

ENHANCING THE TUMOR FIGHTING CAPACITY OF NK CELLS THROUGH THE USE OF SOYPEPTIDE

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Natural killer or (NK) cells are important components of the innate immune system, which play a major role in the rejection of tumors, and virally infected cells. By producing pro-inflammatory cytokines such as IFN-gamma, NK cells are able to exert immunoregulatory functions that influence the adaptive immunity of other immune cells. Due to its critical role in tumor inhibition, researchers, utilizing various cytokines, including IL-12 and IL-2, have fervently pursued the manipulation of NK activity. NK cells respond to cytokines in a dose-dependent manner; however, the toxicity of certain cytokines (like IL-2) in high doses prohibits their widespread clinical use. Therefore, efforts to activate NK cells without requiring high doses of cytokines is warranted. We recently exploited a soy derived dietary peptide called lunasin to improve the immune functions. The hypothesis was that the lunasin peptide has stimulatory effects on immune cells. To test this hypothesis, human peripheral blood mononuclear cells (PBMCs) of healthy donors were stimulated with and without lunasin in combination with cytokines IL-12 or IL-2. Our results showed that the lunasin peptide exerts a robust synergistic effect when combined with the selected cytokines. This effect appears to regulate the expression of a number of genes that are important for NK activity. Our findings support the potential clinical use of lunasin in combination with cytokine to enhance the tumor fighting capacity of NK cells.

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