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Proliferation and gliogenesis in the cerebellum of young masu salmon (*Oncorhynchus masou*) after mechanical trauma

The processes of reparative neurogenesis and neuronal plasticity in the cerebellum after mechanical injury in young masu salmon (*Oncorhynchus masou*) have been studied. The results GFAP- and PCNA- immunolabeling show that proliferation and migration of cells is significantly enhanced after the injury. These processes have the properties of spatial specificity. The most intensive proliferation of PCNA-positive cells after injury was detected in the dorsal matrix zone of the cerebellum. After injury on the territory of the dorsal, lateral and basal zones in the molecular layer of the cerebellum neurogenic niches containing PCNA-positive cells and a heterogeneous population of PCNA-immunonegative cells, have been identified. In area of neurogenic niches radial glial fibers and individual small, intense and moderately labeled GFAP-positive cells were found. As a result of the damaging effects in the dorsal matrix zone, radially oriented in different directions bundles of GFAP-positive radial glial fibers appeared. After the injury in the dorsal matrix zone is carried spatial reorientation of the radial fibers and the formation specific guides for new cell produced in this zone. As a result of an injury in the cerebellum radial glial elements and the neural stem cells appeared to be involved in the processes of reparative neurogenesis. After the application of the injury to the persistent background neurogenesis processes of reparative neurogenesis added: Active proliferation and differentiation of new cells begin, which migrate to the injury site, restoring the tissue. The main sources of new neurons are neurogenic niches, which are formed in the course of recovery of nerve tissue.

Biography

M E Stukaneva has done her higher education in Cell Biology at the Far Eastern State University in 2015. Now, she is a Post-graduate student at the A V Zhirmunsky Institute of Marine Biology-RAS, Russia.

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