

Discovered by A.A. Galoyan proline-rich polypeptides (PRPs) isolated from the neurosecretory nuclei of the bovine hypothalamus and neurohypophysis (*N. paraventricularis* and *N. supraopticus*) represent a new family of hypothalamic neuropeptides. It has been shown that PRP-1 or Galarmin possesses cytokine activities and exhibits a wide range of biological functions, including immunomodulating, antioxidant, antitumor, neuroprotective and antibacterial properties.

The influence of Galarmin on hemotological and serological parameters of peripheral blood of infected mice was studied. Under the influence of the Galarmin, a redistribution of blood cells, a change in the absolute number of leukocytes and platelets, as well as a dose-related increase in the percentage of lymphocytes was observed. The summarized data show the complex and non-specific effect of Galarmin on the immunological parameters of the blood of infected animals.

CHANGES IN FIBRIN-STABILIZING FACTOR ACTIVITY UNDER THE ACTION OF HYPOTHALAMIC PROLINE- RICH PEPTIDES

Paronyan Z.Kh., Grigoryan L.S., Stepanyan A.H., Araqelyan L.N.

Institute of Biochemistry, NAS RA

aregarpi4@gmail.com

Proline rich peptides (PRP) have been found in various animal species from invertebrates to mammals. The presence of a large number of proline amino acid residues in the structure of PRP gives them the opportunity to easily interact with various protein molecules, including those involved in key biochemical reaction cascades. Peptides of this family are characterized by low toxicity to mammalian cells. Such a peptide is the neuromodulator PRP-1, which belongs to the family of hypothalamic neuropeptides. PRP-1 consists of 15 amino acid residues, has cytokine properties with a wide spectrum of biological activity, including immunomodulating, antioxidant, antitumor, neuroprotective and antibacterial properties, it also regulates humoral and cellular immunity. The next proline-rich peptide of the hypothalamus GX-NH₂ studied by us, is an analog of galarmin (PRP-1), consisting of 10 amino acid residues, where the last proline is amidated. The

peptide is characterized by well-defined antineurodegenerative and antibacterial properties, is a stable compound, its proteolytic breakdown in the blood proceeds rather slowly.

In studying the effects of PRP-1 and GX-NH₂ on the hemostatic system, it is shown that, depending on the dose, they significantly accelerate blood coagulation, increase the amount of fibrinogen, reduce prothrombin time and plasma tolerance to heparin, and act differently on fibrinolytic activity. The data suggest that PRP-1 suppresses the fibrinolytic activity of the blood plasma, and depending on the dose prolongs the time of fibrinolysis by 20-65%, in contrast, GX-NH₂ accelerates blood thrombolytic activity by 23-45%. Based on the foregoing, PRP-1 and GX-NH₂ was studied to evaluate their effect on the activity of the last enzyme of the blood coagulation cascade - fibrin stabilizing factor XIII (FXIII).

In the final phase of the coagulation cascade with the help of thrombin and Ca⁺², FXIII turns into an active transglutaminase (FIIla), which is necessary for maintaining hemostasis, since the active enzyme stabilizes fibrin by crosslinking its α - and γ - chains, strengthens the fibrin clot with covalent bonds, protecting it from rapid removal by the fibrinolytic system. Congenital deficiency of FXIII is accompanied by severe hemorrhagic syndrome, causing life - threatening bleeding diathesis, the clinical consequences of which are well studied.

The lack of activity of factor XIII disrupts the formation of physiological fibrin, which can lead to bleeding. A decrease in factor activity can be observed in liver diseases (hepatitis, cirrhosis, cancer with liver metastases), systemic lesions of the hematopoietic apparatus, under the influence of indirect anticoagulants, with congenital anomalies and etc., and may also be a consequence of the appearance in the blood of an enzyme inhibitor. The activity of FXIII increases in patients with thromboembolic complications, atherosclerosis, postoperative interventions, with the growth of tumors and metastases, in women in labor.

Test compounds were used in several doses. Depending on the dose, they mainly suppress the activity of factor XIII, but at a low dose (1 μ g / 100 g) PRP-1 increases the enzyme activity by 16% and, at 2.5 μ g / 100 g, on the contrary, significantly suppresses it (58%). GX-NH₂ acts on factor

XIII only at a dose of 1 µg/100 g, inhibiting its activity by 26%. With an increase in the dose of both peptides to 5 µg / 100 g, the activity of factor XIII does not change (table 1.).

Table 1. Dose-dependent change in the activity of FXIII under action of hypothalamic proline rich peptides PRP-1 and GX-NH₂

Dose	1 µg /100g	2.5 µg /100g	5 µg /100g
Title the drug	FXIII activity (%)		
PRP-1	+16	-58	—
GX-NH ₂	-26	—	—

Significant differences between control and experience ($p \leq 0,05$)

All diseases caused by high or low activity of factor XIII in the blood are found by laboratory study of its activity. Given the influence of the hypothalamic proline rich peptides tested by us on factor XIII activity, we suggest that among the measures already taken, we can offer their application as regulators of enzyme activity.

THE CAVES OF THE ARMENIAN HIGHLANDS AS WITNESSES MILLIONS OF YEARS OF LIFE IN ARMENIA AND ARTSAKH

Petrosyan R. A., Tadevosyan R. A., Tadevosyan H. A., Tadevosyan A. A.

Scientific research- industrial foundation «GVP and ABP»

rouzanapet@yahoo.com

This article is devoted to the description of the cave complexes in the territory of Armenia (including Gegarkunik region) and Artsakh, both old and the new ones. A comparative analysis of the literature data on the haplotyping of the Azokh paleontopoe and the inhabitants of modern