## Crystal Structure of Oxido Squalene Cyclase

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Oxido Squalene Cyclase (OSC) catalyses the synthesis of the steroid scaffold which is a key step in the synthesis of cholesterol. In a single highly selective reaction OSC forms lanosterol from the linear substrate oxido squalene.

The 2.1Å structure of this human monotopic integral membrane protein shows how OSC is inserted to the membrane. The hydrophobic substrate can reach the active site that is deeply buried in the center of the enzyme through a channel that opens into the membrane. The structure gives also new insights into the way OSC catalyzes the interesting cyclization reaction. Analysis of the mode of inhibitor binding to the active site cavity will help in the design of new OSC inhibitors as anticholesteremic drugs.

Also the high level expression, purification and crystallization of this human membrane protein will be described. Analytical ultra centrifugation was used to characterize the aggregation state of OSC and was helpful in predicting crystallizability.

Keywords: cholesterol, cyclase, membrane protein