Activation of Natural Killer Cell by Lunasin and Cytokine

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Cancer immunotherapy is one of the emerging therapeutic strategies to harness the immune system to eradicate chemotherapy-resistant cancerous cells. NK cells can recognize and eliminate cancer cells before adaptive immunity is developed. Human NK cells can be divided into 2 major subsets based on their surface expression of CD56. NK cells with CD56 bright populations are major cytokine producers, while NK cells expressing CD56 dim have higher lytic activity. Due to the role of NK cells in cancer surveillance, any approach to enhance their activity may augment cancer treatment. We have recently shown that soypeptide Lunasin is a novel immune modulating agent that, together with cytokines, enhances IFN- γ and Granzyme B expression by NK cells. This synergism augments the natural cytotoxicity of NK cells against various tumors in vitro as well as in the xenograft model. The objective of this study is to evaluate the effects of Lunasin on antibody-dependent cellular cytotoxicity (ADCC) activity of NK cells against Rituximab-coated human B-lymphoma Raji cells. We also evaluated the expression of several markers involved in NK-mediated tumorcidal activity using flow cytometry. Together, these results suggest that Lunasin could enhance the efficacy of NK cell-based immunotherapy for cancer.

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