Abstract

The aim of this bachelor thesis is to summarize current knowledge about the occurrence and types of structural microdomains in the plasma membrane of unicellular eukaryotes (yeasts) and mammalian cells, including humans. The thesis characterizes individual types of microdomains, their formation, regulation, and composition. It further explores the relationship between specific types of microdomains and transport proteins in the plasma membrane. The localization of transporters within microdomains and the role of these microdomains in regulating the transport of nutrients and ions under physiological conditions is described. Another goal of the thesis is to provide an overview of the role of microdomains in response to stress conditions. The thesis also reviews and describes some current methodological approaches and their possible applications in the investigation of the protein composition and functions of microdomains. Special attention is given to methods utilizing fluorescent proteins, including a brief characterization of selected fluorophores used in the study of microdomains.

Key words: eukaryotic cell, plasma membrane, microdomain, regulation of transporters, fluorescent protein