Scientific Study: Lab Validation and Performance of Vegan Collagen Precursor

Animal-free or Vegan Collagen Precursor is a clean and sustainable unflavoured premix. Designed for ease of use, it dissolves easily in even chilled water or soda and is convenient to carry and use. Vegan Collagen Precursor is a blend of amino acids, vitamin C, antioxidants, and plant cofactors scientifically chosen for their ability to **promote collagen synthesis, absorption and breakdown prevention within the body.**

Key product features

- Vegan Collagen Precursor powder is a comprehensive formulation containing the key amino acids derived from microbial fermentation to support the body's natural collagen production.
- Vitamin C can promote collagen synthesis by catalyzing enzymatic hydroxylations involved in collagen metabolism.
- Plant cofactors, rich in antioxidants, silica, and Vitamin C. Silica, acts as a potent precursor, stimulates the proliferation of the fibroblast and releases growth factors (such as TNF-α and TGF-β) that aid in collagen synthesis. These were confirmed using Precise Efficacy Validation via Fibroblast Cells.
- These blends are known for their abilities in anti-photoaging, anti-inflammatory and wound healing benefits.
- It has 155 mg antioxidant-rich blend to effectively inhibit collagen breakdown and support skin health.

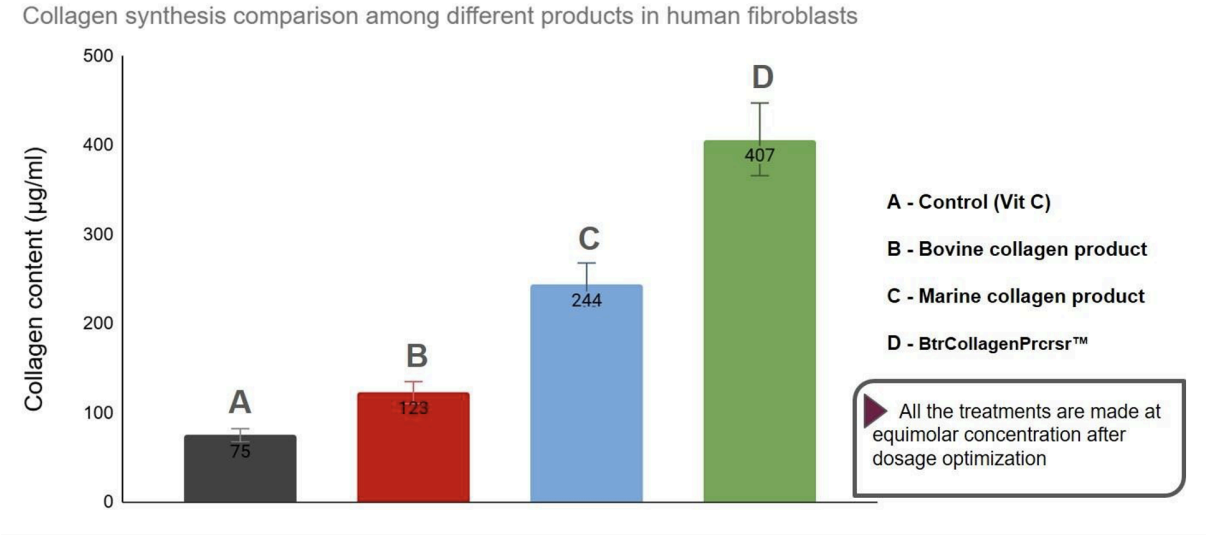
Vegan Collagen Precursor Vs. Market Peptides:

- The active functional ingredient is a collagen precursor, which differs in terms of absorption rates in the body. Vegan Collagen Precursor increases collagen synthesis with all the necessary cofactors present and has a light molecular weight, allowing for better absorption. Peptides and Vegan Collagen Precursor have different mechanisms that contribute to collagen synthesis.
- There is limitation in absorption of peptides because of high molecular weight and further, the collagen must break down from peptide structure to individual amino

acids to induce the collagen synthesis. In contrast, Vegan Collagen Precursor powder, with its key ingredient, gets absorbed directly without the need of an additional step (breakdown of peptides) and induces collagen synthesis.

Lab Validation and Performance of Vegan Collagen Precursor - The key active functional ingredient in our formulation.

A cell line study was conducted to evaluate the efficiency of Vegan Collagen Precursor (BtrCollagenPrcrcr). The graph below depicts collagen synthesis in cells treated with vegan collagen precursor powder compared to animal-based collagen products on the market.



Collagen content measurement: Normal human dermal fibroblasts cells were treated with equimolar concentration of the test compounds for 72 hours for estimating collagen content.

Vegan Collagen Precursor treatment showed **67% higher collagen synthesis in comparison to marine collagen product over 72 hour treatment**

Vegan Collagen Precursor treatment showed **230% higher collagen synthesis in comparison to bovine collagen product over 72 hour treatment**

***The increased collagen synthesis can be attributed to efficiently absorbable amino acids and essential co-factors in the Vegan Collagen Precursor formula*
*** Vitamin C was used as control treatment owing to its central role in collagen metabolism.*

Application and Benefits

Vegan collagen precursor powder's versatility allows it to seamlessly integrate into various food and beverage applications, catering to diverse dietary preferences and lifestyles, from refreshing ready-to-drink (RTD) beverages to sports drinks and smoothies, while promoting benefits for joints, gut, skin, hair, and nails.

- Efficient Microbial Fermentation, to retain control of key amino acids supply
- Rapid formulation (and customizations) along with a wide range of other products/categories with price parity
- Complete solubility in chilled water and soda
- Better bio-avilability / absorption due to broken down ingredients
- Better prevention of breakdown
- Transparent and no/low flavour
- Overcoming Molecular Weight / Peptide Breakdown limitations
- Cell-line analysis for efficacy validation