

COLLAGEN PEPTIDES FOR A HEALTHY LIFESTYLE



Collagen Peptides for a Healthy Lifestyle

PRODUCED & MARKETING BY ROUSSELOT

Peptan[®]

DARLING
INGREDIENTS

PEPTAN® COLLAGEN PEPTIDES

FUNCTIONAL FOODS AND SUPPLEMENTS, A BOOMING MARKET

Today's consumer is more interested than ever in the benefits provided by the nutritionally-enhanced foods, drinks and dietary supplements. As a result, the global functional food market is projected to reach approximately \$2.5 billion by 2020.¹

As understanding of the health benefits provided by these products continues to grow, so does the manufacturer demand for high quality, safe and natural ingredients to produce them. These ingredients must also be substantiated by scientific studies to ensure long term success.

COLLAGEN PEPTIDES, A HISTORY OF EFFICACY

Collagen is the most abundant protein in the human body. A key constituent of all connective tissue, it provides the infrastructure of the musculoskeletal system and is the main structural element of skin.

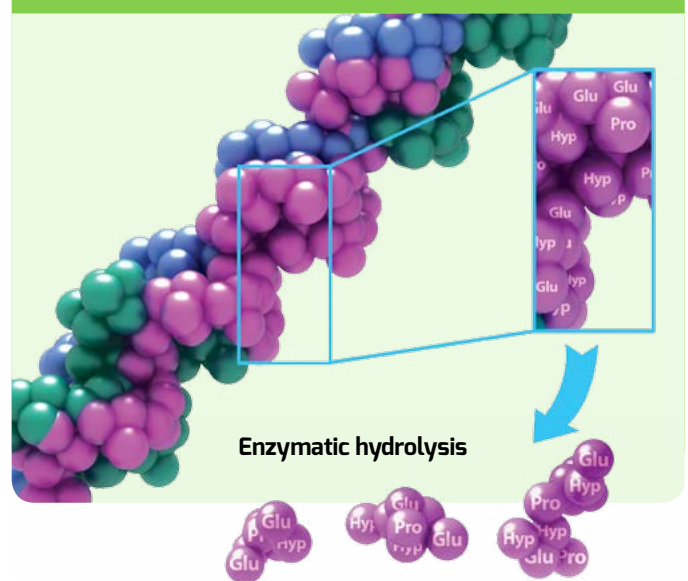
Collagen peptides are the hydrolyzed form of collagen. Their health benefits have been recognized for almost ten centuries. They have a long history of use in Asia, particularly Japan, where they are the nutricosmetic of choice for skin beauty. Today, collagen peptides are a trusted ingredient by consumers throughout the world.

HIGH PERFORMANCE COLLAGEN PEPTIDES BACKED BY SCIENCE

Rousselot's Peptan ingredients are unique, high-purity bioactive collagen peptides. They are manufactured using a gentle enzymatic process, enabling a precise degree of hydrolysis and optimal molecular weight, to ensure superior performance and ease of use.

Peptan has been specifically developed to deliver multiple health benefits and functional properties. Numerous scientific studies, including in-vitro, in-vivo and double blind placebo

Native collagen is composed of a large triple helix molecule. The much smaller and easily digestible Peptan collagen peptides are produced by a carefully controlled enzymatic hydrolysis.



clinical studies, have demonstrated Peptan's ability to promote healthy living and its benefits in key areas:

BEAUTY FROM WITHIN

Reversing skin aging by improving collagen structure

HEALTHY AGING

Promoting mobility, helping healthy agers to maintain physical well-being and stay active

SPORTS NUTRITION

Boosting sport recovery and heightening sports performance levels

JOINT AND BONE HEALTH

Supporting musculoskeletal health for an active lifestyle

THE SCIENCE BEHIND PEPTAN®

PROMOTING SKIN BEAUTY FROM WITHIN

For many of us, maintaining a youthful and attractive appearance is crucial. Collagen provides an important support structure for skin to ensure this. Peptan collagen peptides are a powerful anti-aging ingredient, promoting skin elasticity, suppleness and hydration. Research suggests that ingestion of collagen peptides triggers the synthesis of new collagen fibers, supporting skin tissue structure and mechanical strength.⁴

Double-blind placebo-controlled clinical studies showed that Peptan significantly decreased the fragmentation of collagen in the deep layer of the dermis by -18% after 4 weeks and as much as -31% after 12 weeks of intake. Peptan also significantly increased the density of collagen in the dermis by +9 % after 4 weeks of intake. Skin hydration increased by an impressive 28%, counteracting the appearance of the dry skin that typically occurs through aging.⁵

PROMOTING MOBILITY – MAINTAINING HEALTHY JOINTS, BONES AND MUSCLE

Staying active and healthy for longer is key to maintaining a good quality of life as we get older. Peptan is uniquely positioned to help achieve this goal. During aging, the cells activity and ability to produce collagen decrease, leading to changes in the musculo-skeletal system. Maintaining normal collagen level in connective tissues is important to maintain mobility. Peptan can promote chondrocytes (cartilage cells) synthesis, producing increased aggrecan and collagen type 2, the two main components of cartilage.⁶ This supports the formation of new cartilage.

Results of recent placebo controlled clinical studies also show Peptan's ability to promote healthy joints and keep them flexible and comfortable.⁷

Multiple in-vivo studies suggest Peptan's ability to stimulate osteoblasts (bone formation cells), to support bone mineral density, size and strength.^{8,9}

Collagen peptides are also believed to be more effective than whey protein in preserving muscle mass during the consumption of an older person's typically low protein diet.¹⁰

EFFECTIVE BLENDS FOR SPORTS NUTRITION

Multiple studies demonstrate the benefits proteins and collagen peptides provide for sports recovery after exercise and in fitness/weight management programs, making them the clear choice for use in balanced protein blends for sports and active nutrition. Collagen peptides support connective tissues and limit discomfort as well as the risk of any joint related injury, by increasing the production of cartilage matrix, aggrecan and type II collagen.¹¹ Peptan may also support the synthesis of creatine – which aids muscular contractions during periods of high intensity exercise.¹² It can also support joint health after high impact exercise. And, with the number of obese and overweight people on the increase, solutions that offer a satiating benefit are also in demand. Peptan, as a pure protein, is associated with a satiating effect.

SCIENTIFIC REFERENCES

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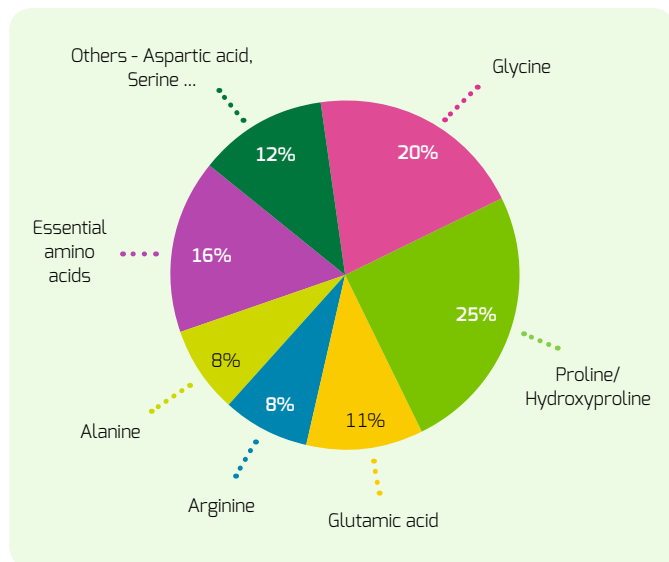
THE PERFECT COMBINATION FOR SUCCESSFUL INNOVATION

Peptan collagen peptides offer a unique mix of health benefits and functional capabilities. They are the ideal option for manufacturers aiming to efficiently and cost-effectively boost the nutritional qualities of their products.

A UNIQUE PROTEIN WITH KEY AMINO ACIDS

Peptan are Type 1 collagen peptides, the most common collagen found in human bones and skin.

They are characterized by a unique combination of 18 key amino acids – with a particularly high concentration of glycine and proline/hydroxyproline. This very specific amino acid composition provides Peptan with bio-functional properties that cannot be found in other protein sources.



DIGESTIBLE AND BIOAVAILABLE

Unlike native collagen, Peptan collagen peptides are highly digestible and bioavailable. Studies have demonstrated that over 90% of hydrolysates are digested and available in connective tissues within a few hours of ingestion. This rapid availability ensures the effective delivery of essential peptides and amino acids to the body.³

NEUTRAL IN TASTE AND ODOR

Peptan delivers excellent organoleptic properties, imparting no distortion in the taste or odor of finished products – even when used in high concentrations. Our extensive R&D capabilities and uncompromising QC sensory testing panels ensure Peptan's consistently superior sensory profile.

CLEAN LABELS NATURALLY

Peptan is derived from natural sources and is free from any side-effects. The bioactive peptides contain more than 97% protein (on a dry weight basis). A clean label ingredient, it can be declared as: collagen peptides, collagen hydrolysate, gelatine, hydrolyzed collagen, hydrolyzed gelatine or gelatine hydrolysate.

EASY-TO-USE

Several key functional properties mean Peptan can be easily incorporated into applications with little requirement for any additional product reformulation. These include:

- Instant solubility in cold and warm liquid
- Superior wettability
- Transparent in solution
- Heat and pH resistance
- Dust-free powders
- Excellent flowing properties



Peptan is the ideal bioactive ingredient to include in a wide range of applications, from functional foods and drinks, to dietary supplements, protein bars, powders and tablets.

MULTIPLE PEPTAN® SOLUTIONS DELIVERING A VARIETY OF PRODUCT BENEFITS

Our global leadership in the production and supply of collagen peptides, combined with our worldwide presence and customer-centric culture, enables us to be a close and reliable partner to the companies that work with us.

With our vast experience and technical knowledge we can offer the widest range of collagen peptides to match a variety of innovative product requirements.

THERE IS A PEPTAN SOLUTION TO MEET EVERY FORMULATION NEED

The Peptan range is available in three raw material origins and two main standard grades (based on molecular weight):

- Peptan® P: Porcine collagen peptides
- Peptan® B: Bovine collagen peptides
- Peptan® F: Fish collagen peptides

QUALITY ASSURED

Manufactured in our state-of-the-art certified plants in France and Brazil, Peptan meets or exceeds the highest international food and quality standards, and is fully traceable.

These premium quality collagen peptides are natural, safe and free from preservatives and additives. Peptan B and F are Kosher and Halal certified.

GLOBAL SUPPORT

Our international team provides first-class service throughout the product development process. And thanks to a global network of manufacturing facilities and application centers,

our technical experts are always available, whatever your location, to provide local application advice in:

- Product development and formulation
- Manufacturing
- Technical issue resolution
- Local and international regulatory guidance
- Scientific data and supporting documentation
- Product marketing and branding

SELECT PEPTAN® TO BENEFIT FROM OUR COMMITMENT TO:

Science Extensively tested in vitro, in vivo and in placebo controlled clinical studies

Quality Peptan is 100% produced in our state-of-the-art plants

Safety Safe, natural and fully traceable

Brand Reassurance of working with a globally recognized brand that is respected by both industry and consumers

Innovation Global network of technical experts support you in new and innovative product development

Formulation Formulation expertise provides the perfect solution for your application

Peptan	Molecular weight	Powder density	Solubility	Odor and taste in powder
Peptan® P Peptan® B Peptan® F	2000 Da	High density	Good	Neutral
		Low density	Excellent	Neutral
	5000 Da	High density	Good	Neutral
		Low density	Excellent	Neutral

High density = 0.40 – 0.55 g/cm³ Low density = 0.25 – 0.35 g/cm³

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About Rousselot and Peptan:

Rousselot and Peptan are both brands of Darling Ingredients Inc. Rousselot is the global leader of gelatin and collagen peptides. Rousselot's wide range of collagen peptides are marketed under the Peptan brand. We work in partnership with our customers all over the world, delivering innovative and advanced ingredient solutions manufactured through state of the art operations. We help our customers achieve their goals, enabling them to create world class pharmaceutical, food and nutritional products to inspire and excite today's demanding consumers.

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