Imprime PGG treatment elicits a coordinated anti-tumor immune response that triggers enhanced expression of PD-L1 on tumor cells as well as monocyte-derived macrophages and dendritic cells

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Abstract

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Background

In multiple syngeneic and xenogenic tumor models, Imprime PGG administered in combination with tumor-targeted, complement-opsonized antibody (Ab) therapy has demonstrated enhanced efficacy in inducing an effective anti-tumor immune response. In addition, results from several Phase I/II clinical trials have shown promising antitumor activity in a variety of malignancies, including NSCLC, melanoma, and other cancers. The mechanism by which Imprime PGG elicits an anti-tumor immune response has been the subject of ongoing investigations.

Imprime PGG – An Innate Immunomodulator

Imprime PGG is a unique immunotherapeutic agent that has been shown to induce adaptive immune responses via the innate immune system. It contains a complex of pathogen-associated molecular patterns (PAMPs) that trigger innate immune responses, including upregulation of costimulatory and coinhibitory molecules on monocyte-derived dendritic cells and macrophages. These responses are thought to be mediated by the innate immune system, which acts in concert with the adaptive immune system to mount an effective anti-tumor immune response.

Objectives and Methods

Objectives

- Investigate the ability of Imprime PGG to modulate the expression of costimulatory (CD80 and CD86) and coinhibitory (PD-L1) molecules on monocyte-derived macrophages (MoDC) and monocyte-derived dendritic cells (MoDC) when cultured in the presence of tumor cell lines.

Methods

- Imprime PGG treatment was administered to monocytes as a complex with antitumor antibodies (Abs). After treatment, monocytes were differentiated into either MoDC or macrophages and cultured in the presence of tumor cell lines.

Experimental Design

- Results showed increased expression of costimulatory molecules (CD80 and CD86) and coinhibitory molecules (PD-L1) on MoDC and MoDC when cultured with tumor cell lines.

Research Hypotheses

- Imprime PGG treatment elicits a coordinated anti-tumor immune response that triggers enhanced expression of PD-L1 on tumor cells as well as monocyte-derived macrophages and dendritic cells.

Results

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Summary

- Imprime PGG treatment elicits a coordinated anti-tumor immune response that triggers enhanced expression of PD-L1 on tumor cells as well as monocyte-derived macrophages and dendritic cells.

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References