

Abstract

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Title of diploma thesis: Studies of the interaction between human AQP5 and PIP

Aquaporin 5 is a membrane canal which maintains water balance mainly in lacrimal and salivary glands. A defect in this protein's trafficking from cytoplasm to cytoplasmic membrane is thought to play a role in development of Sjögren's syndrome - a chronic autoimmune disease. Prolactin-inducible protein is a cytoplasmic protein which was found to be contributing to this disease's pathogenesis.

This project was aimed to study the proposed interaction between aquaporin 5 and prolactin-inducible protein. Both recombinant proteins were overexpressed in the yeast *Pichia pastoris* and purified using low-pressure column chromatography on an ÄKTA purification system. Glycosylation of prolactin-inducible protein was confirmed using specific glycoprotein staining. Two coelution tries were run on a HisTrap column. The fractions eluted from the second try were analysed by mass spectrometry. However results did not confirm any interaction. Further investigation is needed for the complete understanding of the pathogenesis of Sjögren's syndrome.

The main contribution of this project is therefore the new optimized purification protocol for prolactin-inducible protein ensuring sufficient purity and adequate yields. This protocol is essential for further functional and structural research of this protein and its interactions.