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The neglected non-traditional large neuron types in the granular layer of the cerebellar cortex: Morphofunctional and Neurochemical data

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Five classical corticocerebellar neurons are commonly involved in the circuitry of the cerebellar cortex: stellate, basket, Purkinje, granule and Golgi neurons. Numerous morphofunctional studies demonstrate the presence of different large neuron types in the granular layer of the cerebellar cortex of mammals: candelabrum neuron, neuron of Lugaro, unipolar brush neuron, globular neuron, synarmotic neuron and perivascular neuron [1-7] distributed in three different zones of the granular [1,4]. Although, studies demonstrate that this large neuron types play a not negligible role in the microcircuitry of the cerebellum, they continue to be neglected and still now called 'non-traditional neurons' [2]. Finally, these data open a new scenario: in the cerebellar cortex of mammals at least 11 different neuron types must be considered, which may play a considerable role in the motor and non-motor functions of the cerebellum and in its disorders.

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Key words

Cerebellar cortex, non-traditional neuron types, neuron of Lugaro; candelabrum neuron; unipolar brush neuron; globular neuron; synarmotic neuron; perivascular neuron, immunohistochemistry