Imprime PGG, a Yeast β-Glucan Immunomodulator, has the Potential to Inhibit Polarization of Human Monocyte-Derived Macrophages to an M2 Phenotype

Anissa SH. Chan, Xiaohong Qiu, Adria Bykowski Jonas, Myra L. Patchen, and Nandita Bose, Biothera, Eagan, MN, USA

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Background

• Imprime PGG (Imprime) is a yeast-derived, soluble glucan being developed for cancer immunotherapy.
  • In multiple syngeneic and xenograft murine tumor models, Imprime administered at clinically relevant concentrations (10 μg/mL) demonstrates tumor activity exceeding that of other agents alone.1
  • In combination with antibodies, Imprime has shown promising results in early studies in colon cancer (CRC), non-small cell lung cancer (NSCLC), and melanoma (MEL).

Objectives and Methods

• Establish in vitro culture systems to differentiate human peripheral blood M1 and M2 macrophages.
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Methods:

• Healthy male and female volunteers were recruited and informed consent was obtained from each subject by blood collection.
• Imprime was administered at clinically relevant concentrations (10 μg/mL) to macrophages in vitro and in vivo.

Results:

• Evaluation of M1/M2 Macrophages Differentiated from Human Peripheral Blood Monocytes from Whole Blood

1. Monocytes were differentiated from whole blood monocytes obtained from healthy human volunteers using the following protocol: a. CD4 T cell stimulation; b. CD4 T cell proliferation assay (CD3 & CD28); c. CD4 T cell co-culture systems

2. M1 macrophages were characterized by their phenotype and functional evaluation, including expression of markers such as CD163, CD206, and CD209.

3. M2 macrophages were characterized by their phenotype and functional evaluation, including expression of markers such as CD163, CD206, and CD209.

4. Differences in the expression of these markers were analyzed using flow cytometry.

Conclusion:

• Imprime was shown to have unique effects on M1 and M2 macrophage polarization. Further studies are needed to understand the mechanisms of these effects.

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References