

In addition, the Ukrainian company “Hemafund” one of the first established family cord blood bank, whose ultimate goal is the preservation of cells and the ability to transplant. Thus, Ukraine can take its rightful place in the hierarchy of the modern world of medical science, and the inhabitants of the country – to get a new level of health care.

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#### **PHARMACOLOGICAL GEROPROTECTION – IS IT AN ILLUSION OR REALITY TODAY?**

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Since ancient times, old age is concerned about humanity. From an evolutionary point of view of modern humans entered the stage of elevated rates of aging. And modern science is obliged not only to increase the human lifespan, but also increase the population of active working age. This is very important in terms of social and economic development of modern civilized society. The aging process is studying gerontology science that examines the various methods and systems (physical, natural, chemical and other) life extension. Among the most innovative – indian technique of the autoplasmolifting “Dracula therapy”, gene expression cell aging skin “Sciton BroadBand Light” (Stanford University), microsurgical implantation Aptos threads (Research Center of Surgery by B.V. Petrovsky, Russia), product line “Transfer Factor” based on concentrated extracts of bovine colostrum and chicken egg (professor A. Chizhov, Russia).

Pharmacological agents with prolonging life called geroprotectors. And now there are more than 20 substances with geroprotective properties: antioxidants (vitamins A, E, C, carnosine, carotenoids, SkQ and other mitochondria-addressed quinones, lipoic acid, coenzyme Q, a trace mineral selenium and other); succinic acid; Inhibitors of protein biosynthesis (olivomycins, actinomycin); growth hormones, thyroid hormones, adrenocortical hormones, sex hormones, melatonin, the hormone FGF21); peptide bioregulators (timalin, Epithalamin, DSIP); biguanides (phenformin, buformin, metformin); adaptogens (Ginseng, Siberian Ginseng and other); chelators (activated carbon, pectins).

In modern gerontological literature the geroprotectors beneficial effects attributed to their specific effect on certain mechanisms that slow down the rate of aging and increase the functionality of the body (for example, free-radical theory of aging, normalization of immunity, endocrine and nervous system). But most scientists still believe that today there is no one true geroprotector with

scientifically proven undeniable positive effect without the dangerous side effects (without carcinogenesis). All known tsitogerontologicheskoy models (for example, Hayflick model) based only on certain assumptions and correlations do not directly relate to the essence of the aging process. So the secret to longevity and immortality for mankind yet remains closed.

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#### **THE NEW NOOTROPIC MECHANISM OF ACTION OF THE MODERN ANTIDEPRESSANT ROLIPRAM ON COGNITIVE FUNCTIONS**

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Nootropic drugs – a substance that has a specific effect on the higher integrative functions of the brain, improve memory, facilitate learning, stimulate intellectual activity, increases the resistance of the brain to the damaging factors improving cortical-subcortical connections. Now the main mechanism of action of nootropic agents considered the impact on the metabolic and bioenergetic processes in the nerve cell and the interaction with the neurotransmitter systems of the brain.

The activation of neurons in specific metabolic pathways involving the nuclear-cytoplasmic CREB-protein is one of the most promising in terms effective influence on the central nervous system mechanisms of action of neuroprotective drugs. The CREB (cAMP responsive element binding protein) is a protein, which initiates the transcription of genes involving cAMP sensitive elements in their promoter. Increasing the concentration of calcium or cAMP can trigger the phosphorylation and activation of CREB. This transcription factor is a component of the signaling system and regulates a wide variety of processes, including circadian rhythms and memory formation.

Antidepressant Rolipram stimulates cAMP / PKA / CREB signaling pathway by a specific inhibition of phosphodiesterase type 4 (PDE4), the isoform of the enzyme that catalyzes the hydrolysis of cAMP. Rolipram can increase long-term potentiation and accelerate the consolidation of short-term memory to long-term.

Using Rolipram expedient to for improving cognitive abilities in healthy people, and for the treatment of neurological disorders of different etiologies.

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