

## *Neuroglia, myelin, blood brain barrier*

### ASTROGLIAL AND MICROGLIAL CELL REACTION IN THE CENTRAL NERVOUS SYSTEM OF THE HYPOMYELINATED JIMPY MUTANT MOUSE. A HISTOCHEMICAL AND IMMUNOCYTOCHEMICAL STUDY.

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Jimpy mouse is a lethal mutation characterized by a severe hypomyelination affecting the CNS. In order to determine the mechanisms involved in the abnormal absence of myelination the major part of studies have focused their attention on oligodendrocytes and astrocytes. Detailed studies on microglial cell reactivity in this model are however not available. In the present study we examined the hypomyelination-associated glial reaction by using specific markers for microglia and astroglia. Mice three week old were used. After appropriate fixation, brains, cerebella and spinal cords were either embedded in paraffin and sectioned at 10  $\mu\text{m}$  or cut on a vibratome at 50  $\mu\text{m}$ . Sections were processed for immunocytochemical demonstration of GFAP, *Lycopersicon esculentum* and *Bandeiraea simplicifolia* BS-1 lectin histochemistry, and enzyme histochemical demonstration of PNPase and NDPase. Selected sections were embedded for electron microscopic study.

Our results demonstrated a generalized astroglial and microglial reaction in both white and gray matter, spinal cord white matter showing the most prominent alterations. Astrocytic reaction was characterized by a marked hypertrophy which was established by a manifest increase in the GFAP immunoreactivity. Although noticeable morphological changes on microglial cells were observed in gray matter, it was in white matter areas where an intense microglial reaction with a discernible increase in the number of cells was clearly established. At this location, microglial cells displayed enlarged, irregular cell bodies and retracted processes in close association with a strong enhancement of the NDPase staining. A considerable number of round non-ramified NDPase and lectin positive cells were also found, but at the moment their nature was still not established.

In conclusion, our observation showed an important astroglial and microglial reactivity in gray and white matter of the jimpy mice. Involvement of microglial and astroglial cells in the abnormal myelination process will be discussed.