ABSTRACT (EN)

The DCL-1 receptor (CD302) is predominantly expressed on the surface of dendritic cells and according to its sequence similarity DCL-1 is classified as a C-type lectin. Since its extracellular domain lacks single motives for carbohydrate binding in coordination with calcium ions, it is probable that the process of carbohydrate binding does not occur through the classical pathway as described in the case of mannose receptor or the DEC-205 receptor. Due to its colocalization with F-actin there is a presumption, that DCL-1 plays a role in cell adhesion and migration. Another role of DCL-1 could be the participation in endocytosis and subsequent targeting to lysosomes. DCL-1 was also put in connections with various pathologies in last few years

Experiments described in this work can be divided into three sections. In the first part I dealt with production of a protein construct based on the extracellular domain of DCL-1. The protein was produced in M9 minimal medium with the only source of nitrogen $^{15}NH_4Cl$ and the only source of carbon ^{13}C glucose. The result was $^{15}N,^{13}C$ labelled protein, used for NMR measurements. The second part is dedicated to the analysis of NMR spectra, which enabled us to assign frequencies of protein backbone and aliphatic side chains atoms. On the base of the backbone chemical shifts the secondary structure predictions were made.

The experiment described in the last part is applied to protein chemical cross-linking. Two homobifunctional (DSG and DSS) and one heterobifunctional (EDC) agents were used. The analysis of cross-linking reaction was made by mass spectrometry. Since the tertiary structure prediction is not finished yet, the results of this analysis were not applied on the current models.