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Serial changes in N-isopropyl-p[^{125}I]-iodoamphetamine in mouse lung observed with a confocal laser scanning microscope

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Serial changes in N-isopropyl-p[^{125}I]-iodoamphetamine (^{125}I-IMP) in mouse lungs were observed with a confocal laser scanning microscope. Male mice were intravenously injected with ^{125}I-IMP and subjected to autoradiographic procedures 20 minutes, and 3 and 24 hours after injection. Differential interference contrast (DIC) images and confocal images were obtained with a confocal laser scanning microscope, and superimposed images were evaluated. Large numbers of silver grains were observed in the interstitium, bronchioles, and alveolar sacs 20 minutes after the injection, and lamellar distribution of the grains was observed on the ciliary surface. The numbers of silver grains in the interstitium and bronchioles had decreased 3 hours after the injection of ^{125}I-IMP, but the numbers of silver grains in the alveolar spaces had not. Although small numbers of silver grains remained in both the bronchioles and alveolar sacs 24 hours after the injection, most of them had washed out.

Confocal laser scanning microscopy is considered to be a useful procedure for studying the distribution of radioisotopes by microautoradiography, because it allows clear autoradiographs to be obtained in which tissues and silver grains are perfectly matched and all silver grains are in focus.

Key words: N-isopropyl-p[^{125}I]-iodoamphetamine, mouse lung, autoradiography, confocal laser scanning microscope