IDEAL PHARMA PEPTIDE

PEPTIDE WORLD COMPANY

SHORT REVIEW

SHORT PEPTIDES AND PEPTIDE COMPLEXES

2018

WWW.IDEAL-PHARMA-PEPTIDE.COM
Ideal Pharma Peptide — innovative company

Using international experience and knowledge concerning peptides, the company has developed production technologies and methods of analysis for peptide complexes; it conducts researches on the efficacy of their use, both in pure forms and in peptide-based products.

Sophisticated, high-tech process of the peptide and peptide complex production implies presence of complex biotechnological innovations and techniques, enormous scientific and laboratory facilities, it allows the company to take a leading place in a new segment of the market of peptides and commodity systems based on them.

Peptide complexes for the pharmaceutical, food and cosmetic industries for the production of sports nutrition and dietary supplements designed by Ideal Pharma GmbH were the embodiment of the global research results.

Peptide complexes we offer represent high-tech raw materials ready to use in your ambitious plans.

This is an opportunity to create innovative products and bring them to the market.
History and prospects of Peptide Complexes

For the first time...
1900s
Peptides were discovered by the German chemist Hermann Emil Fischer. In 1900, he put forward the hypothesis that the peptides consist of chains of amino acids formed by certain bonds. Already in 1902 he obtained an irrefutable proof of the existence of peptide bonds, in 1905 he invented a method of peptide synthesis in vitro.

Once upon a time...
1970s
For the first time it was possible to “preserve” embryonic cells. The experiments of Dr. Otto Warburg, a Nobel laureate in the field of Biology, proved that cell cultures which underwent such treatment retained their basic properties. After that the world’s first cellular cosmetics appeared which later grew into an extensive and promising area of dermal reductants.

Recently...
1990s
Professor Jean Martinez provided valuable insights into the field of Methodology of Organic Synthesis and Peptide Synthesis as well as into the development and synthesis of various selective neuropeptides and biomaterial containing biomolecules with strong effects.

Professor Vladimir Khavinson has been conducting researches in Biochemistry, Gerontology and Immunology. His work in these fields allowed for the development of the concept of regulation of peptides causing aging, finding new opportunities for applying peptide bioregulators to retard aging processes, expand and increase the quality of life by correcting the work of all body systems. Professor Khavinson’s innovative development in the field of synthesis research and further use of short peptides is revolutionary.

Today...

Since the end of the last century, peptides have been widely used in sports, replacing hormones. For an athlete to gain strength, endurance and rapid recovery, training and proper nutrition are not sufficient. He/she definitely needed pharmacological agents providing the selective effect of a range of hormones, yet not violating the general hormonal background.

The essential difference of peptide complexes developed by Ideal Pharma Peptide GmbH is the simplicity and availability of the peptide application, they are embedded in the usual products for sports (BCAAs, Arginine, Glutamine, Carnitine, Creatine, Taurine, etc.) at the molecular level, these products are used by every, not even a professional, athlete.

Tomorrow...

Science is going from discoveries to practice in leaps and bounds. Just over a hundred years has passed since the discovery of peptides, and we have them on our table, in our home and life.

Investments in innovations increase your profits

Investments in innovative products eventually lead to a high added value when compared to the products available on the market and thus maximize the profit of your company. Standard products presuppose strong competition and a lower added value for the manufacturing company.

We offer our partners an opportunity to increase rentability via lower expenses, to improve technology and make the most of the production capacity. Actual production costs (staff, space, equipment and energy) are reduced, there is no residual stock at the warehouses, there is no need to purchase additional components (anti-clotting agents, moisture retainers, sliding agents and others), there is no need to address the issues of mixing and obtaining a homogeneous raw material or considering different periods of raw material shelf life and its availability at your production site.

By receiving ready-made innovative complexes, our partners obtain a business solution with a high added value of the end product. Taking into account that each product brought to market has its own life cycle, we strive to be a step ahead and offer innovative complexes right from the beginning which will allow our partners to redesign the future portfolio of their product line.

In today’s fast-paced world, investments in innovation represent the company’s competitiveness.

For the first companies presenting innovative products will seize a significant market share and maximize their profits.

The amount of global market of products containing peptides, bln $
CHAPTER 1

SHORT PEPTIDES
Peptides are one of the newest directions in clinical and sports nutrition

As shown by scientific researches, protein molecules after ingestion are sequentially degraded as they pass through the gastrointestinal tract: first to large fragments, then to medium and small (short) and finally to separate amino acids.

It was believed until quite recently that only amino acids get absorbed from the intestine tract into the blood system after digestion (acid and enzymatic cleavage). However, it turned out that short fragments of proteins can also be transported from the intestinal lumen to the blood and lymph, affecting all organs and systems of the body.

The discovery of short peptides significantly increased the possibilities of prevention and treatment of various diseases, as well as the opportunities of increasing functional capacities of athletes in different sports.

The structure of short peptides served as basis for creating biologically active food supplements (also known as dietary supplements) with targeted properties. They are used as independent food substances, are included into complexes with other nutrients (proteins, fats, carbohydrates, minerals and vitamins) and also form part of the composition of functional foods.

Peptides are a family of substances where molecules consist of amino acid residues

Peptides are structural components (fragments) of proteins, which are formed at various stages of their metabolism in the body, in particular, after ingestion with food or food supplements. In addition, they are synthesized inside the body during the process of biochemical transformations of amino acids.
Peptides are an important building material indispensable to the body of any person

Peptides and amino acids which form part of the peptide composition can be embedded into various cell formations, enzyme systems by contributing to the maintenance of the structure and function of all organs and tissues.

These properties are defined as “nutritious” (“nutritive”). In addition, they participate in the transfer of information from one cell to another, which ensures maintenance of homeostasis and preservation of the intercellular balance.

Peptides are regulatory molecules that restore the normal course of metabolic processes in case of their deviation from the usual parameters

Diseases, impact of external stress factors, including physiological and mental stress in sports

Peptides actively fight against ageing processes of the body. Penetrating into the body, they activate the mechanism of cell repair, increase cellular resistance to the damaging factors including toxins. These properties are referred to as “regulatory non-nutritive”.

According to the international definition, a bioactive peptide is a protein fragment that, along with nutritional properties, has specific biological functions.

The list of such functions is sufficiently long, and, as a rule, is linked to the course of individual diseases and pathological conditions. Recently some short peptides have obtained confirmation of their efficacy in sports. The general name for short peptides with targeted biological properties is “regulatory peptides”. From the point of view of sports and clinical nutrition, they belong to the group of pharmaco-nutrients, i.e. substances that combine nutritional properties with regulatory.
Peptides stimulate protein secretion, which is especially important for athletes

If the body cannot cope with the task of building muscle mass independently, then it needs to be helped. For this very purpose scientists have created short peptides — they are based on “useful” amino acid residues, which actively help the body to recover after any physical effort.

Steroid drugs leaving an indelible imprint on the body condition and causing a number of serious side effects with long-term consequences, have been replaced by the “perfect” short peptides, true “helpers” of any athlete.

Short peptides used in sports include di-, tri- and tetrapeptides, containing respectively two, three or four amino acid residues. They can be obtained both from natural proteins through enzymatic hydrolysis as well as synthetically. The safest are the peptides produced in vitro. They don’t contain any harmful additives of animal origin: viruses or other foreign “agents”.

There are as well Intermediate products between proteins and short peptides which are called deep protein hydrolyzates, in which the share of short peptides can reach 80%. During recent years, very intensive development has been achieved by the enzyme technology of obtaining deep hydrolyzates from not only milk proteins so popular in sports, but also from vegan proteins: pea proteins, rice, etc.

The following short peptides are the mostly common ones to be used in sports as food supplements: glutathione (tripeptide consisting of glutamic acid, cysteine and glycine), dipeptides L-alanyl-L-glutamine and glycyl-L-glutamine, chelate compounds of dipeptides with magnesium and other metals.
Peptides are substances with molecules consisting of two or more amino acid residues. The amino acid residues form together peptide bonds. This is a chain of physiologically active substances that play an important role in the metabolic and regulatory processes in the human body.

Polypeptides are "long" peptides, the sequence of which consists of 50 or more amino acid residues. The intake of the so-called long peptides has a bad effect on the state of the body, which perceives such a long chain of molecules as a foreign substance. Moreover, widely advertised long peptides are often fragments of the growth hormone, require to be injected and are prohibited by the World Anti-Doping Agency (WADA) for the purpose of nutritional metabolic support (NRM) of athletes. The only acceptable option is the use of short peptides in the form of dietary supplements alone or as part of a functional diet.

Short peptides have become a safe alternative to doping steroid pharmacology in sports.

Amino acids | Peptides | Protein

Polypeptides

< 20x

> 50x

Polypeptides
The peptide trend in clinical and sports nutrition is one of the most promising in the world.

For example, development of cooperation plans during 2018 between the Swiss food and drinks giant "Nestlé" and the Irish company "Nuritas" over creating a whole network of bioactive peptides for various important targeted tasks in medicine and sports.

The cooperation will be based on Nuritas innovative technologies using the DNA analysis and artificial intelligence to predict, construct and validate chemical structures of peptides with specified properties from food sources.

A distinctive feature of short peptides is the existence of an intrinsic system of transport through the intestinal paries into the blood.

After ingestion and penetration into the intestinal lumen, short peptides are captured by the epithelium transport protein PEPT1 and are transferred unchanged to the blood and lymphatic systems. This process is faster than even the transfer of individual amino acids.

Further, short peptides are delivered to the brain with the blood flow, where they are also transported by the protein PEPT2 directly to the structures of the brain. This allows short peptides to regulate a number of brain functions and to adapt the body to the action of physiological and psychological stress.
Over the past 10 years short peptides have enjoyed positive results from the point of view of evidence-based medicine\(^1\) in a number of sports: from endurance to strength disciplines.

An important feature of short peptides is the ability to accelerate and intensify the intestinal utilization of proteins, fats, carbohydrates, individual amino acids and fatty acids, vitamins and minerals.

Scientific studies have shown that di- and tripeptides accelerate recovery, reduce micro damage and soreness of muscles in the post-training period.

Therefore, short peptides in most cases are not applied separately, but in combination with amino acids, protein hydrolyzates, substances that stimulate muscle growth and development (creatine, beta-alanine, BCAA, etc.).

Peptide complexes are becoming increasingly popular among athletes due to the universality of the action.

\(^1\) — randomized double-blind placebo-controlled studies
One of the most modern, but still little developed directions in creation of peptide complexes is the use of chelate compounds of short peptides.

Amino acids and short peptides can form strong chelate complexes with bivalent metal ions. The stability of the complexes changes in the following sequence:

- Cu²⁺
- Ni²⁺
- Zn²⁺
- Co²⁺
- Fe³⁺
- Mn²⁺
- Mg²⁺

From the point of view of the science of sports nutrition, a full course intake of each chelate compound based on a short peptide has several purposes:

1. increasing the peptide's bioavailability (improving absorption, transport and assimilation by the body);
2. reducing the minimum effective dose to obtain the final result (less chance of unwanted side effects);
3. increasing the physico-chemical stability of the product;
4. prevention of microelementoses (insufficiency of a micronutrient in the body);
5. enhancing the positive effect of peptides and amino acids on the state of muscles.

The chelate compound of magnesium and glycyl-L-glutamine

The future of nutrition for people who care about their health is in the choice of such foods and dietary supplements that correspond to the maximum extent to the genetic and phenotypic characteristics of their body.

During the last 2-3 years, many conferences, symposia and congresses on personalized medicine and nutrition have been held.

They were attended by international experts of dietetics, nutritional science, gastroenterology, personalized medicine, life sciences and other spheres involved in the creation of technologies of saving health and of preventive medicine.

An important regulatory role of peptides in ensuring metabolism in the body and dependance of this effect on genetic factors and on the way of life of an individual have been confirmed.
The peptide complex, properly selected according to its qualitative and quantitative composition, is one of the most important structural components of nutritional and metabolic support in sports and clinical medicine.

Such complexes act as “catalysts” for the nutritional action of proteins, fats and carbohydrates (macronutrients), eliminating energy and nutritional deficiencies in organs and tissues and ensuring optimal functioning of the body.

Development and introduction of peptide complexes into practice is the present and future of our medicine.
CONTACTS

GERMANY
- +49 617 285 06838
- Ferdinandstr. 11 Bad Homburg
- sale@ideal-pharma-peptide.com
- www.ideal-pharma.de

RUSSIA
- +7 800 777 3828
- 1-й Тружеников переулок 17, Москва
- sale@ideal-pharma-peptide.com
- www.ideal-pharma.ru

CHINA
- +86 155 021 03091
- 116 Shimen Yi Street, Jingan Area, Shanghai
- sale@ideal-pharma-peptide.com
- www.ideal-pharma.cn

USA
- +1 908 727 8080
- 145 Wyckoff Road, Suite 106 Eatontown, NJ
- sale@ideal-pharma-peptide.com
- www.ideal-pharma.us