20452PF.

AC Collagen Preptide PF

PROTEINS

Active Concepts

VEGAN

IN VITRO

THE FEATURES.

Collagen, the fourth most abundant protein found in the body, is the principal structure protein found in the body's molecular scaffolding. The scaffolding is a complex matrix of proteins and proteoglycans that support internal organs, as well as the skin. The proteinic structure of collagen is composed of three alpha chains of amino acids that are distinguished with a primary molecular sequence of Gly-X-Y (Glycine-X-Y) with proline and hydroxyproline at X and Y. AC Collagen Preptide PF utilizes the three-chain amino acid sequence that replicates the amino acid sequence occuring throughout our own collagen protein structure: Glycine-Proline-Hydroxyproline, or Gly-Pro-Hyp.

Tripeptide-29

actions

Peptide Technology
Collagen Synthesis
Plumping
Firming

TECHNICAL DATA SHEET.

AC Collagen Preptide PF

THE REGULATION.

INCI. Tripeptide-29
CAS. 92113-31-0
EINECS. 295-635-5
EUROPE. Compliant
USA. Compliant
CHINA. Contact Us

THE SPECIFICATION.

Origin. Synthetic/Botanical/Bacteria
Natural Antimicrobial. Leuconostoc/Radish Root Ferment Filtrate*
Preservatives. None
Solvents Used. None
Soluble/Miscible. Water Soluble
Appearance. Clear to Slightly Hazy Liquid
Use Level. 0.10 - 1.00 %

** Please note this product contains Leuconostoc/Radish Root Ferment Filtrate (Tradename: M15008-Leucidal® Liquid) - produced by Active Micro Technologies, LLC - containing 18.0–22.0% Phenolics (tested as Salicylic Acid). Please refer Leucidal® Liquid product literature for additional information.*

THE STORY.

Degradation of collagen is one of the leading causes of wrinkle formation as it is a natural effect of consumers growing older. There are many ways to preserve a youthful appearance, although many of those procedures are quite invasive. Topical applications of soluble collagen can mask the appearance of wrinkles; however, the issue comes with maintaining those collagen levels, as that is the imperative step in a comprehensive, anti-aging skin care regimen. Traditionally, collagen has been derived from animal sources but the personal care industry is evolving due to consumer preference. Consumers, now more than ever, are basing their purchases on whether or not the ingredients are vegan, cruelty free, and sustainable. Thankfully, new technology is allowing for consumers to gain those highly sought after, well-known benefits from plant or synthetic sources without compromising on the quality.

This pure peptide is the synthetic form of Gly-Pro-Hyp tripeptide, scientifically known for significantly increasing collagen synthesis and being able to repair the skin. The proline and hydroxyproline are sourced from glutamic acid, a proteinogenic amino acid, which is found abundantly in certain seaweeds. Glycine, on the other hand, is derived from ammonia. AC Collagen Prepeptide PF is produced without the use of animal-derived products or genetically modified organisms. With a molecular weight of 285 Daltons, it also shows excellent bioavailability. This product is ideal for anti-aging skin care applications where promoting wrinkle reduction, firming, and plumping benefits are desired without the use of animal-derived sources.

THE SCIENCE.

Collagen consists of 28 different proteins, with the most common forms being labeled as Collagen Types 1 - V. The variability of the collagen types depends on the amino acid chains and the number of those amino acid chains. The most abundant type of collagen is Collagen Type 1, making up 90% of bone organic mass and is the major collagen in tendons, cornea, ligaments, and interstitial connective tissues. These collagen fibers provide structural integrity to support the epidermis while simultaneously providing elasticity and firmness. As skin is the first layer of protection to the body, it is constantly subjected to environmental conditions such as exposure to the sun and pollution. Additionally, intrinsic stressors contribute to the deterioration of the skin, along with dermatological disorders. While many factors can contribute to the quantity and integrity of collagen in the skin, many companies in the personal care industry have made it their goal to combat the degradation of collagen.

Tripeptide-29 is the main component of Collagen Type 1, and by topically applying this fragmented amino acid sequence, it is “tricking” the skin into producing more collagen. Young skin is classified as having 80% Type 1 Collagen and around 15% Type III Collagen. As consumers age, those percentages decrease by about 1.5% a year. Aged skin presents shorter and thicker fragments of Type 1 Collagen, resulting in an altered ratio of the collagen types. The density of elastin and collagen declines, causing the skin to become more rigid and thin. When the elasticity declines, it becomes more difficult for the skin to retain its suppleness and does not conform as closely to the contours of the face, making the skin to appear saggy. Therefore, it is not only important to replenish the collagen present on the skin through topical application, but it is maintaining the collagen that will elicit more effective results. AC Collagen Prepeptide PF is a vegan alternative that will allow the skin to maintain and produce more collagen, leading to firmer and plumper skin.

AC Collagen Preptide PF

THE BENEFITS.

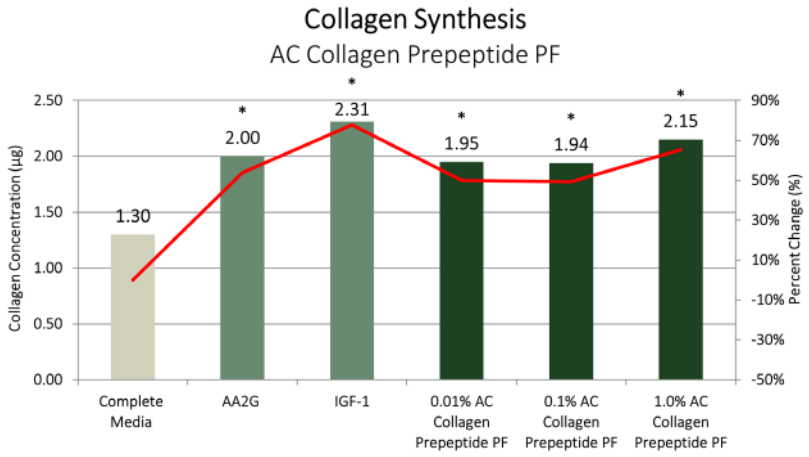
Collagen Synthesis *Sirius Red/Fast Green Collagen Analysis*

Boosts Collagen *Pro-Collagen ELISA*

THE EFFICACY.

Sirius Red/Fast Green Collagen Analysis

A Sirius Red/Fast Green Collagen Assay was conducted to assess the changes in collagen synthesis by AC Collagen Prepeptide PF treated in-vitro cultured human dermal fibroblasts. Sirius Red is a unique dye that binds specifically to the helical structure of types I through V collagen, while Fast Green binds to non-collagenous proteins. These two dyes work in conjunction to provide a semi-quantitative method of determining amounts of collagen and non-collagenous proteins in a sample. Human dermal fibroblasts were seeded into 24-well tissue culture plates and allowed to grow to confluency in complete DMEM. 1%, 0.1%, and 0.01% concentrations of AC Collagen Prepeptide PF were added to the serum-free DMEM and incubated with fibroblasts for 24 hours. Ascorbic Acid and IGF-1 were used as positive controls.



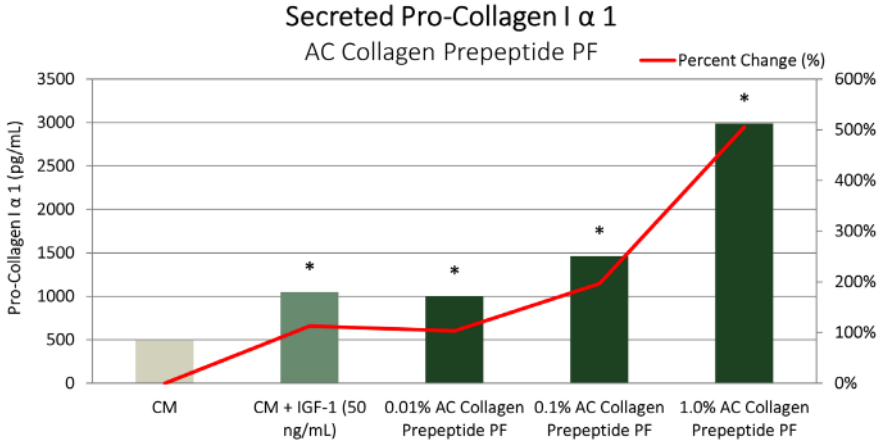
Increases collagen synthesis by +65% compared to untreated fibroblasts **(at 1.0%)**

Pro-Aging.

Improves dermal-epidermal junction integrity & Promotes younger complexion

Pro-Collagen ELISA

A Pro-Collagen I α 1 ELISA was conducted to assess the in vitro effect of AC Collagen Preptide PF on the extracellular release synthesis of Pro-Collagen I α 1 from human dermal fibroblast. The Pro-Collagen I α 1 ELISA Kit operates by mixing an affinity tag labeled capture antibody with a reporter conjugated detector antibody that binds to Pro-Collagen I α 1. After Pro-Collagen I α 1 is labeled, an immobilized complex is formed upon binding to anti-tag antibodies coating the wells. Unbound materials are removed during washing steps, and adding 3,3',5,5'-tetramethylbenzidine (TMB) Development Solution generates a blue color that is catalyzed by horseradish peroxidase (HRP). Adding Stop Solution to samples finalizes the color change from blue to yellow and absorbance is measured. The signal generated is proportional to the amount of bound Pro-Collagen I α 1 and concentrations are calculated.



Increases levels of Pro-Collagen I α 1 released from fibroblasts by +506% compared to untreated fibroblasts **(at 1.0%)**

Pro-Collagen.

Improves scaffolding matrix & Promotes healthier complexion

References
1. Mazzocchi A, Leone L, Agostoni C, Pali-Schöll I. The Secrets of the Mediterranean Diet. Does [Only] Olive Oil Matter? Nutrients. 2019 Dec 3;11(12):2941. doi: 10.3390/nu11122941. PMID: 31817038; PMCID: PMC6949890.
2. Soomin, B et al. "A Study on the Skin Anti-wrinkle Effect of Novel Palmitoyl Tripeptide." Journal of Korean Cosmetic Society. 36.1 (2010): 65-69.

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