Abstract

NK cells are important part of immune system, recognizing and eliminating tumor cells and cells infected by viruses. For the target cell recognition, binding of ligands by activating receptors plays a crucial role. Activating receptor NKp30, protein of family of natural cytotoxicity receptors, is able to bind multiple ligands either present on tumor cell surface or being part of some viruses. B7-H6 is one of the ligands of NKp30 and its specific constitutive expression on some tumor cells and cell lines makes it an interesting biological target.

Although the NKp30/B7-H6 complex structure has been solved, structural basis of some important features of their binding is not explained yet. Soluble form of NKp30 receptor binding domain creates oligomers, presence of which is dependent on C-terminus length of its domain and its N-glycosylation; however, structural insight into formation of the oligomers and their significance is not known. Furthermore, binding affinity of NKp30 to its ligands is dependent on presence of its glycosylation and glycosylation type.

We have already found out that NKp30 oligomerization is dependent on its glycosylation. In my work, I attempted to gain detailed functional and structural information about oligomerization of NKp30 and its binding to B7-H6 by multimethodical approach including X-ray crystallography.

Answering the questions described above would not only contribute to basic research of activating receptors of NK cells but possibly may have an impact on further research of cancer diagnostics and therapy.

KEY WORDS: NK cell, glycosylation, oligomerization, NKp30, B7-H6