

The rat dorsal column nuclei contain a region homologous to the human Locus K

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Locus K is a newly identified region within the territory of the human nucleus cuneatus that shares neurochemical and histological features with protopathic second order sensory nuclei (Del Fiacco et al., 2013; Serra et al., 2013; SIAI 2014). This work is aimed at examining the rat dorsal column nuclei in order to ascertain whether a structure homologous to the human Locus K occurs in the rat brain.

Rat brainstem sections were observed by means of ABC and fluorescence immunohistochemistry for neuropeptides calcitonin gene-related peptide (CGRP) and substance P (SP), Klüver-Barrera and Nissl staining.

Results of the peptide immunoreactive structures in the rat dorsal column nuclei are in general good agreement with findings in previous studies (Hoeflinger et al., 1993). However, at caudalmost levels of the complex, in the territory of the cuneate fascicle and dorsal to the caudal pole of the cuneate nucleus, a small column of gray matter area can be identified that contains a dense plexus of varicose labelled nerve fibres.

The observed discrete region has never distinctly described beforehand. Both its position and aspect at neuropeptide-immunoreactivity resemble those of the Locus K we detected in the human dorsal column nuclei, allowing the possibility that it represents the its homologous nucleus in the rat brain.

Work funded by Fondazione Banco di Sardegna.

References

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Keywords

Dorsal column nuclei, Sensory systems, Rat, Morphometry, Neurochemistry.