

## Sarcoglycans in cerebellar cortex: an immunohistochemical study

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Sarcoglycans are transmembrane glycoproteins which link each others to form the sarcoglycans sub-complex. This protein system plays a key role in fibers stabilization during muscle activity. Sarcoglycans have been mainly studied on muscle tissue but they aren't muscle specific. In fact, our previous studies have shown that all of sarcoglycans isoforms are also expressed in various non-muscular tissues and in particular in brain where it was known that only  $\epsilon$ - and  $\xi$ -sarcoglycans were present. We have yet tested  $\alpha$ -,  $\beta$ -,  $\gamma$ -,  $\delta$ - and  $\epsilon$ -sarcoglycans in rat's cerebellar cortex and we have found that each glycoprotein is expressed with an immunofluorescence pattern that was detectable mainly in a single cells layer, probably the Purkinje cells layer. In order to verify if this single cells layer could correspond to Purkinje cells layer, we carried out a double immunofluorescence reaction with  $\alpha$ -,  $\beta$ -,  $\gamma$ -,  $\delta$ -,  $\epsilon$ - and  $\xi$ -sarcoglycans antibody and CAR VIII antibody, a carbonic anhydrases protein which marks the Purkinje cells. Our results have confirmed that the fluorescence pattern of each sarcoglycans was mainly detectable in Purkinje cells and some fluorescences pattern is also detectable in molecular layer. We have not found sarcoglycans positivity in granular cells layer. Moreover we have found that, in cerebellar cortex, sarcoglycans present a double type of staining pattern: the first one is a "spot-like" staining pattern, detectable around the cellular soma; the second one is a linear staining pattern, detectable on the cellular extension. These results suggest us that in the soma of the Purkinje cells, sarcoglycans may play a role in cellular signalling, regulating the assembly of post-synaptic receptor. We think that sarcoglycans may be associated with inhibitory GABA<sub>A</sub> R $\epsilon$  receptors. It is therefore possible that the linear fluorescence present in some cellular extension could correspond to some interneurons with inhibitory activity.