

**Canine SPECT studies for cerebral amino acid transport  
by means of  $^{123}\text{I}$ -3-iodo- $\alpha$ -methyl-L-tyrosine  
and preliminary kinetic analysis**

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We have already reported that  $^{123}\text{I}$ -3-iodo- $\alpha$ -methyl-L-tyrosine ( $^{123}\text{I}$ -L-AMT) is superior as a single-photon emitter labeled radiopharmaceutical reflecting cerebral amino acid transport. In this study, we investigated the distribution of  $^{123}\text{I}$ -L-AMT in the canine head by means of SPECT and kinetically analyzed the data in the brain. As a result, clear SPECT images of the canine brain were obtained. Kinetic analysis with a 2-compartment model, including or expressing membrane transport of the amino acid, was performed with time-activity curves in the arterial blood and in the cerebral region. The results of the analysis coincided closely with the experimental data and the relevance of the model was strongly suggested. Therefore  $^{123}\text{I}$ -L-AMT is considered to be useful as a single photon radiopharmaceutical which enables us to measure the cerebral amino acid transport rate.

**Key words:** cerebral amino acid transport, 3-iodo- $\alpha$ -methyl-L-tyrosine, kinetic analysis, SPECT