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Immune modulating effects of β-glucan.

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Abstract

PURPOSE OF REVIEW: To examine the recent scientific literature on the immune modulating effects of β-glucans and subsequent benefits on infection and cancer.

RECENT FINDINGS: β-Glucans have been investigated for their ability to protect against infection and cancer and more recently for their therapeutic potential when combined with cancer therapy. Their immune modulating effects are attributed to the ability to bind to pattern recognition receptors including complement receptor 3, scavenger receptors, lactosylceramide, and dectin-1 that results in activation of different aspects of the immune response depending on the cell types and species involved although there is some controversy about the relative importance of each of these receptors. Most of the available evidence comes from preclinical data and human studies are just now beginning to appear in the literature, therefore firm conclusions on its clinical importance cannot yet be made. Perhaps the most promising evidence to date in human trials has come from recent studies on a benefit of β-glucan on quality of life and survival when given in combination with cancer treatment. We identify the need for future studies that compare purified forms of β-glucans from different sources to further the understanding of the mechanisms of action and aid in the development of clinical studies.

SUMMARY: β-Glucans appear to be effective at enhancing immune function and reducing susceptibility to infection and cancer. A better understanding of the mechanisms of β-glucan recognition and subsequent immune activation is necessary for the design of effective treatment approaches in future clinical trials.

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