4th International Meeting on Calcitonin Gene-Related Peptide (CGRP)
TheScientificWorld (2001) 1(S1), 38
ISSN 1532-2246; DOI 10.1100/tsw.2001.408

EVIDENCE FOR THE DIFFERENTIAL DISTRIBUTION OF AT LEAST TWO ADRENOMEDULLIN RECEPTOR SUBTYPES IN THE RAT BRAIN

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We recently reported that specific [^{125}I]human Adrenomedullin$_{13-52}$ (hADM$_{13-52}$) binding sites are very discretely distributed in the rat brain[1]. Furthermore, in rat brain membrane homogenates, we suggested the existence of at least two populations of [^{125}I]hADM$_{13-52}$ receptor binding sites[2]. In the present study, we investigated the differential distribution of specific [^{125}I]hADM$_{13-52}$ sites that are sensitive and insensitive to hADM$_{22-52}$ in the rat brain. Adjacent coronal rat brain sections were incubated with 35 pM [^{125}I]hADM$_{13-52}$ in the presence of increasing concentrations of hADM$_{22-52}$. As previously reported, specific [^{125}I]hADM$_{13-52}$ sites were observed in the choroid and linings of ventricles, basal amygdaloid nucleus, neuronal lobe of the pituitary gland, trigeminal nucleus, and cerebellum. Specific [^{125}I]hADM$_{13-52}$ binding is fully inhibited by 1 μM hADM$_{22-52}$ in all these brain regions except in the cerebellum. In fact, hADM$_{22-52}$ was able to inhibit only 70% of specific [^{125}I]hADM$_{13-52}$ binding sites in the rat cerebellum. These data suggest for the first time that the rat cerebellum contains at least two populations of ADM receptors, one that is sensitive to hADM$_{22-52}$ while the other is resistant. This characterization of cerebellar [^{125}I]hADM$_{13-52}$ / hADM$_{22-52}$ -insensitive sites is currently under investigation. Supported by grant from the CIHR to RQ.

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