Abstract

One of the key abilities of cells is to maintain a balance in the internal environment when the external surroundings change. Among the cations that have an irreplaceable role in living organisms are K^+, Na^+ and H^+. In yeasts, most proteins transporting monovalent cations across cell membranes have been identified, making them an ideal model organism for studying cellular physiological processes in eukaryotic cells, including the principles of maintaining monovalent cation homeostasis. Using a unicellular organism such as yeast, we can also characterise proteins from phylogenetically higher organisms and humans, thus revealing disorders of transport systems related to pathological diseases.

This bachelor thesis aims to point out the importance of yeasts in the research of the structure and function of cation transporters from eukaryotic cells and, at the same time, summarise knowledge about diseases associated with the disruption of the functions of individual cation transporters.