

Comparative Study of the Activity Levels and Localization of Tripeptidyl Peptidase I in Rat and Mouse Brain

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Tripeptidyl peptidase I is a lysosomal protease, crucial for the brain function. Its genetically determined deficiency causes the late infantile form of classical neuronal ceroid lipofuscinosis – a serious neurodegenerative disorder, connected with severe symptoms and early death at puberty. Since most of the brain diseases are now studied using animal models, it is important to identify the enzyme locations and activity levels in healthy laboratory animals' brain regions. However, TPPI locations and activity levels in mesencephalon, thalamus and pons are still largely unknown. In the present paper we determine the enzyme activity levels and localization pattern in the above three brain regions of healthy adult rats and mice. The results show species differences in TPPI activity levels. All the studied types of neurons show high enzyme activity in both species. Those results would be important in view of the use of animal models for studying neurodegenerative disorders.

Key words: tripeptidyl peptidase I, enzyme histochemistry, enzyme kinetics, central nervous system.