

O4 THE GLUTAMATE SENSITIVE NON-MITOCHONDRIAL CARBOXYLASE (GSNMC) IN GLUTAMATE-TREATED RATS

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We have previously reported that chick intravitreally injected with glutamate (Glu) resulted in the loss of certain retinal proteins, especially the 42 kDa protein (1). Using the antibody against the 42 kDa, it appeared that the 42 kDa protein was located in the outer part of inner nuclear layer and outer part of photoreceptor. Immunocytochemistry of retinal cell culture suggested that the protein was mostly located on the surface of retinal cell. As it was a biotin-coupled protein, it was suggested to be a glutamate sensitive non-mitochondrial carboxylase (GSNMC). The GSNMC was seen in chick embryo a few days before hatching suggesting the relationship of the protein with the eye functions. As rodent is the animal mostly used in many experiments, the distribution patterns of the GSNMC in chick and rat brain and retina were studied. The antiserum against the GSNMC from chick retina was used to localize the GSNMC in various parts of the brain and retina of chick and rat. Crude proteins were separated on 12% SDS-PAGE and transferred to a nitrocellulose membrane. Western immunoblotting shown the presence of GSNMC in all areas of the brain observed (the olfactory bulb, cerebral cortex, hippocampus and cerebellum) and the retina of both chick and rat in a comparable pattern suggesting rat could be used as a studying model for GSNMC. Rat treated with Glu at either 500 or 1000 mg/kg/day for 2 weeks showed no change in the GSNMC expression in all tissues observed. The functional roles of GSNMC in the brain, in association with Glu, should be further studies.

References

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