ORIGINAL ARTICLE

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Preclinical studies on [^{11}C]MPDX for mapping adenosine A_1 receptors by positron emission tomography

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In previous *in vivo* studies with mice, rats and cats, we have demonstrated that [^{11}C]MPDX ([1-methyl-^{11}C]8-dicyclopropylmethyl-1-methyl-3-propylxanthine) is a potential radioligand for mapping adenosine A_1 receptors of the brain by positron emission tomography (PET). In the present study, we performed a preclinical study. The radiation absorbed-dose by [^{11}C]MPDX in humans estimated from the tissue distribution in mice was low enough for clinical use, and the acute toxicity and mutagenicity of MPDX were not found. The monkey brain was clearly visualized by PET with [^{11}C]MPDX. We have concluded that [^{11}C]MPDX is suitable for mapping adenosine A_1 receptors in the human brain by PET.

Key words: adenosine A_1 receptor, [^{11}C]MPDX, central nervous system, positron emission tomography