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Her Highness Sheikha Madiyah Dalmook Bin Juma Al Maktoum



# BOOK OF ABSTRACTS

## REGENERATIVE MEDICINE and AGEING



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Years of research and market analysis have resulted in creation of facial tissue mask with epiphysis peptide - NANOPEP GPA120. Clinical studies in the Spanish research laboratory showed that a 2-weeks treatment course (10 masks per course treatment) contributes significantly to the increase in the level of hydration of the skin by  $20,6 \pm 6,5\%$ ; decreases the area of the frontal wrinkles by  $21,0 \pm 4,3\%$ ; and decreases the length of forehead wrinkles by  $23,1 \pm 4,1\%$ . But most importantly due to activity of the epiphysis peptide in the mask, the level of both extra pineal melatonin in the skin and pineal melatonin in the human body is regulated to reach the individual norm.

## **PEPTIDES REGULATE GENE EXPRESSION AND PROTEIN SYNTHESIS FOR REALIZATION OF THE LIFE RESOURCE**

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All functions of cells, organs and organisms are determined by the gene expression and protein synthesis. Peptides regulate gene expression and it is a key trend in basic science. Group of peptides developed by V. Khavinson and colleagues was studied on 17 species (plants, bacteria, insects, amphibians, birds, rodents, monkeys, humans). The results of this research demonstrated that peptides can significantly increase animals' average life span (as compared to control) due to their anti-carcinogenic activity. Application of pineal peptide promoted reproductive system restoration in old female rats. In old monkeys administration of the pineal gland peptide resulted in restoration of melatonin secretion to the normal level of young animals, contributed to normalization of immune and endocrine systems.

Peptides induced heterochromatin activation in cell nuclei of elderly people; contributed to the increase in telomerase activity and telomeres' length in human fibroblasts; promoted differentiation of stem cells; decreased the number of chromosomal aberrations in bone marrow cells. Peptides can restore brain tissue functions in neurodegenerative diseases in Huntington's, Alzheimer's, Parkinson's models. Molecular modeling helped identify peptides' large number of DNA binding options. The ability of peptides to selectively interact with the DNA was also experimentally proven.

Thus, the ability of peptides to selectively bind to complementary DNA regions was revealed for the first time, which indicates the evolutionary mechanism of regulation of gene expression and control of protein synthesis

involved in the life cycle metabolism. It should be assumed that the presented mechanism of the peptide-DNA interaction is universal for living nature.

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## **EDR PEPTIDE: PERSPECTIVES OF APPLYING IN NEUROPROTECTION**

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*Relevance:* Drugs used for treatment of brain pathology specifically in the older patients belong to different pharmacological groups. These groups include antioxidants, nitrogen oxide blocking agents, inhibitors of lipid peroxidation processes, etc. Short peptides revealing high physiological activity and the absence of side effects are currently considered to be