

Abstract

Studies of aquaporin's are broad study field in today's science. In this master project the membrane protein aquaporin *SoPIP2;1* has been studied. The aim of the project was to obtain protein crystals with Lipidic Cubic Phase (LCP) crystallization and study their diffraction. If the obtained resolution of the crystals were satisfying the molecular map also would be studied and that would reveal us a desired resolution on the structure. Different mutants and wildtype *SoPIP2;1* has been purified in this laboratory work. The mutants studied were S188E and S115E. It was believed in previous studies that mutant S188E would possibly show the open structure of the channel and that was the aim in studies of both those mutants; to study the open structure of the channel. At the end of the project Calcium titration experiments has been made in order to study the calcium binding properties of the wildtype *SoPIP2;1* protein. The results from crystal screening for various types of *SoPIP2;1* that are presented above showed that the crystal that were studied in the X-ray diffraction were salt crystals. The conclusion drawn from this master work was that LCP needs more optimization for particular types of protein that are studied by that method.