Abstract

Immune complexes formed by a cytokine and particular clone of monoclonal antibody (mAb) have been shown to paradoxically exert higher biological activity in comparison to the cytokine alone *in vivo*. The main mechanism of this phenomenon *in vivo* is due to the prolongation of the cytokine half-life in circulation. IL-2/anti-IL-2 mAb complexes are especially interesting since they can selectively stimulate either $CD25^{high}$ (IL-2/JES6-1 complexes), or $CD122^{high}$ cells (IL-2/S4B6) depending on the clone of mAb used. IL-2/S4B6 immune coplexes have high stimulátory aktivity for NK cells and memory $CD8^+$ T cells and they could thus replace the conventional IL-2 in cancer immunotherapy. On the other hand, IL-2/JES6-1 highly selectively stimulate Treg cells and they could be potentially useful for transplantations and in treatment of autoimmune diseases. Other immune complexes could find their medicinal use, including IL-3/anti-IL-3 mAb complexes for their potent stimulatorx aktivity for mast cells, IL-4/anti-IL-4 complexes for their ability to stimulate IgE production, or IL-7/anti-IL-7 mAb complexes for their capacity to augment T cell proliferation and survival. The potentiation of cytokine activity is not restricted to anti-cytokine antibodies only. Soluble cytokine receptors can exert similar feature as above mentioned anti-cytokine mAbs. IL-15/IL-15Rα complexes represent a generation of IL-15 superagonists, which could be used in cancer immunotherapy for their ability to expand NK cells and memory $CD8^+$ T cells.

Key words: IL-2, IL-15, anti-cytokine mAbs, immune complexes, immunotherapy, IL-2/S4B6 complexes, IL-2/JES6-1 complexes, IL-15/IL-15Rα complexes