Abstract

Natural killer cells (NK cells) are cells of innate immunity that play an essential role in the immune response of an organism. In contact with infected, stressed or tumour cells, the NK cells can trigger cytotoxic mechanisms. The initiation of mechanisms depends on the presence of activating or inhibitory ligands on the surface of the cells. On the surface of the NK cells, there are activating and inhibiting receptors that upon binding their respective ligands send a signal to the NK cell. One of the activating mechanisms is the decrease of expression in MHC gp I molecules on the surface of the infected cells. This molecule is a ligand of the inhibiting receptors.

One of the activating receptors of NK cells is NKp46. This receptor belongs to the natural cytotoxicity receptor (NCR) family. NKp46 has many ligands, one of them being the adhesin Epa1 of yeast *Candida glabrata*. This thesis aims at preparing plasmids and producing extracellular domains of the NKp46 receptor and its ligand adhesin Epa1.The interaction of NKp46 and its ligand Epa1 remains to be the subject of future research.

Plasmids containing NKp46 and Epa1 genes were successfully prepared and verified by DNA sequencing. The NKp46 protein was produced in eukaryotic expression system of HEK293S GnTI$^-$ cell line. A stably transfected HEK293S GnTI$^-$ cells had been prepared, and the NKp46 protein was then extracellularly secreted and isolated from cultivation medium using immobilized metal affinity chromatography and then purified using gel permeation chromatography. The Epa1 protein had been produced in the *Escherichia coli* bacterial expression system after which it was isolated from cell lysate similarly by the combination of immobilized metal affinity chromatography and gel permeation chromatography.

Key words

NKp46, Epa1, NK cell, recombinant expression, HEK293