

# ラット脳における高親和性 [<sup>3</sup>H] 6-nitroquipazine 結合部位

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## High-affinity [<sup>3</sup>H] 6-nitroquipazine binding sites in rat brain

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**ABSTRACT** 6-Nitroquipazine is a very potent and selective inhibitor of neuronal 5-hydroxytryptamine (5-HT; serotonin) uptake. We have characterized the specific binding of [<sup>3</sup>H] 6-nitroquipazine to rat brain membranes at 22°C. The present results indicate the presence of a single saturable high-affinity binding component for [<sup>3</sup>H] 6-nitroquipazine. Scatchard analysis revealed an apparent equilibrium dissociation constant ( $K_d$ ) of  $93.0 \pm 2.23$  pM, and a maximal number of binding sites ( $B_{max}$ ) of  $831.7 \pm 18.7$  fmol/mg protein (mean  $\pm$  S. D.,  $n = 4$ ). The kinetically derived dissociation constant was 74.5 pM. [<sup>3</sup>H] 6-Nitroquipazine binding was inhibited selectively by 5-HT uptake inhibitors, and a good correlation was demonstrated between the potency of various drugs to inhibit [<sup>3</sup>H] 6-nitroquipazine binding and [<sup>3</sup>H] 5-HT uptake. The highest densities of [<sup>3</sup>H] 6-nitroquipazine binding was obtained in the hypothalamus and midbrain, intermediate binding was observed in the striatum, hippocampus, medulla oblongata and cortex, and the lowest binding was observed in the cerebellum. Lesioning of 5-HT neurons with p-chloroamphetamine resulted in a 72% reduction in [<sup>3</sup>H] 6-nitroquipazine binding compared to controls. These results indicate that the binding site specifically labelled by [<sup>3</sup>H] 6-nitroquipazine is associated with the neuronal 5-HT transporter complex. [<sup>3</sup>H] 6-Nitroquipazine is an excellent radioligand for the study of the 5-HT uptake system.

抄録 ラット脳膜標品に対する [<sup>3</sup>H] 6-nitroquipazine の特異的結合を22°Cで求めた。  
[<sup>3</sup>H] 6-Nitroquipazine 結合はセロトニン再吸収阻害剤によって選択的に阻害され, [<sup>3</sup>H]  
5-HTの再吸収を阻害する力価と良好な相関関係がみられた。さらに, p-chloroamphetamine  
でセロトニン神経を破壊すると [<sup>3</sup>H] 6-nitroquipazine の結合が減少した。本実験の結果  
は, [<sup>3</sup>H] 6-nitroquipazine によって特異的にラベルされる部位が, セロトニントランス

ポーターと関連がある事を示している。 $[^3\text{H}]6\text{-Nitroquipazine}$  はセロトニン再吸収過程の研究に優れたラジオリガンドである事が判明した。