

Membrane proteins; yeast; recombinant; expression plasmid vector; promoter; SMALP; cholesterol

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