



Deliver More Protein to Cells to Promote Muscle Growth

Clinical studies show AstraGin® improves the absorption of protein in the form of amino acids. Enhance your formula to help consumers get the most out of the products they use.



EFFECT OF ASTRAGIN® ON AMINO ACIDS

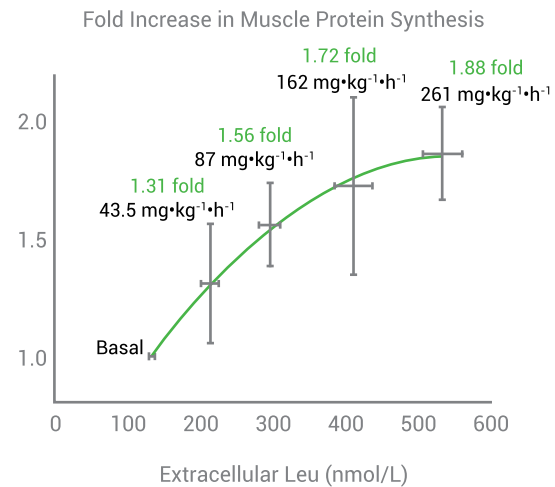
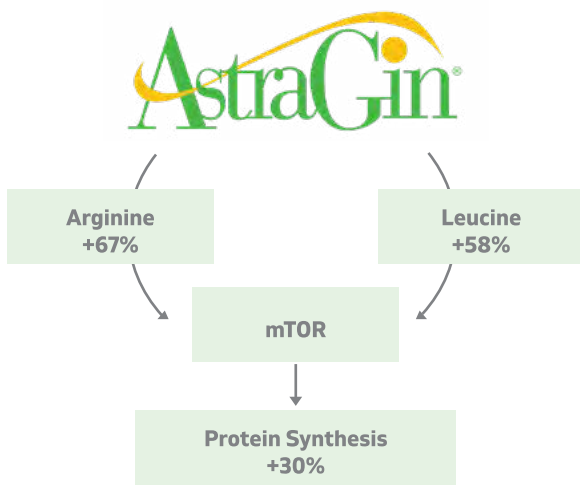
Amino Acids	In-vivo
Alanine	↑18.08%
Arginine	↑30.69%
Glutamine	↑27.83%
Glycine	↑28.04%
Isoleucine	↑20.56%
Leucine	↑29.40%
Lysine	↑38.09%
Proline	↑34.97%
Valine	↑12.52%

IMPROVED ABSORPTION AND BIOAVAILABILITY OF PROTEIN WITH ASTRAGIN® OFFERS A NUMBER OF ADVANTAGES

Increased Muscle Protein Synthesis and Muscle Growth

Leucine and arginine are crucial for mTORC1 for protein synthesis in skeletal muscles. AstraGin® may increase protein synthesis in muscle due to its ability to increase intestinal leucine absorption (58% in 15 minutes) that leads to increase protein synthesis by the activation of the mTOR signaling pathway.*

In addition, published papers have demonstrated that ginsenosides (a key compound in AstraGin®) activates mTOR signaling pathway by regulating upstream kinases in muscle cells and astragalus polysaccharides (another key compound in AstraGin®) involved in mTOR pathway/astragalosides regulated insulin levels which also affects mTOR pathway.* Additionally, AstraGin® may boost intestinal arginine absorption by 67%, which also triggers the mTOR pathway.*



Increased Bioactive Milk Peptides

During processing and digestion, milk proteins are disassembled into peptides with an array of biological functions, including antimicrobial, angiotensin-converting enzyme inhibition, antioxidant, opioid, and immunomodulation. These functional peptides are derived from both casein and whey proteins (including α -lactalbumin, β -lactoglobulin, and lactoferrin). Peptides that are absorbed into the bloodstream can act systemically.

AstraGin®'s *in-vitro* digestion and absorption study potential demonstrated that AstraGin® increases total peptides and amino acids by 41% after protein digestion.* AstraGin® has the potentiality to increase these peptides of health-promoting functional foods.*

Recommended Dosage: 50mg

1. Wu G. Amino acids: metabolism, functions, and nutrition. *Amino Acids*. 2009, 37(1):1-17.

*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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