

BiAloe® on Stem Cell Proliferation*

Acemannan has been shown to modulate mesenchymal stem cell (MSC) proliferation and differentiation:

- Supplementing MSCs with Aloe vera enhanced their proliferation and differentiation in vitro¹.
- Aloe vera gel may stimulate MSC differentiation potentially promoting their therapeutic effects¹.
- In a yearlong Alzheimer's Nutritional Intervention study utilizing BiAloe® as the main ingredient of a multi-nutrient complex averaged 377% increase in CD14+ stem cell production².
- Acemannan has been shown to support proliferation of Dental Pulp Stem Cells helping the body accelerate the healing process in mandibular defects to open new avenues in dentistry regenerative medicine³.

Mechanisms of Action

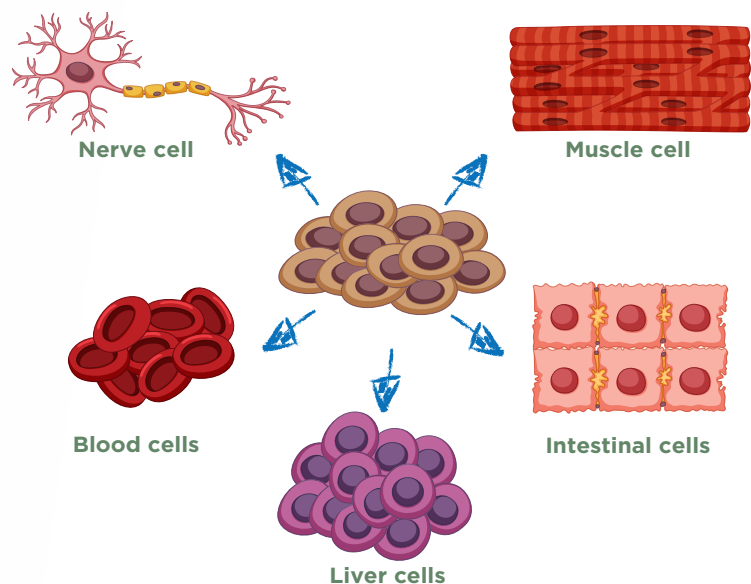
The effects of Aloe compounds on stem cells likely involve multiple mechanisms¹:

- Activation of signaling pathways: Aloe compounds may activate pathways like ERK signaling that promote osteogenic differentiation of MSCs.
- Antioxidant effects: The antioxidant properties of Aloe vera could protect stem cells and support their function.
- Immunomodulation: Aloe polysaccharides have demonstrated immunomodulatory effects that may indirectly influence stem cell behavior.

Potential Applications

Research suggests BiAloe® and similar Aloe compounds could have applications in¹:

- Tissue engineering: Aloe vera has shown promise for tissue engineering applications involving stem cells¹.
- Regenerative medicine: The stem cell-stimulating effects may be useful for regenerative therapies^{1,3}.
- Wound healing: Aloe's effects on stem cell proliferation could enhance wound healing processes⁴.
- Cognition: BiAloe® showed promising support of cognition function in a one year study on Alzheimer's disease patients².



While more research is needed to fully elucidate the specific effects of BiAloe® on different types of stem cells and potential therapeutic applications, the current evidence suggests promising avenues of nutritional strategies using BiAloe® as an ingredient for products aimed at supporting a healthy stem cell production function.

Citations:

- 1 <https://www.sciencedirect.com/science/article/pii/S1687850722082139>
- 2 <https://pubmed.ncbi.nlm.nih.gov/22976077/>
- 3 <https://pubmed.ncbi.nlm.nih.gov/38765804/>
- 4 <https://pubmed.ncbi.nlm.nih.gov/34268441/>

BiAloe® on Stem Cells and Cognitive Function*

The effect of an Aloe Polymannose Multinutrient Complex on Cognitive and Immune Functioning in Alzheimer's Disease. J Alzheimers Dis. 2013;33(2):393-406. This 12-month open-label trial examined the effects of an Aloe Polymannose Multinutrient Complex (APMC) supplement, containing BiAloe® as the key ingredient, on cognitive function and immune markers in 34 patients with moderate to severe Alzheimer's disease (AD). Key findings:

- Cognitive function improved significantly on the ADAS-cog cognition score at 9 and 12 months compared to baseline. 46% of participants showed clinically significant improvement (≥ 4 point change) at 12 months.
- Several inflammatory markers decreased significantly:
 - Interleukin-2 (IL-2)
 - Interleukin-4 (IL-4)
 - Tumor necrosis factor-alpha (TNF- α)
 - Vascular endothelial growth factor (VEGF)
- Changes were observed in lymphocyte and monocyte subsets:
 - Decreases in CD90+, CD95+CD3+, CD95+CD34+, CD95+CD90+, CD14+CD34+, CD14+CD90+, and CD14+CD95+ cells
 - Increase in CD14+ monocytes, a pluripotent adult stem cell
- The supplement was well-tolerated with minimal side effects reported.
- Some correlations were found between cognitive measures and immune markers at baseline and 12 months.

The authors conclude that the APMC supplement containing BiAloe® shows promise for improving cognitive function and modulating inflammatory/immune markers in AD patients. They suggest the cognitive benefits may be associated with changes in immune activity, though the exact mechanisms require further study. Overall, the results indicate this concentrated dietary supplement may offer an alternative option for AD patients that could improve cognition, inflammatory profile, and quality of life. However, larger controlled trials are needed to confirm these preliminary findings.

Adverse reactions:

Based on the study results, the main adverse reactions reported by participants were:

- One subject's caregiver reported an initial 3-day period of loose stool. This was resolved by temporarily reducing the supplement dose and then gradually increasing it back to the full amount over one week.
- Another subject's caregiver reported elevations in blood pressure and pulse. This was addressed by reducing the daily dose to 1 teaspoon/day and then gradually increasing it by 1 teaspoon/day/week until reaching the full 4 teaspoons/day dose.

The study notes that no other adverse events were reported. Overall, the APMC supplement was well-tolerated by participants, with only these two minor and temporary side effects reported out of the 34 total participants.



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* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

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