

ABSTRACT

NMDA receptor is necessary for excitatory transmission in the central nervous system. Altered function of the NMDA receptors is associated with many neurodegenerative and neuropsychiatric diseases. All available crystal structures of the NMDAR meant great shift towards our understanding of details of the receptor and its function. Unfortunately, these up-to-date available structures present only certain functional states of receptors and also a few structural data are still missing. For complete comprehension of the process of activation and deactivation of NMDA receptors, we need to supplement the current information with more data. The aim of this thesis was to employ a combination of different approaches (computational modelling, cloning, biochemistry, protein expression and purification and mass spectrometry) to obtain new structural data, by which we would be able to fill in the gaps in current receptor models, especially at various functional states of the receptor.

Key words:

NMDA receptor, glutamate receptor, computational modelling, structure, cloning, protein expression