

Immunomodulation*

The body's initial immune response¹ to an insult is to release a cascade of pro-inflammatory cytokines². Cytokines such as interferon, interleukin, and certain growth factors are secreted by immune system cells and affect the body systemically³. Although these cytokines can be beneficial, quite often they persist to the detriment of our bodies⁴. The body's challenge is to balance the immune response to limit prolonged cytokine secretion while battling the insult⁵. Prolonged secretion of these cytokines can result in prolonged inflammation, impairment to healing, and a propensity toward additional insults⁶.

Immunomodulation is the adjustment of the immune response to achieve a desired⁷ level of balance⁸. Aloe vera has been shown to be a potent modulator to the immune response function⁹.

Acemannan¹¹, the biologically active component of BiAloe[®], has been shown to be a powerful immune modulatory agent in multiple studies, including studies in human subjects. The Acemannan in Aloe has to have the proper range of molecular weight and the right chemical composition in order to be biologically active¹². Analysis shows that the composition of low and high molecular weight fractions can vary widely depending upon manufacturing technique¹³.

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**OVERACTIVE:
INFLAMMATORY
RESPONSE**



BALANCE

SUPPORT

**UNDERACTIVE:
OPEN TO
INSULT**



How the body balances the immune response¹⁰

BiAloe®

The most immunomodulatory bio-available Aloe on the market.

BiAloe® provides immunomodulation through several mechanisms related to its high content of Acemannan, a key bioactive polysaccharide found in Aloe vera:

1. Macrophage activation: Acemannan in BiAloe® acts on macrophages, stimulating them to influence T-cells and promote immune system function⁴.
2. Cytokine modulation: BiAloe® can alter the release of cytokines from immune cells. At lower concentrations, it has been shown to increase the release of anti-inflammatory cytokine IL-10 while decreasing pro-inflammatory cytokines like TNF- α ³.
3. Molecular weight specificity: The Acemannan in BiAloe® has a specific molecular weight range (less than 400 kDa) that is optimal for immunomodulatory activity. Polysaccharides in this size range have potent immunomodulatory effects, while larger molecules (>400 kDa) have only marginal activity¹.

4. Bioavailability: BiAloe® is processed to have highly bioavailable Acemannan, particularly molecules smaller than 50 kDa, which can be readily absorbed by intestinal epithelial cells¹.

5. Immune cell proliferation: Acemannan has been shown to increase the numbers of white blood cells, macrophages, and T cells, enhancing overall immune function².

6. NF- κ B signaling: Long-chain Acemannans in BiAloe® can modulate NF- κ B signaling in immune cells, which plays a crucial role in immune responses^{3,5}.

By providing a high-quality, bioavailable source of Acemannan with the optimal molecular weight distribution, BiAloe® offers potent immunomodulatory effects that can help modulate and support the immune system^{1,2,4,*}.

Citations:

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