

Structural Modeling of Sterol Carrier Protein-2 from Plants

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Sterol carrier protein-2 (SCP-2) is a small, cytoplasmic protein that was originally described as a cholesterol transfer protein. Later it has been shown that SCP-2 binds a variety of lipids but its actual biological function remains unclear. SCP-2-like proteins have been found in various organisms from vertebrates to bacteria, and recently also in plants. In order to characterize SCP-2 from the plants *Arabidopsis thaliana* (AtSCP-2) and *Euphorbia lagascae* (ElSCP-2) we have built structural models of the two proteins in apo and ligand-bound conformation [1] based on the known crystal structures of rabbit SCP-2 [2], the SCP-2 like domain of human D-bifunctional enzyme [3] and the yellow fever mosquito SCP-2 [4]. Although the sequence identity between AtSCP-2 and ElSCP-2 is high (67.5%), they preferably bind different lipids. We have examined the ligand-binding cavities of the AtSCP-2 and ElSCP-2 structural models in apo and ligand-bound conformations in order to find out structural properties, which would explain the differences in ligand binding.

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