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

Reference list:


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
promising neuroprotective agents. Neuroprotective peptide EDR (Glu–Asp–Arg) was created in the Saint Petersburg Institute of Bioregulation and Gerontology.

**Results:** It is noted that EDR peptide regulates the expression of signal molecules, serotonin and pro-apoptotic protein p53 in dissociated cultures of rat cerebral cortical neurons, which are the markers of the cells’ functional activity. In addition, it is shown that in Alzheimer's and Huntington's diseases models, EDR peptide restores the number of neuronal dendritic spines, which is characteristic of its ability to normalize interneural interactions [1, 4]. Neuroprotective role of the EDR peptide is manifested in experimental prenatal hypoxia and hyperhomocysteinemia. EDR peptide reduces the accumulation of reactive oxygen species in neurons, thus increasing their resistance to oxidative stress and preventing the interaction of homocysteine and its derivatives with glutamate receptors [2, 3].

**Conclusion:** We suggest that the revealed neuroprotective properties of EDR peptide are associated with its ability to penetrate into cell’s nucleus and nucleolus, bind with the DNA or histone proteins, thus regulating gene expression and synthesis of proteins implementing neuronal functions of the brain. Oral application of EDR peptide contributed to the regulation of heat shock protein gene expression, increased physical activity and performance capabilities in athletes, and normalized memory, psycho-emotional state in the senior patients.

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**References list:**


