

[^{99m}Tc] TRODAT-1 SYNTHESIS FOR DOPAMINE TRANSPORTER IMAGING

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Technetium-99m, ^{99m}Tc is the most commonly used radionuclide in clinical nuclear medicine for imaging procedures. ^{99m}Tc is preferred to other radionuclides due to greater proton flux per unit of radiation dose delivered to the patient. Also there are several parameters as half life for imaging and cheapness which decided for its convenient using. Development technetium-99m labeled receptor specific imaging agent for studying the central nervous system is extremely useful for evaluation of brain function in normal vs. disease states. A several ^{99m}Tc tropane derivative complexes was evaluated and characterized after injecting into rats [1]. Preliminary studies of ^{99m}Tc a series of N-ethanethiol tropane complexes containing Tc^V O iminobis [ethanethiol] unit have been done. It appeared, however that SPET imaging in nonhuman was unsuccessful because of the low initial brain uptake. In search of selective and suitable ligand for chelating ^{99m}Tc complexes as TRODAT-1 it was found that this compound can be useful as potential dopamine transporter imaging agent in patients with early stage of Parkinson's disease. In this study we describe a 4 step synthesis of TRODAT-1 from cocaine, prepared for easy labeling with technetium-99m.

[1] Megalla SK., Plosst K., Kung M-P., Chumpradit S., Stevenson DA., Kushner S.A., McElgin WT, Mozley PDKung HF. (1997) J. Med. Chem. 40, 9-17.