Peptide Bioregulators GUIDE

Based on the translation

# of Peptide and Non-Peptide Bioregulators in the Correction and Prevention of Age-Related Pathologies

Educational and Methodological Manual

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Modern understanding of aging

Aging is associated with changes occurring at all levels of living matter—molecular, subcellular, cellular, systemic, and at the level of the entire organism.

There are different perspectives on the causes of aging. One view is that aging is a genetically programmed process, the result of a natural unfolding of a program embedded in the genetic apparatus. According to this theory of genetically programmed aging, environmental and internal factors have little impact on the rate of aging. Another view suggests that aging is the result of the body's gradual breakdown, driven by the inevitable damage caused by shifts that occur throughout life. This perspective sees aging as a multifactorial process, where various factors act repeatedly and accumulate over time (stochastic theories, or wear-and-tear theories).

The search for processes that could be considered specific to the onset of aging has been a central focus of gerontological research since its inception as a science. Many scientists have sought to identify these processes as the "root cause" of aging.

Currently, there are over 200 different theories attempting to explain the various changes that occur at different levels—from the whole organism and its systems and organs to the cellular and molecular levels.

Even normal aging is characterized by a reduced ability of the body to adapt to changes in the environment, making it more susceptible to diseases and damage. As aging progresses, all organs and systems undergo significant changes.

Aging affects the overall size, shape, and composition of the body, including the soft parts of the face and the skin and its derivatives.

HEIGHT

The reduction in body height during aging is primarily due to the flattening of intervertebral discs and an increase in stooping, which leads to the development of senile kyphosis—a curvature of the thoracic spine.

The most pronounced stooping typically occurs after **age 65,** though it can begin as early as **age 40**, depending on an individual's posture and lifestyle.

BODY WEIGHT

Decreases significantly in old age, especially in the elderly and those who live to advanced ages. Between the ages of 36 and 60, the average weight for men is around 78.2 kg, and for women, it is 66.2 kg. By the time they reach 61–74 years, these figures drop to approximately 66.5 kg for men and 60.6 kg for women.

The age-related decrease in body weight is more pronounced in men than in women, with the exception of centenarians, where the difference becomes minimal.

MUSCLE MASS

Is at its peak and remains relatively stable between the ages of 20 and 30, after which it begins to gradually decline, a process that accelerates notably after the age of 50. One of the clear signs of aging is the loss of muscle strength.

Optimal grip strength in both men and women is reached between the ages of 30 and 40. A gradual decline begins after age 35, and by the age of 70–80, strength levels have decreased by roughly half.

The distribution of subcutaneous fat also changes, shifting from the cheeks to the lower part of the face. The cheekbones become more prominent, while fat accumulates in the chin, neck, chest, and abdomen areas.

Age-related changes in the **neuroendocrine system,** which plays a key role in regulating metabolic processes and life functions, are central to the aging of the whole organism.

The number of nerve cells—neurons—noticeably decreases from the age of 50–60. The average brain weight in men aged 20–30 is about 1,394 grams, whereas by age 90, it drops to just 1,161 grams

Changes in **mental activity** with age depend not only on universal biological processes and individual (constitutional) traits or health conditions but also on social factors.

These include a reduced scope of activity and the predominance of negative emotions, such as pessimism and sadness, which can accelerate aging. Social isolation, loss of loved ones, fear of illness, loneliness, and financial difficulties also play a significant role.

From a functional perspective, there are several types of aging, which may either follow one another or occur independently after the end of mature adulthood:

1

Ideal aging is characterized by a high level of preservation of the body's functional reserves until the final days of life. For individuals experiencing this type of aging, it is important to provide dynamic monitoring and implement geroprophylactic measures based on non-pharmacological and behavioral methods.

2

Preserved aging involves a gradual decline in motor and work capacity, though these functions are still maintained. For this type of aging, it is crucial to ensure timely identification of exacerbations or decompensations of existing conditions, as well as the emergence of new diseases, alongside preventative care.

3

Independent aging is marked by a significant reduction in the body's functioning and a limitation of activity, though the individual remains capable of self-care and does not depend on external assistance. In this case, comprehensive geriatric assessments should be conducted to identify geriatric syndromes and develop medical and social rehabilitation programs.

4

Aging with the development of frailty is characterized by unstable health and social activity. These individuals often have multiple chronic conditions with frequent exacerbations and decompensations. At this stage, there is a significant dependence on external help and a high demand for medical and social rehabilitation measures. It is essential to identify and address geriatric syndromes promptly.

5

Aging with partial dependence on external assistance is characterized by low health potential, where a significant portion of the elderly person's life is spent in a state of dependency on outside help. Only a small range of activities can still be performed independently. In this case, the role of social services becomes increasingly important in maintaining normal life functions. It is also essential to identify geriatric syndromes and ensure rehabilitation, considering the person's functional status.

6

Aging with complete and constant dependence involves full reliance on external assistance, where the individual is bedridden and suffers from severe debilitating conditions, such as dementia. Care for such individuals focuses primarily on social and nursing measures aimed at maintaining dignified living conditions.

End-of-life period requires the organization of appropriate palliative care.

Thus, human aging is a natural biological process determined by an individual's genetically programmed development. Throughout a person's life, some components of the body age while new ones emerge. Human development can be divided into two phases: an ascending phase and a descending phase. The first ends with the organism's full maturity, while the second begins around the age of 30-35. From this point on, various metabolic processes and functional systems of the body gradually change, inevitably leading to reduced adaptability, increased likelihood of pathological conditions, acute illnesses, and death.

It is known that most people experience premature aging, characterized by the earlier onset of age-related changes compared to physiologically aging individuals.

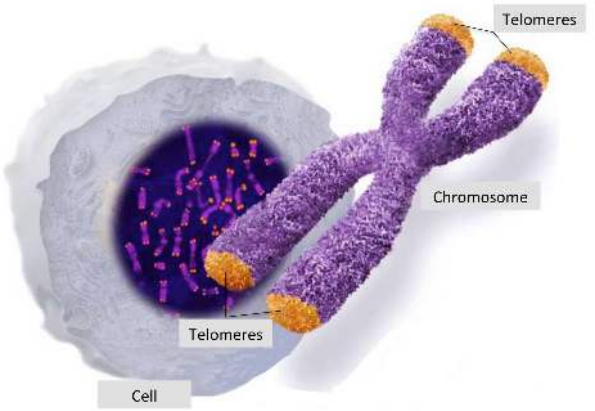
This type of aging is marked by unevenness and asynchrony (heterochrony) in the aging of different systems and organs. Premature aging is the most common form of aging after the age of 40-50, where age-related changes occur earlier than in healthy people of the same age. In other words, in premature aging, a person's biological age surpasses their chronological (calendar) age.

Chronological age refers to the number of years a person has lived, while **biological (functional) age** reflects the pace of development (or aging). During development, biological age is defined by the level of morphological and functional maturity compared to the population standard. In the aging phase, biological age represents the true extent of aging, the organism's vitality, and overall health. It is determined as the ***«sum of indicators of an individual's condition compared to the corresponding indicators of healthy people of the same age, from the same era, nationality, and geographical and economic conditions».***

Biological age depends on heredity, environmental factors, and lifestyle. This is why people of the same chronological age can differ significantly in their morphological and functional status (biological age). Among peers of the same chronological age, there are often significant differences in the rate of age-related changes. The discrepancy between chronological and biological age, which allows for the assessment of aging intensity and functional capacity, varies at different phases of the aging process.

Various morphological and, to a lesser extent, psychological indicators that reflect overall and professional work capacity, health, and adaptability can be used as criteria for assessing biological age. Recently, significant attention has been focused on studying age-related changes at the molecular level.

Some researchers believe that measuring telomere length can provide an accurate estimate of a person's biological age. Telomeres are regions located at the ends of chromosomes. Each chromosome has two telomeres, which contain specific DNA sequences that ensure accurate chromosome replication. Telomere length shows significant heterogeneity across different cells and tissues, even within the same organism.



If an individual's telomeres are significantly shorter than those of most people their age, it serves as a serious warning and a critical signal that steps should be taken to halt or slow down the processes leading to telomere shortening. Short telomeres are directly associated with aging, cardiovascular diseases, memory decline, reduced cognitive performance, fatigue, and the negative effects of oxidative and psychological stress.

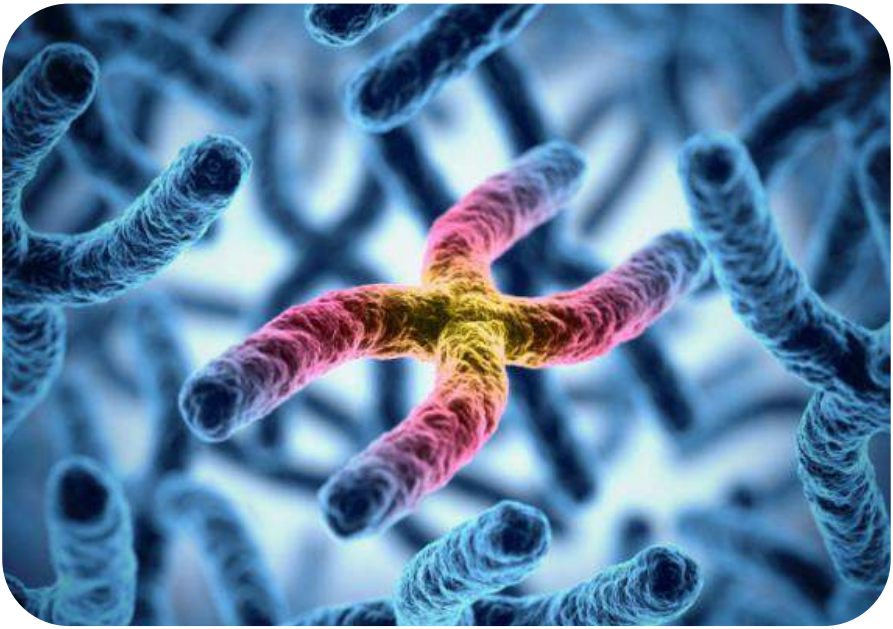
Currently, two methods for measuring telomeres are available for clinical use: the quantitative FISH method (Fluorescence In Situ Hybridization) and real-time quantitative PCR (Polymerase Chain Reaction).

PCR technology allows the measurement of the average telomere length, while the FISH method can determine both the average telomere length and the number of the shortest telomeres in a sample. The FISH method can also be adapted for very small clinical samples, including saliva, and both tests can be performed on blood samples.

Both technologies are considered highly informative, reproducible, and reliable enough for clinical use. For clinical research purposes, testing should always be carried out in a certified laboratory with significant experience in this type of research, using both methods for accurate telomere measurement.

It is important to note that, unfortunately, the main difficulties at present are not with the technique of measuring telomere length itself, but rather with the interpretation of the results. This is because telomere length in the same patient can change not only due to the expected gradual «erosion» associated with aging but also as a result of infections, other illnesses, stress, smoking, environmental factors, and many others. Since telomere length in blood cells is a dynamic indicator, it is crucial to consider all potential factors that could influence it when interpreting the results.

Currently, research has confirmed the possibility of increasing (or maintaining) telomere length in living organisms through various interventions, including the use of sex hormones, plant-based supplements, vitamins, minerals, other potential agents, or even behavioral changes. In vitro studies and experiments on mice have shown that telomere length is modifiable, leading to improvements in several age-related pathologies. Knowing one's telomere length and precise biological age can help patients better assess their health, understand the lifestyle changes they need to make, and determine whether specific preventive or therapeutic interventions are necessary.



Important Aspects of Aging Control

In the past decade, advances in theoretical and applied gerontology have made it possible to regulate age-related changes more effectively. One of the key goals of modern gerontology is to prevent accelerated aging and age-related pathology, with a focus on increasing average life expectancy, maintaining active longevity, and reaching the species-specific lifespan limit of humans.

The integration of fundamental scientific achievements into medicine has led to an understanding that progress in clinical medicine heavily depends on molecular medicine, which involves research at the level of genes and biologically active molecules. Molecular medicine also leverages advances in genetics, molecular biology, and cell biology to develop new drugs and technologies.

A significant area of molecular medicine is the study of genetic mechanisms of aging. It is now known that there are genes that regulate individual development mechanisms and the onset of various diseases. This has given rise to the field of predictive medicine, aimed at early detection of hereditary predispositions to various diseases.

Early identification can enable timely preventive measures to delay age-related diseases. One tool of predictive medicine is genetic testing and the creation of a genetic profile. This can be done at any age, but it is preferable to conduct it in childhood or early adulthood, when it is easier to establish beneficial and necessary personal behavioral and dietary habits.

With the age-related decline in cell proliferation and differentiation processes, there is an opportunity to correct these disorders by targeting gene expression (activity). Studying the genetic mechanisms of aging and age-related pathology forms the basis of regulatory therapy — using transcription modulators that inhibit or reverse age-related genetic changes.

Developing effective bioregulators that help achieve species-specific life span limits and maintain essential physiological functions is one of the most pressing issues in modern biogerontology.

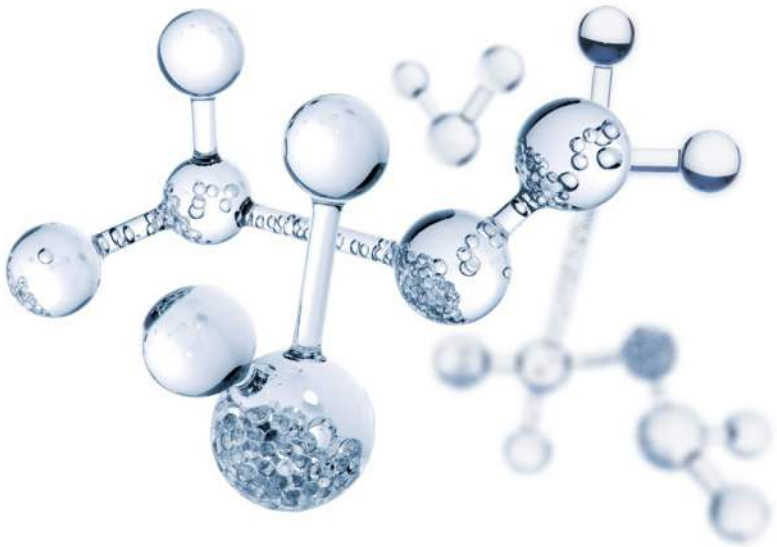
Recent scientific and clinical research has convincingly demonstrated that one effective approach to restoring disrupted mechanisms of body function regulation is the use of natural peptide bioregulators. These bioregulators have a unique ability to restore the decreased protein synthesis in the body with aging, which enhances adaptive potential and restores functional activity of organs and tissues.

It has been experimentally established that peptides regulate gene activity by binding complementarily to specific DNA regions, meaning they have gene-specific tropism and directly participate in epigenomic regulation mechanisms.

Using a complex of tissue-specific peptide bioregulators is physiologically appropriate and helps to slow the aging process under the impact of harmful factors on the body. Peptide regulation of homeostasis plays a crucial role in the complex physiological processes leading to the aging of cells, tissues, organs, and the whole organism.

Morphofunctional equivalents of aging include the involution of organs and tissues, especially those belonging to the main regulatory systems — the nervous, endocrine, and immune systems. Data indicate age-related hypoplasia and, in some cases, atrophy of the pineal gland (epiphysis), thymus, cortical neurons, subcortical structures, retina, vessel walls, and reproductive organs.

A specialized method for isolating and fractionating low-molecular-weight peptides from organ extracts has been developed to restore the functions of the thymus, pineal gland, bone marrow, and other organs.



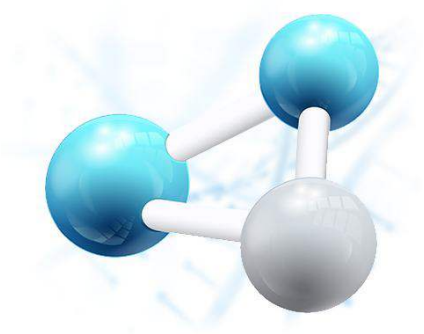
For many years, detailed studies have been conducted on the molecular weights, chemical properties, amino acid compositions, and sequences of low-molecular-weight peptides from the thymus, epiphysis, and other organs. This information has been used to chemically synthesize some short peptides. Comparisons have shown that the biological activity of natural and synthetic products is mostly identical.

For example, the thymic dipeptide GluTrp stimulated immunity, reduced the rate of aging, and suppressed the occurrence of spontaneous tumors in animals.

The biological activity of natural and synthetic peptides was similar in standard tissue culture and animal tests. These results indicate the potential for using peptides as geroprotective agents. Given the relevance of finding new geroprotective drugs, preclinical studies of peptide drugs at various levels have been conducted.

At the cellular level, it has been discovered that short peptides activate heterochromatin in the cell nuclei of elderly individuals and promote the «release» of genes that were repressed due to the heterochromatinization of euchromatic regions of chromosomes, a process that occurs with aging.

Results from 30 years of experimental and clinical studies of bioregulators conducted in leading scientific and medical institutions have demonstrated their high effectiveness.



It has been established that comprehensive use of bioregulators in elderly and senescent individuals leads to the restoration of key physiological functions of the cardiovascular, bronchopulmonary, and immune systems, normalization of liver and pancreas functions, carbohydrate metabolism, melatonin levels, and an increase in mental, psychological, and physical performance, as well as a reduction in morbidity and mortality rates by approximately 2 times. It is important to note that 30 years of use of this group of bioregulators in more than 15 million people has shown their complete safety and harmlessness, as they are natural metabolites of the body.

Currently, peptide bioregulators have already been isolated from cartilage, testicles, liver, blood vessels, bladder, thyroid gland, and other organs, as well as synthesized peptides that regulate brain function, retina, immune system, and the proliferation and differentiation of pluripotent cells.

These physiologically active substances generally have significant tissue-specific activity and are undoubtedly promising for developing new bioregulatory therapy drugs.

In the past decade, global science has paid significant attention to the role of melatonin (MT) in the body, especially in the context of aging. It is known that melatonin is a universal regulator of the neuroendocrine system, regulating circadian and seasonal rhythms, which are key factors for the vitality of all organisms.

It has been established that with aging, melatonin levels in some people decrease significantly. This has led to the use of this marker as one of the most reliable indicators of accelerated aging.

The diverse biological effects of MT, as well as its antioxidant properties, involve this hormone in the pathogenesis of various diseases, particularly those associated with age-related involution of organs and tissues, which is largely due to changes in MT metabolism with aging.

As age increases, the concentration of MT in the body decreases, which in turn leads to changes in several metabolic processes and negatively affects the function of many organs and systems.

Disruption of the circadian rhythm of MT secretion leads to significant changes in higher nervous activity: various types of sleep disturbances, dystrophy, irritability, memory and concentration issues, depressive disorders, seasonal affective disorders, and autonomic dysfunction.

Abnormal rhythmic stability causes difficulties in adapting to time zone changes, and the loss of the circadian rhythm of hormone secretion is associated with impaired adaptive capabilities and the development of neurocirculatory dystonia syndrome.

Decreased MT secretion has been observed in dementia and age-associated neurodegenerative diseases such as Alzheimer's and Parkinson's diseases.

It is hypothesized that the reduced antioxidant protection due to decreased MT production leads to oxidative stress activation and destruction of nerve tissue in these conditions. In elderly individuals experiencing headaches of various origins, a reduction in nighttime MT synthesis has been noted.

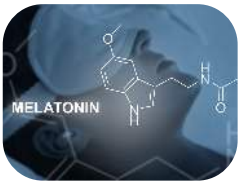
In recent years, studies on patients with various malignant tumors have shown clear changes in the level of urinary excretion of 6-sulfatoxymelatonin (6-SOMT), with the direction of these changes depending on both the histological type of the tumor and the stage of the disease. Overall, most neoplastic processes are characterized by a decrease in the level of nighttime urinary excretion of 6-SOMT.

Changes in hormone levels and rhythm have been identified in infectious processes, gastrointestinal tract disorders, rheumatoid arthritis, diabetes, and other diseases.

In patients of various ages with arterial hypertension, compared to practically healthy individuals of corresponding age groups, there is a significant increase in melatonin levels and changes in the circadian rhythm of its secretion.

A direct correlation has been established between the degree of disturbances in melatonin production and the severity of arterial hypertension. The most pronounced changes in 6-SOMT excretion have been observed in patients with moderate to severe arterial hypertension and in the elderly.

Changes in the functional state of the cardiovascular system, determined by heart rate variability and primarily manifested by increased sympathetic influences, have a clear correlational link with circadian melatonin production. Based on this, it has been hypothesized that melatonin may play a regulatory role in daily fluctuations in blood pressure in arterial hypertension.

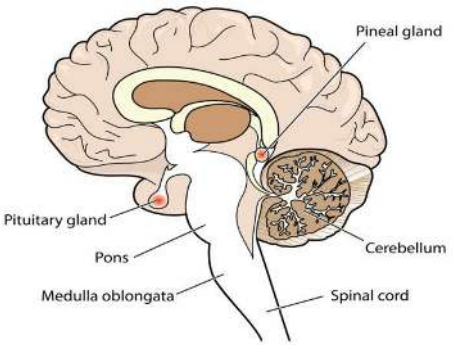


In patients with ischemic heart disease (IHD), the level of nighttime melatonin production decreases, especially during angina attacks. On the other hand, increased levels of melatonin excretion in urine have been observed in cases of orthostatic hypotension. Melatonin is produced from midnight to three in the morning. Continuous night shift work accelerates aging. Therefore, melatonin production is mainly influenced by adequate nighttime sleep (preferably in darkness) and a good mood.

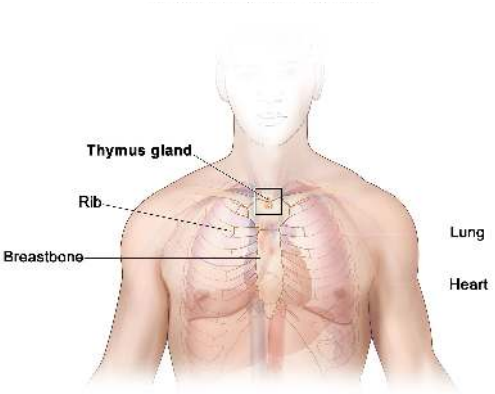
Some foods — **corn, oats, rice, raisins, tomatoes, bananas** — contain melatonin. **Synthetic melatonin can be purchased at pharmacies.** It is used for insomnia, jet lag, and similar issues.

In the U.S. and Russia, melatonin is classified as a dietary supplement, while in Germany, it is available only by prescription. Long-term use is not recommended because, firstly, there is a risk of developing tolerance to hormonal medications, and secondly, the effects of synthetic melatonin are not fully understood and are considered potentially dangerous by some scientists, as it might even promote the development of cancer cells.

Russian researchers have set a different goal: to stimulate the pineal gland to produce the necessary amount of melatonin on its own. The «hormone of youth,» melatonin, is secreted by the pineal gland. **The pineal gland is one of the most important organs in the human body— it regulates circadian and seasonal rhythms, immune function, and the functional state of endocrine glands, and protects the body from free radicals, thereby guarding against cancer, AIDS, etc. The condition of the thymus is entirely dependent on the state of the pineal gland.**



The thymus (or thymic gland) is an endocrine gland playing a crucial role in immune system development. It stimulates the development of T-cells ("thymus cells"). T-cells (a type of lymphocyte) fight foreign substances entering the body and control the production of antibodies against pathogenic agents.



In children and young adults, the pineal gland and thymus are active. With age, the pineal gland begins to degenerate and shrink, leading to a decrease in melatonin production. Consequently, the thymus also becomes less active and decreases in size, resulting in reduced production of the thymic hormone thymulin, which is crucial for the development of disease-fighting T-cells. This process leads to a weakened immune system and impaired function of organs and systems, initiating aging and the development of chronic diseases.

Furthermore, research into the function of the pineal gland has revealed that it interacts not only with the thymus but also with other endocrine glands, such as the thyroid gland, adrenal glands, and pituitary gland.

This insight has led scientists to the idea that normalizing the function of the pineal gland could potentially impact the entire body's health. Consequently, the following peptide bioregulators have been developed:

- Endoluten, a peptide-based product derived from the pineal gland, helps the human pineal gland produce melatonin in the correct rhythm. Endoluten is considered a gold standard for longevity. It increases the concentration of melatonin in the body, affecting all body systems. In experimental studies, this product has been shown to increase lifespan by 42%.

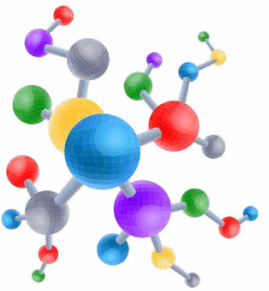
- Vladonix, a peptide-based product derived from the thymus, is responsible for restoring immunity and modulating the immune system's inhibitory functions in cases of autoimmune diseases. It provides comprehensive regulation of immune functions.

Peptide Bioregulators in the Treatment and Prevention of Age-Related Pathologies

Peptide bioregulators are a class of biologically active substances - parapharmaceuticals - that were developed at the St. Petersburg Institute of Bioregulation and Gerontology. These bioregulators are used for the prevention, auxiliary therapy, and maintenance of the physiological activity of organs and systems within the body.

Peptide bioregulators come in both natural and synthesized forms, such as **cytomax** and **cytogen.**

The new generation of peptide geroprotectors includes cytogens and cytomaxes in sublingual forms. Individualized courses of peptide bioregulators can not only normalize bodily functions but also slow down the aging process. For individuals over 30–40 years old, two to four courses per year are generally sufficient to support vital functions.



Peptides

Experimental studies have established that peptides regulate gene activity through complementary binding to specific DNA regions, meaning they have gene-specific tropism and play a direct role in epigenetic regulation mechanisms.

In this "integrated position," peptides transmit information to specific cell types, leading to the synthesis of tissue-specific proteins. This indicates that each peptide acts on a particular type of tissue or organ.

The mechanism of peptide regulation of living matter can be summarized in the following sequential stages:

1

Complementary Interaction:

Short peptides interact with DNA.

2

Conformational and Expression Changes:

Changes occur in gene conformation and expression (activity).

3

Synthesis of Tissue-Specific Proteins:

The synthesis of proteins specific to the tissue is induced.

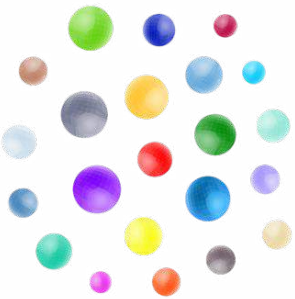
4

Regulation of Biochemical and Physiological Processes:

This leads to the regulation of various biochemical and physiological processes.

Based on the analysis of the amino acid sequence of polypeptide complexes extracted from animal organs and tissues, short peptide chains consisting of 2 to 4 amino acids have been created. These chains are copies of the «active sites» of the most significant polypeptides in their group, contained in animal extracts. This has led to the creation of a new class of products — parapharmaceuticals — collectively called cytogens.

Unlike cytomaxes extracts (a group of polypeptides), cytogens contain a single type of molecule (the most significant short peptide). They are recommended for use in the early stages of peptide therapy, as well as for short courses (10 days, 3-4 times a year) to prevent premature aging.



Amino Acids

The use of cytogens allows for the regulation and restoration of the body's protective functions, prevention of the onset and development of various diseases and pathological conditions, and acceleration of patient recovery after illnesses.

The main effect of the new peptide products on the human body is the normalization of cellular metabolism in various tissues.

Physiologically active short peptides are advisable to use as components of food products at any age to maintain normal metabolic levels, prevent and treat various diseases, rehabilitate after serious illnesses, injuries, surgeries, and slow down the aging process.

Comprehensive Use of Cytogens for the Prevention and Treatment of Functional Disorders in Various Systems of the Body:

Correction of Digestive System Function:

Ovagen, Vesugen, Crystagen

Correction of Cardiovascular System Function:

Vesugen, Crystagen

Correction of Central Nervous System Function:

Pinealon, Vesugen, Ovagen

Correction of Respiratory System Function:

Chonluten, Crystagen, Vesugen

Correction of Immune System Function:

Crystagen, Vesugen, Ovagen

Correction of Musculoskeletal System Function:

Cartalax, Vesugen, Crystagen

Correction of Urinary and Reproductive System Function:

Vesugen, Crystagen

Correction of Visual Organ Function:

Vesugen, Pinealon

Correction of Conditions After Radiation or Chemotherapy, Prolonged Exposure to Ionizing Radiation, Psychoemotional Stress, and Other Extreme Factors:

Vesugen, Ovagen, Chonluten.

Contraindications: Individual intolerance to components, pregnancy, breastfeeding.

Cytomaxes are next-generation peptide bioregulators. They contain pure concentrated peptides. These are natural peptides with an established structure, designed to optimize the functions of major body systems, derived from the thymus, cerebral cortex, pineal gland, prostate, liver, and other organs, and have a pronounced regulatory effect on protein biosynthesis processes in cells of similar tissues.

The molecular weight of cytomaxes (up to 10 kDa) differs from their predecessors, cytamins (up to 150 kDa), which facilitates their passage through the cell membrane. Therefore, cytomaxes actively penetrate the target organ, providing a quick yet gentle regulatory effect.

Natural peptides develop their action gradually, as a certain accumulation of peptides (homing effect) is needed for tissue response to replenish the deficiency. **The effect of 1-4 months of natural peptide use can last from 4 to 6 months. After this period, it is recommended to resume peptide intake.**

Comprehensive Use of Cytomaxes for the Prevention and Treatment of Functional Disorders in Various Systems of the Body:

Correction of Digestive System Function:

Vladonix, Svetinorm, Stamakort, Suprefort

Correction of Cardiovascular System Function:

Ventfort, Vladonix, Chelokhart

Correction of Central Nervous System Function:

Cerluten, Ventfort, Vladonix, Endoluten

Correction of Respiratory System Function:

Vladonix, Sigumir, Ventfort

Correction of Immune System Function:

Vladonix, Ventfort, Svetinorm, Endoluten

Correction of Musculoskeletal System Function:

Sigumir, Vladonix, Ventfort

Correction of Urinary System Function

Pielotax, Vladonix, Chitomur

Correction of Male Reproductive System Function:

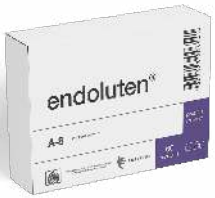
Vladonix, Endoluten, Libidon, Testoluten

Correction of Female Reproductive System Function:

Vladonix, Endoluten, Thyreogen, Zhenoluten

Correction of Visual Disorders and Prevention of Age-Related Eye Diseases:

Visoluten, Cerluten, Ventfort, Endoluten



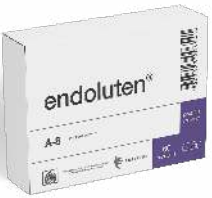
Prevention of Oncological Pathology, Premature Aging, and Reduced Function of the Neuroendocrine System:

Vladonix, Endoluten

Contraindications: Individual intolerance to components, pregnancy, breastfeeding.

Correction of Visual Disorders and Prevention of Age-Related Eye Diseases:

Visoluten, Cerluten, Ventfort, Endoluten

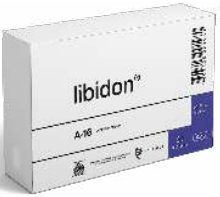


Prevention of Oncological Pathology, Premature Aging, and Reduced Function of the Neuroendocrine System:

Vladonix, Endoluten

Correction of Conditions After Radiation or Chemotherapy, and Prolonged Exposure to Ionizing Radiation:

Vladonix, Svetinorm, Ventfort, Cerluten, Endoluten



Contraindications: Individual intolerance to components, pregnancy, breastfeeding.

Preventive Course of Cytomaxes for Overall Body Health (Once Every 6 Months):

Stage 1:

Endoluten:
2 capsules in the morning, for 10–30 days

Vladonix:
1 capsule twice a day, for 10–30 days

Thyreogen:
1 capsule twice a day, for 10–30 days

Zhenoluten or Libidon and Testoluten:
1 capsule twice a day, for 10–30 days

Stage 2:

Cerluten:
1 capsule twice a day, for 10–30 days

Stage 3:

Ventfort:
1 capsule twice a day,
for 10–30 days

Sigumir
1 capsule twice a day,
for 10–30 days

Visoluten:
1 capsule twice a day,
for 10–30 days

Svetinorm
1 capsule twice a day,
for 10–30 days

Suprefort
1 capsule twice a day,
for 10–30 days

Pielotax
1 capsule twice a day,
for 10–30 days

Years of experience with peptide bioregulators in healthcare have demonstrated their high efficacy in treating various diseases and conditions, including those resistant to other medications.

Since cellular functional restoration occurs gradually and depends on the level of existing damage, effects are typically seen 1–4 weeks after starting peptide intake.

A course of 1–3 months is recommended, with a three-month regimen having a prolonged effect, meaning it continues to work in the body for approximately three more months.

The obtained effect lasts for up to six months, and each subsequent course enhances the previous effects.

Since each peptide bioregulator targets a specific organ and does not affect other organs or tissues, simultaneous use of different peptide preparations is not only not contraindicated but is even recommended in certain cases. Peptides are compatible with any medications and can enhance the effects of these medications. Therefore, it is advisable to gradually reduce the dosage of other medications, which can positively impact the overall health of the individual.

Short regulatory peptides are not transformed in the gastrointestinal tract, so they can be easily and comfortably taken in capsule form by almost anyone. Peptides in the gastrointestinal tract break down into di- and tri-peptides, so they can be taken even without capsules.

This is particularly important for individuals who, for various reasons, cannot take medications in capsule form, such as severely weakened people or children, where dosage needs to be reduced.

It should be noted that short peptides, according to numerous experimental data, are considered poorly hydrolyzed compounds that retain their structure when absorbed in the gastrointestinal tract, thereby exerting their positive effects.

Peptide bioregulators can be used for both preventive and therapeutic purposes. For the prevention of dysfunctions in various organs and systems, it is usually recommended to take 1 capsule twice a day with meals for 30 days. For treating dysfunctions in various organs and systems to enhance the effectiveness of complex disease treatments, it is usually recommended to take 2 capsules 2-3 times a day with meals for 30 days. It is advisable to repeat the course every 4-6 months.

Specific Applications of Peptide Bioregulators in the Treatment and Prevention of Age-Related Pathologies

Cardiovascular System Pathologies

TREATMENT AND PREVENTION OF ARTERIAL HYPERTENSION (AH)

For the treatment and prevention of AH, peptide bioregulators such as cytogens (Vesugen) and cytomaxes (Ventfort, Chelohart) are used.

Vesugen is a bioregulator developed for blood vessels. It successfully corrects pathological changes in the vessels associated with most diseases. Vesugen contains a complex of peptides and amino acids, including lysine, glutamic acid, and aspartic acid. These substances regulate metabolism in the vascular wall cells, improve the condition of the vessel walls, and normalize lipid metabolism. For hypertension, the drug, in combination with antihypertensive agents, achieves long-term remission.

Ventfort has a selective action on various vascular wall cells, normalizes metabolism in these cells, and regulates the functions of the vascular system. For prophylaxis: Ventfort 1 capsule twice a day for 10 to 30 days.

Chelohart is a complex of peptide fractions derived from the heart muscle of young animals. The isolated peptides have a selective action on myocardial cells, normalizing metabolism in cardiomyocytes. Clinical studies have established the effectiveness of **Chelohart** in diseases associated with decreased functional activity of cardiomyocytes: in the post-infarction period, in myocardial hypertrophy from various origins, ischemic heart disease, hypertension, and in elderly individuals to maintain myocardial functional activity.

TREATMENT AND PREVENTION OF CHRONIC HEART FAILURE (CHF)

For the treatment and prevention of CHF, peptide bioregulators such as cytogens (Vesugen, Crystagen) and cytomaxes (Ventfort, Vladonix, Chelohart) are used.

Vesugen regulates metabolism in the vascular wall cells, improves the condition of the vessel walls, and normalizes lipid metabolism. **Clinical studies have established the effectiveness of Vesugen in comprehensive prevention and treatment for patients suffering from atherosclerosis of the heart, brain, and lower limbs, impaired microcirculation in various organs and tissues, psycho-emotional stress, and for the prevention of vascular diseases in elderly individuals.** It has been found that **Vesugen** use in patients with arterial atherosclerosis improved overall well-being, normalized sleep, especially in patients with cerebrovascular disorders. Patients with ischemic heart disease reported a reduction in symptoms of arrhythmia and a decrease in angina attacks.

Crystagen is used during rehabilitation after a heart attack. The recommended dose is 1-2 capsules 1-2 times a day with meals. The duration of intake is 10-30 days. A repeat course is advisable after 4-6 months.

Vladonix is used during rehabilitation after a heart attack. Depending on the goals (prevention or treatment) and the severity of pathological manifestations, **Vladonix** is taken for 10-20 days. Subsequently, **Vladonix** is recommended to be used in a repeat course after 6 months.

Diseases of the Respiratory System

TREATMENT AND PREVENTION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

Cytogens: Chonluten, Crystagen – used as 1-2 capsules 1-2 times a day with meals. The duration of intake is 10-30 days. A repeat course is advisable after 4-6 months.

Cytomax: **Vladonix** – a complex of peptide fractions derived from the thymus of young animals. The peptides have a selective effect on various immune system cells, normalize metabolism within these cells, and regulate immune system functions. It is used as 1-2 capsules 1-2 times a day with meals. The duration of intake is 1 month.

Vladonix is used during rehabilitation after a heart attack. Depending on the goals (prevention or treatment) and the severity of pathological manifestations, **Vladonix** is taken for 10-20 days. Subsequently, **Vladonix** is recommended to be used in a repeat course after 6 months.

Chonluten is a peptide complex containing amino acids that help normalize the function of lung cells and bronchial mucosa. Clinical studies have shown **Chonluten's** effectiveness in comprehensive prevention and treatment of patients with impaired lung and bronchial function due to acute and chronic respiratory diseases of both infectious and non-infectious origins, as well as in maintaining respiratory function in elderly individuals. It has been established that course use of **Chonluten**, in addition to standard therapy for patients with respiratory insufficiency and lung damage, improved overall well-being, reduced the frequency of coughing and choking episodes, decreased the amount of expectorated sputum, and increased physical performance.

Positive dynamics were noted in the form of reduced wheezing and decreased sputum production, reflecting an overall trend toward reduced inflammatory manifestations of the disease. Studies have shown that **Chonluten** stimulates the functional activity of key cellular elements of lung tissue, reduces spontaneous cell death, and thus exerts a trophic and stabilizing effect on lung and bronchial tissue, improving its functions. **Chonluten i**s well tolerated by patients, with no side effects, complications, contraindications, or drug dependency observed.

Gastrointestinal Tract Pathologies

Among the factors supporting normal physiological states in elderly and aging populations, nutrition plays a crucial role. Balanced nutrition significantly impacts the aging processes of the body and the nature of changes occurring in various systems. However, significant changes also develop in the digestive system, affecting food absorption. **The main changes are as follows:**

- Thinning of the gastric mucosa due to atrophic processes, leading to decreased secretory and motor function of the stomach
- Reduced acidity of gastric juice, lower concentration of enzymes, and diminished enzyme activity
- Changes in the state and character of intestinal microflora, with a sharp predominance of putrefactive microorganisms, leading to increased production of putrefactive substances in the intestines and their subsequent absorption

Atrophy of active elements of the pancreas, resulting in reduced functional capacity, decreased quantity, and reduced activity of enzymes produced by the pancreas

Weakening of abdominal muscles with prolapse of internal organs

Decreased secretion of digestive juices in the small intestine, impairing their digestive capability

Reduced intestinal motility and a tendency towards constipation

Impaired bile flow

Decreased insulin production

Additionally, the activity of other endocrine glands - such as the thyroid and sex glands - declines, which in turn affects metabolism and the function of various organs and systems

Given these changes, many elderly individuals have improper dietary habits:

- Diets are often high in animal fats.
- Meat is consumed in significantly larger amounts than fish.
- There is an overconsumption of carbohydrate-rich foods (baked goods, sweets).
- Limited intake of vegetables, fruits, greens, and vegetable oils is observed.

Therefore, addressing the issue of rational nutrition for elderly individuals is highly relevant. Below, we will outline the main principles of nutrition for the elderly.

PRINCIPLE 1: ENERGETIC BALANCE BETWEEN THE CALORIC CONTENT OF CONSUMED FOODS AND THE ACTUAL ENERGY EXPENDITURE OF THE BODY

1.1. Selection of Protein Components in the Diet

1.2. Selection of Fats

1.3. Selection of Carbohydrates

1.4. Use of Vitamins and Minerals

1.5. Nutritional Requirements

1.6. Use of Dietary Supplements (DS)

Dietary supplements are compounds of biologically active substances consumed directly with food, and sometimes these supplements are incorporated into food products. They come in various forms including extracts, infusions, balms, isolates, powders, dry and liquid concentrates, syrups, tonics, tablets, capsules, and others. They serve as a transitional stage between natural medicines and synthetic drugs. Today, it is challenging for individuals to obtain the necessary amount of micronutrients — vitamins, minerals, and other beneficial substances — from ordinary food alone. A supplement complex effectively compensates for deficiencies and enhances the functions of specific organs within the physiological needs of a person. Supplements address issues of overdose, selection, convenience of use, and storage duration. The body will distribute the beneficial substances as needed to address specific issues.

PRINCIPLE 2: MAXIMUM VARIETY IN DIET COMBINED WITH ENERGY BALANCE, I.E., THE CALORIC CONTENT OF THE DIET SHOULD MATCH THE BODY'S ENERGY EXPENDITURE

PRINCIPLE 3: ANTIATHEROGENIC FOCUS IN THE DIET FOR OLDER ADULTS. CARDIOVASCULAR DISEASES DUE TO ATHEROSCLEROTIC DAMAGE TO BLOOD VESSELS ARE A LEADING CAUSE OF MORBIDITY AND MORTALITY IN THE ELDERLY. NUTRITION PLAYS A CRUCIAL ROLE IN BOTH THE PROGRESSION AND PREVENTION OF THESE CONDITIONS

PRINCIPLE 4: USE OF EASILY DIGESTIBLE AND ABSORBABLE FOODS AND MEALS

PRINCIPLE 5: ENSURING RATIONAL NUTRITION FOR OLDER ADULTS WHEN THEY ARE AWAY FROM HOME

Peptide Bioregulators used for the treatment and prevention of digestive system diseases include:

CYTOMAXES:

VLADONIX, STAMAKORT, SVETINORM, SUPREFORT

Taken as 1-2 capsules 1-2 times daily with meals for 1 month.

CYTOGENS:

VCRYSTAGEN, OVAGEN

Taken as 1-2 capsules 1-2 times daily with meals. Duration: 10-30 days, with the possibility of repeating the course after 4-6 months.

Neurological Disorders: Stroke Aftercare and Prevention

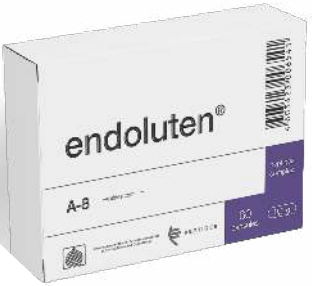
TREATMENT AND PREVENTION OF STROKE CONSEQUENCES

For the treatment and prevention of stroke consequences, peptide bioregulators such as cytogens (Pinealon, Vesugen, Ovagen) and cytomaxes (Cerluten, Ventfort, Vladonix, Endoluten) are used.

- Pinealon: Proven effective in the prevention and therapy of patients with brain function impairments after a stroke, traumatic brain injuries, surgical interventions, etc. Pinealon supports cognitive function in older adults, enhancing attention, memory, and concentration. Dosage: 1-2 capsules 1-2 times a day with meals. Duration: 10-30 days. It is advisable to repeat the course every 4-6 months.

- Cerluten: A complex of peptide fractions derived from the brains of young animals. These peptides selectively act on various nerve cells and brain tissue, normalizing metabolism in cells and regulating their functions. Dosage: 1-2 capsules 1-2 times a day with meals. Duration: 1 month.

- Endoluten: Known as the golden standard for longevity. This preparation contains a complex of peptides extracted from the pineal gland of young animals. These substances regulate hormonal balance and selectively act on the cells of the neuroendocrine system. Endoluten also normalizes metabolism in pineal cells and melatonin secretion. Benefits: Normalizes all cyclic processes in the body, regulates the reproductive system, enhances fertility, delays menopause and alleviates its consequences, normalizes immunity, increases life expectancy, and reduces cancer risk by 5 times.



Metabolic Disorders: Treatment and Prevention of Metabolic Syndrome

CYTOMAXES:

SVETINORM AND SUPREFORT

Use 1-2 capsules 1-2 times a day with meals. Duration: 1 month.

SVETINORM

A complex of peptide fractions extracted from the pancreas of young animals. These peptides selectively act on various pancreatic cells, normalizing metabolism in cells and regulating pancreatic functions.

CYTOGENS:

OVAGEN, VESUGEN, AND CRYSTAGEN

Use 1-2 capsules 1-2 times a day with meals. Duration: 10-30 days. It is advisable to repeat the course every 4-6 months.

Pathologies of the Musculoskeletal System: Treatment and Prevention of Osteoarthritis and Osteoporosis

CYTOMAXES:

Sigumir: This preparation contains a peptide complex derived from the bone and cartilage tissues of young animals. The substances obtained selectively act on human cells, normalizing their metabolism and regulating the functions of the joints and spine. Sigumir comprehensively restores the functions of the musculoskeletal system in pathological conditions leading to disturbances in cartilage or bone tissue, as well as after various diseases. The drug is also prescribed for bone and joint diseases due to inadequate nutrition and aging. It is taken 1-2 capsules 1-2 times a day with meals. Duration of intake: 1 month.

CYTOGENS:

Cartalax: This peptide complex contains amino acids that contribute to the normalization of cartilage tissue and the musculoskeletal system. Clinical studies have established Cartalax's effectiveness in the comprehensive prevention and treatment of patients suffering from spinal osteochondrosis, osteoarthritis, osteoporosis, after injuries and fractures, as well as in the prevention of sclerotic and degenerative processes in the spine and joints in elderly individuals. The drug can be combined with any treatments used for this group of diseases. Patients taking Cartalax have noted a significant alleviation of pathological symptoms, including pain, which is typically resistant to traditional therapy. Cartalax is well tolerated by patients, with no side effects, complications, contraindications, or drug dependence reported. It is taken 1-2 capsules 1-2 times a day with meals. Duration of intake: 10-30 days. It is advisable to conduct a repeat course every 4-6 months.

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