IL-10 and IL-21-Mediated Immune Activation as a Novel Immunotherapy

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Introduction

Immunotherapy, activating the immune system to fight cancer, is a promising field of cancer treatment. One subset of immunotherapy, cytokine therapy, uses signaling proteins to expand and increase the cytotoxicity of cancer-fighting T-cells, but little work has been done using targeted combination therapies that tend to have the greatest anti-tumor efficacy. Interleukin-10 (IL-10) and Interleukin-21 represent a promising potential cytokine combination, as they both independently activate CD8+ T-cells and have been studied in clinical trials,

Biotechnology Application

A combination treatment using IL-10 and IL-21 could be used to treat advanced solid tumors, such as thyroid adenocarcinomas (Fig. 8), because they are genetically uniform and thus easier for the immune system to attack. Treatment would involve daily subcutaneous injection based on prior research into IL-21.

Conclusions

Photographs of (from left to right) IL-10, IL-21, and both cultures at 96 hours (Fig. 9). Interestingly, there was a significant qualitative difference between the combined treatment and monotherapies, consistent with research into both molecules' stimulatory effects on memory cell formation.

The results (p < 0.05) indicated that the null hypothesis can be rejected and supported the experimental hypothesis (Fig. 6 and 7), although the differences in experimental groups was not significant (TABLE 1 and TABLE 2). It was concluded that a novel immunotherapy combining IL-10 and IL-21 exhibits significant promise, and future research can determine the efficacy of this treatment in vivo within an immune system.

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References


See attached sheet for additional references