

## Effect of Prenatal Hypoxia on Cytoarchitectonics and Ultrastructural Organisation of Brain Regions Related to Olfaction in Rats

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Using light and electron microscopy it was shown that on the 20<sup>th</sup> day after birth in rats subjected to prenatal hypoxia on E14 (7% O<sub>2</sub>, 3 h) in the central parts of the olfactory system – the hippocampus and entorhinal cortex, there were significant neurodegenerative changes and decreased number of neurones, while in the peripheral part of the olfactory system, namely olfactory bulbs, no changes were observed. Immunohistochemical analysis also revealed changes in the content and distribution of a metallopeptidase, neprilysin (NEP), in the entorhinal cortex and hippocampus of rats subjected to prenatal hypoxia. These data allow us to conclude that the impairment of the olfactory function in young rats, caused by maternal hypoxia during pregnancy and manifested itself as worsened performance in the food search task, is underlined by the pathological changes in the cells of the olfactory system as well as by the decreased content of NEP.

**Keywords:** entorhinal cortex, hippocampus, neurodegeneration, olfactory behavior, olfactory bulbs, ontogenesis, neprilysin, prenatal hypoxia