A fundamental study on Emission CT receptor mapping by receptor autoradiography

1989 Fiscal Year Final Research Report Summary

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Research Project

Project/Area Number

63570488

Research Category

Grant-in-Aid for General Scientific Research (C)

Allocation Type

Single-year Grants

Research Field

Radiation science

Research Institution

Kanazawa University

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1988 – 1989

Keywords

Autoradiography / Receptor / Neurotransmitter / Emission CT / Radioactive Ligand / Tecnetium-99m / Local Cerebral Blood Flow

Research Abstract

Highly qualified autoradiograms were obtained using seven different ligands labeled with ^3H after the investigation of appropriate incubation time and washing time, and of presence or absence of saturation. The excellent spatial resolution of the recepter autoradiography, unlike the in vitro receptor assay, made it possible to compare the values for Bmax and Kd among the fine structures in the rat brain. Binding of ^3H-Katanserin to frontal lobe of the brain was significantly diminished in the Chlosipramine administered rats, white administration of haloperidol(HPD)failed to change the binding of ^3H-Spiperone

in the rat brain.
The effects of acute or chronic HPD administration on the local cerebral blood flow(LCBF) were measured by means of the quantitative autoradiographic technique. After acute HPD administration, the LCBF increased in the n.habenula and decreased in the medial frontal cortex. Chronic HPD administration reduced LCBF in the substantia nigra and ventral tegmental area, and increased LCBF in the n.caudatus-putamen and n.accumbens.
We established a new method for the preparation of N-functionalized diaminodithiol for bifunctional chelating agents. The diaminodithiol prepared by our new method has high chelating ability of Te-99m and high stability of Tc-99m,and appears to be an attractive candidate as a useful chelator for bifunctional chelating agents.

Research Products (6 results)

All | Other

All | Publications (6 results)

[Publications] 森厚文: "受容体オ-トラジオグラフィによるエミッションCT・レセプタ-マッピング" Innervision. 4. 47-49 (1989)

[Publications] Hirofumi Mori: "Distribution of effects of haloperidol on regional cerebral blood flow and D_2 receptor in the rat brain" J Cereb Blood Flow Metabol. 9. S138 (1989)

[Publications] Hirofumi Mori: "Characterization of the binding of N-isopropyl-p-[1-125]iodoamphetamine in the rat brain synaptosomal membranes" Nucl Med Communications.

[Publications] Hirofumi Mori: "Study on Emission Computed Tomography by receptor autoradiography" Innervision, 4 : 47 - 49 , 1989.

[Publications] Hirofumi Mori: "Distribution of effects of haloperidol on regianol cerebral blood flow and D_2 receptor in the rat brain" J Cereb Blood Flow Metabol, 9 : P138, 1989.

[Publications] Hirofumi Mori: "Characterization of the binding of N-isopropyl-P-[I-125]iodoam phetamine in the rat brain synaptosomal membranes" Nucl Med Communications.

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