Abstract

The Natural Killer (NK) cells play a vital role in the nonspecific immunity. They are capable of efficient immunity reaction without any antigen specific receptors on their surface. NK cells recognize non-self molecules and they also recognize their molecules serving as health markers, and absence of these molecules such as MHC glycoproteins on the target cell surface. The NK cells are able to recognize viral infection or tumor transformation in the organism. If natural killer cell is in contact with a cell carrying an abnormally low MHC class I glycoproteins, it will create a signal which informs the cell is infected with a virus. NK cells trigger apoptosis of the target cell without prior stimulation, proliferation and differentiation. They also promote inflammatory responses by the production of chemokines and cytokines. The response is always the interplay of activating and inhibitory signals that the cell receives from its surroundings. The latest research shows that the targeted modulation of NK cells leads to less complications in bone marrow transplantation. They can be potentially used in immunotherapy, e.g. in the treatment of autoimmune diseases. Therefore, NK cells are a highly-studied group of cells. This thesis is focused on a production of Clrb („C-type-lectin-related protein b“). This protein is a ligand of a rat inhibitory NK cellular receptor NKR-P1B. If the cell expresses Clrb on its surface, it won’t be destroyed. Vector for Clrb was prepared by recombinant cloning. We produced the protein in a human embryonic kidney 293 cells with simple glycosylation (HEK293S GnTI$^-$). Production of a monomeric form was verified by SDS-PAGE. Protein was also characterized by analytical ultracentrifugation and crystallization.

(In Czech)

Key words

recombinant expression, transient transfection, HEK293S GnTI$^-$, NK cells, receptor, Clrb