ULTRASTRUCTURAL LOCATION OF NDPase AND TPPase ENZIMATIC ACTIVITIES IN GLIAL CELLS OF QUAKING AND JIMPY MUTANTS.

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In previous studies we have reported that location of enzimatic activities such as nucleoside-diphosphatase (NDPase) and thiamine-pyrophosphatase (TPPase) is selectively differential of glial cell types: astroglia, oligodendroglia and microglial cells. The present study was understanded to reveal enzimatic NDPase and TPPase activities in mutants showing morphological alterations in their glial cell lineages.

After fixation by perfusion, sections (40-50 um.) of spinal cord were incubated in appropriate media to demonstration of NDPase and TPPase activities. Then, samples processed to electron microscopic study.

Observations show that twenty-one days old Quaking mice display a standard location of enzimatic activities NDPase and TPPase, but rather decreased, related to Golgi apparatus in astrocytes; to cytoplasmatic membrane in microglial cells; and to Golgi, rough endoplasmatic reticulum, and nuclear envelope in oligodendrocytes. Nevertheless, we have found moreover a singular NDPase activity associated to astrocytic ribosomes in 60 days aged animals.

Microglia and hypertrophied astrocytes in Jimpy mutant (21 days) show a normal NDPase and TPPase cytoplasmatic distribution. However, oligodendrocytes do not display any enzimatic activity except, occasionally, for Golgi saccules.

Histochemical differences reported here for location of NDPase and TPPase activities in glial cells in Quaking and Jimpy mice can be closely connected with an abnormal myelinogenesis in these mutants.