

POSTER PRESENTATION

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Interleukin-15 potentiates human natural killer cells to resist tumor-induced suppression through mTOR-regulated metabolic control

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In cancer patients, anti-tumor functions of NK cells are severely impaired by a variety of immunosuppressive mechanisms. Interleukin (IL)-2 and -15 are two essential cytokines regulating the development and function of human natural killer (NK) cells. Here, we compared the role of IL-2 and IL-15 to render resistance of human NK cells to tumor-induced suppression. We found that early-passage melanoma tumor cells strongly inhibited functions of IL-2 activated NK cells through production of prostaglandin E2 (PGE2). Under the same condition, IL-15 activated NK cells could significantly retain the ability to proliferate in vitro durability, in comparison to IL-2-expanded cells. Altogether, our study uncovers distinct properties between IL-2 and IL-15 on primary human NK cells under tumor-induced suppression. It provides evidence that implementation of IL-15 may greatly improve the clinical efficacy of adoptive NK cell therapy for the treatment of human cancers.

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