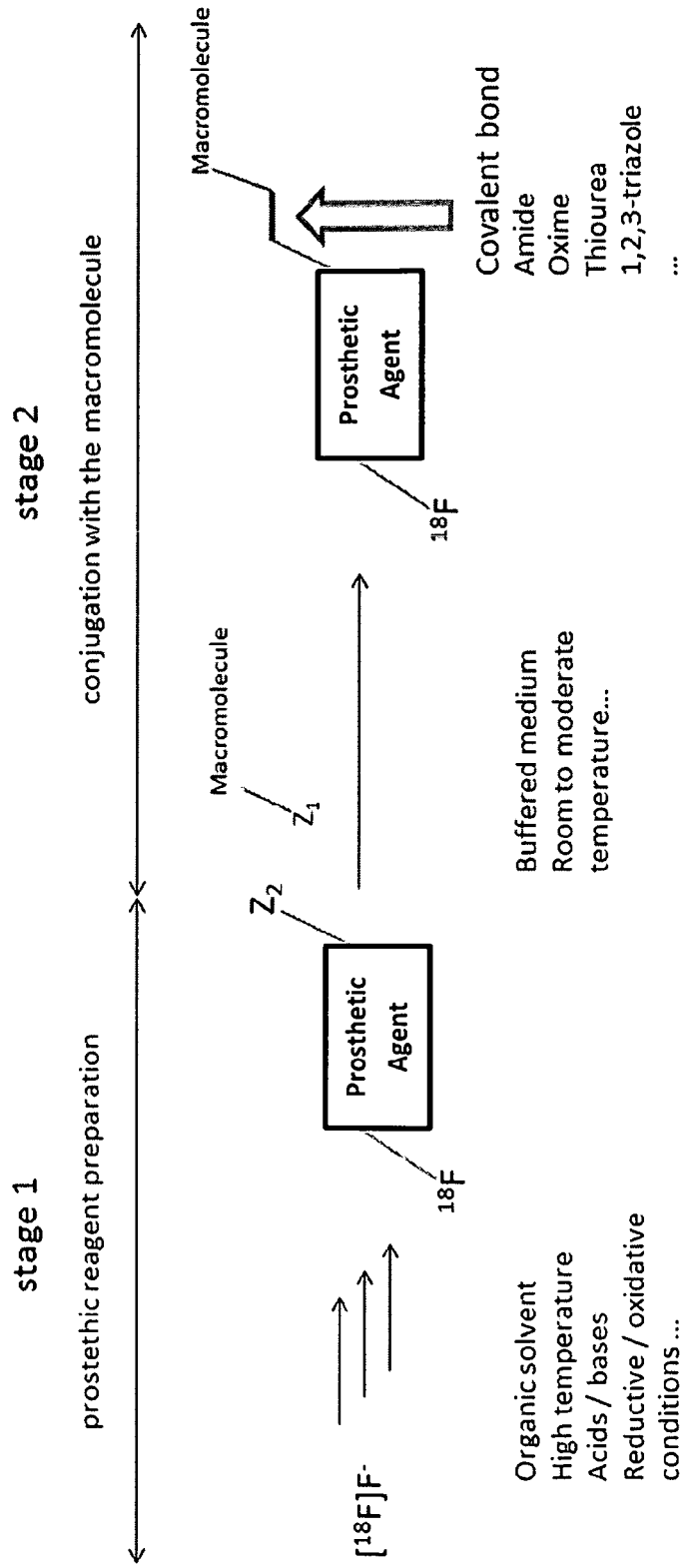


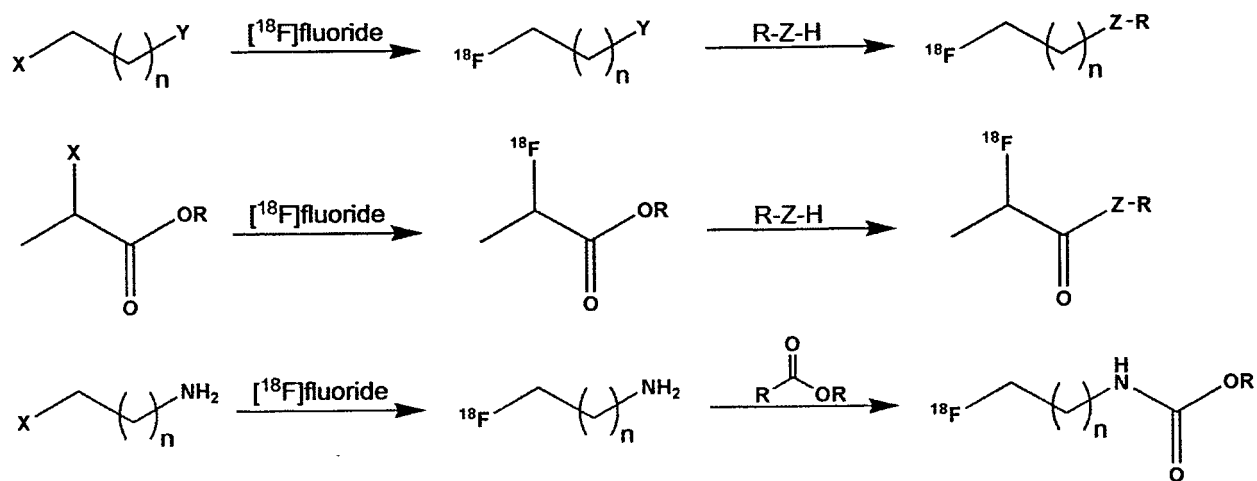
^{18}F -Labelling of macromolecules



Review: B. Künast, F. Dollé; Current Radiopharm. 3, 174 (2010)

FIGURE 1

¹⁸F-Fluorination via prosthetic groups:
¹⁸F-fluoroalkylation, ¹⁸F-fluoroacylation and ¹⁸F-fluoroamidation

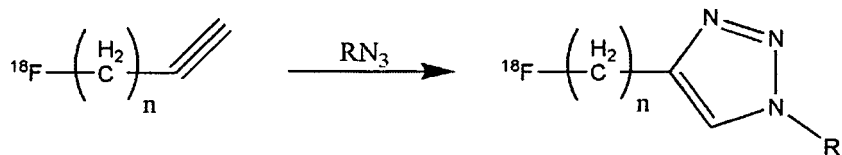


$X, Y = Br, I, OTs; \quad Z = N, O, S; \quad R = \text{Alkyl, Aryl}$

Coenen, H. H. In *PET Chemistry, The Driving Force in Molecular Imaging*, Schubiger, P. A., Lehmann, L., Friebe, M., Eds.; Springer: Berlin, 2007; pp 15-50.

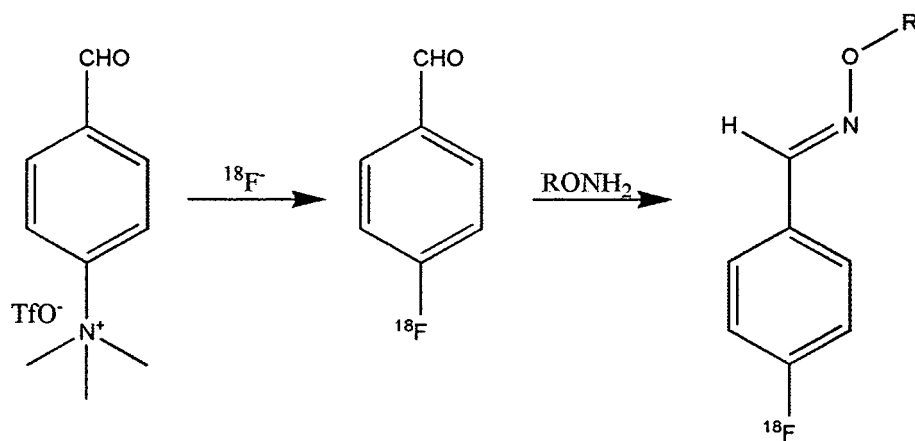
Figure 2

[¹⁸F]Fluoroalkynes for "click-chemistry" to triazoles

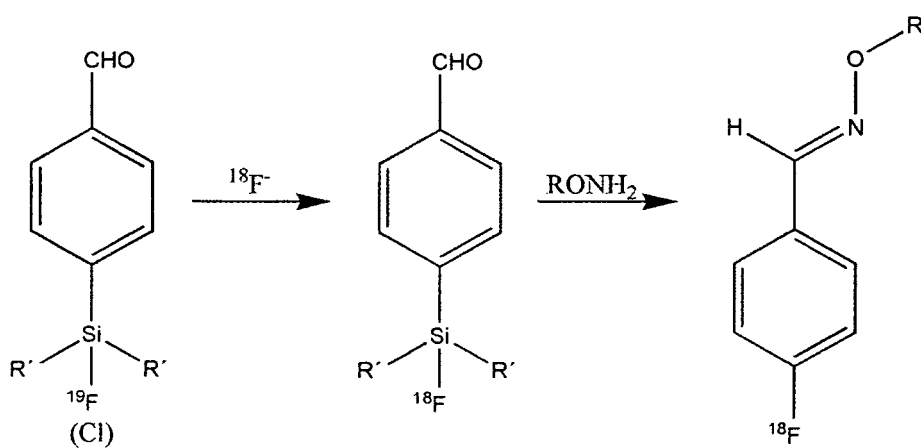


Marik and Sutcliffe Tetrahedron Lett., 2006, 47, 6681.

[¹⁸F]Fluorobenzaldehydes for oxime formation



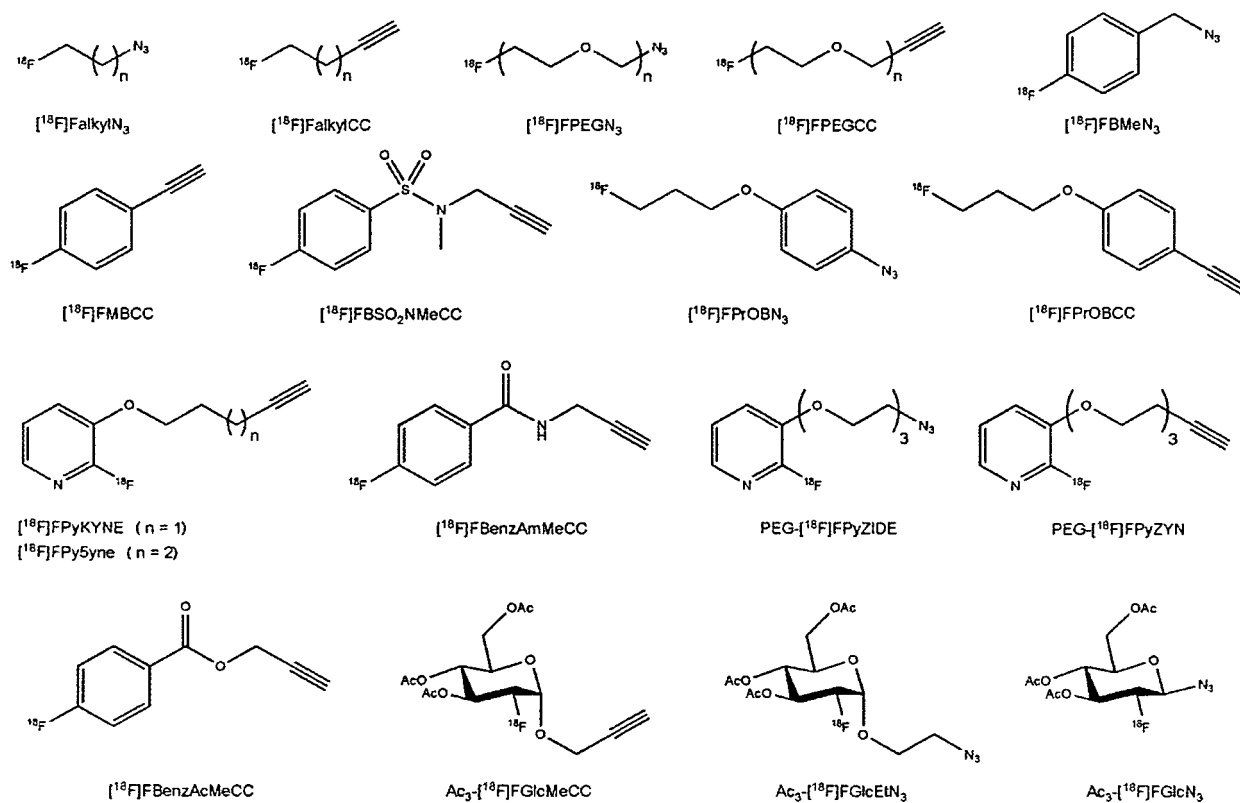
Poethko et al. J. Nucl. Med. , 2004, 45, 892.



Schirmacher et al. Angew. Chem. Int. Ed., 2006, 45, 6047.

Figure 3

¹⁸F-Fluorination via prosthetic groups:
¹⁸F-fluoroalkylation, ¹⁸F-fluoroacylation and ¹⁸F-fluoroamidation

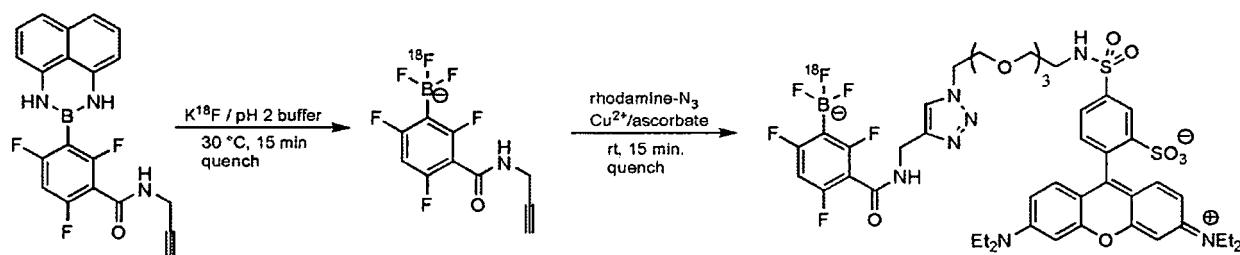


T. L. Ross, Current Radiopharmaceuticals, 2010, 3, 202-223.

Figure 4

Stoichiometric leverage of molar activity in n.c.a. formation of [^{18}F]aryltrifluoroboronates

Two step synthesis of azido-rhodamine- ^{18}F trifluoroboronate

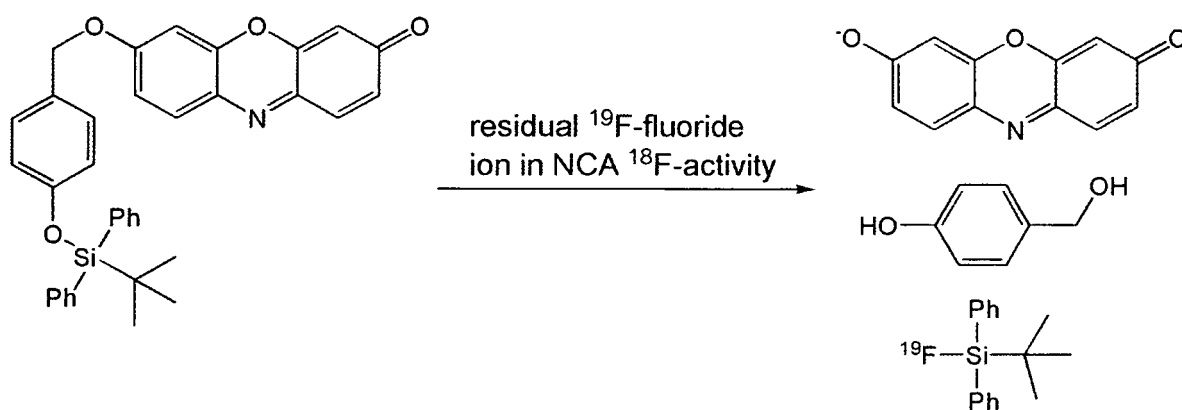


Molar activity [$\text{Ci}/\mu\text{mol}$]

	$^{18}\text{F}^-$ (BOS)	^{18}F product
n.c.a.	6.5	15 ± 0.5
c.a.	2.7	7.7 ± 0.3

Z. Lin et al., *Angew. Chem.* 125, 2359 - 2362 (2013)

Self-immolating fluorescent fluoride sensor assay



S. Y. Kim and J. I. Hong, *J. Am. Chem. Soc.* 129, 3109-3112 (2007)

Figure 5

Complexes of Aluminium [^{18}F]fluoride

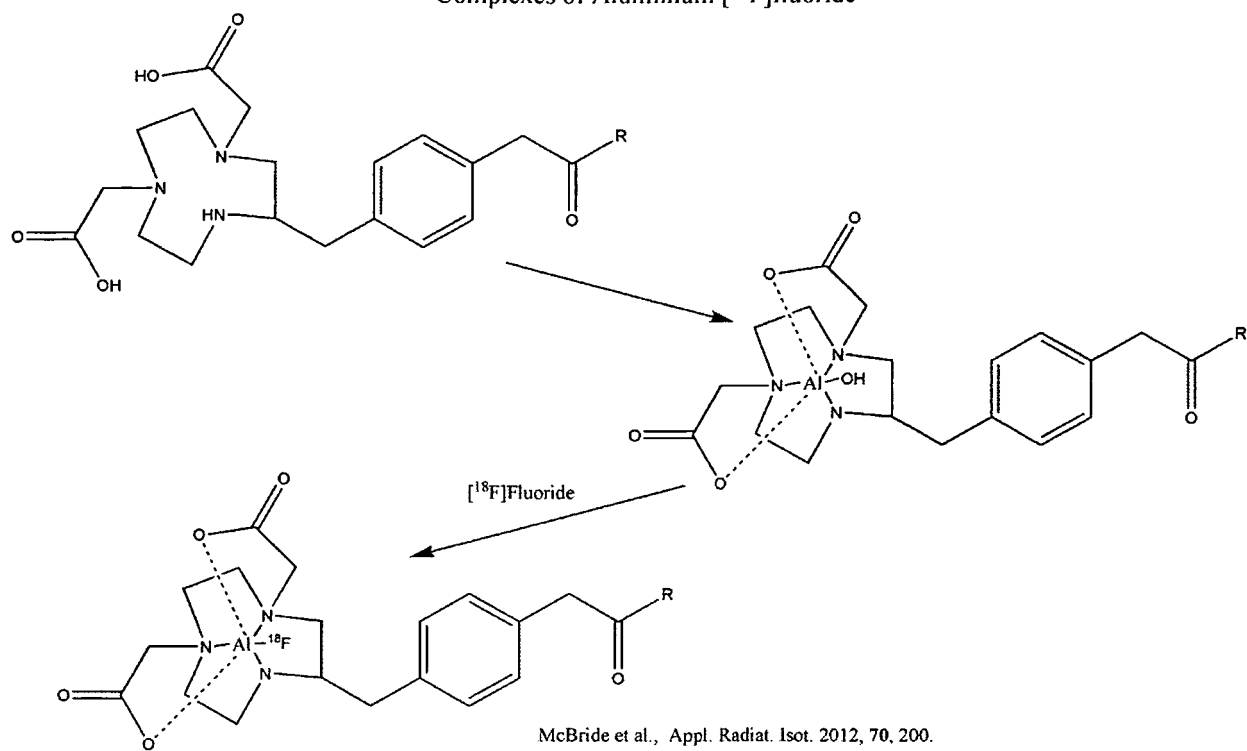
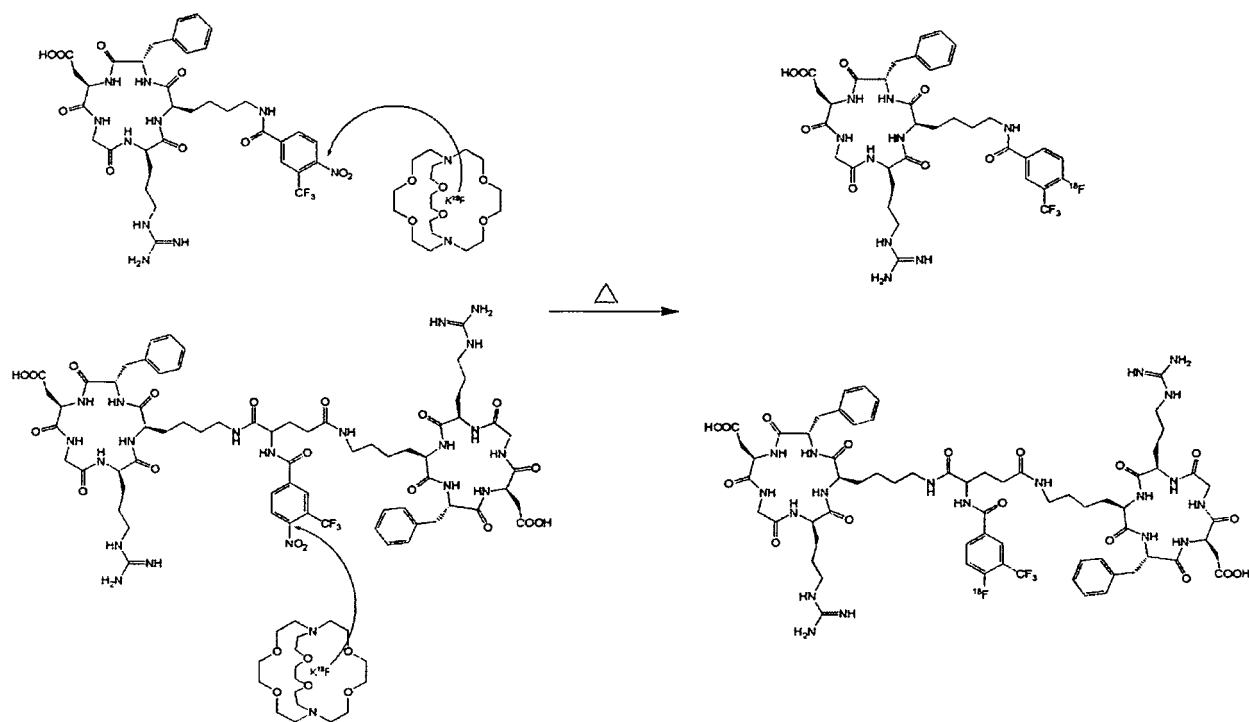


Figure 6

One-Step ^{18}F -labeling of RGD Peptides



O. Jakobson et al., *Bioconjugate Chem.*, 2011, **22**, 422-428.

Figure 7

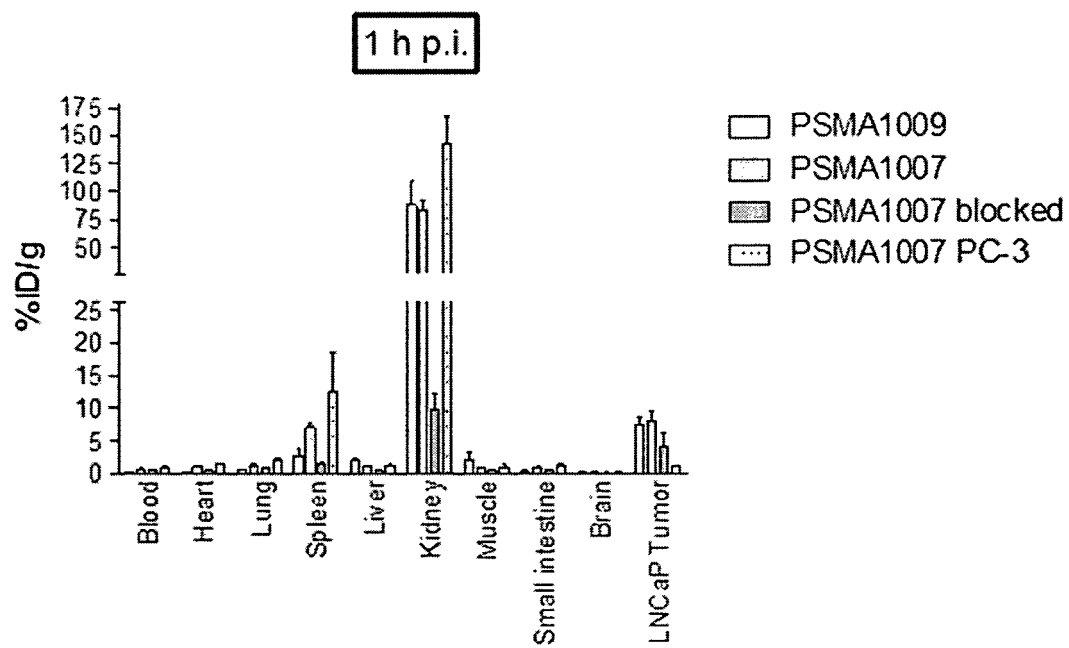


Figure 8

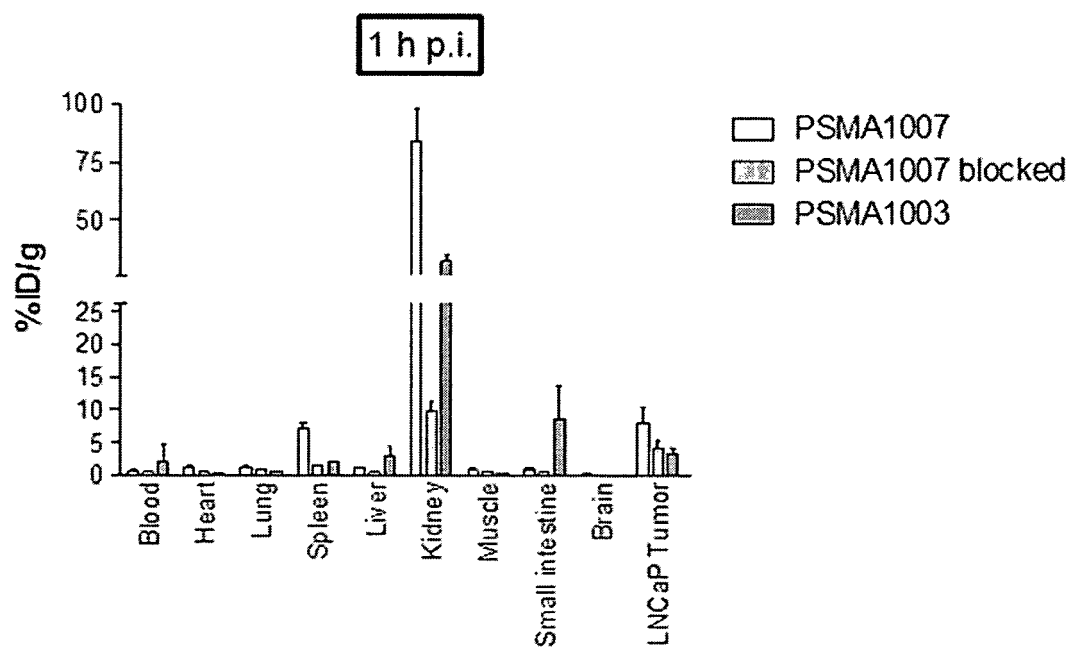


Figure 9

JC_04_1007_LnCap_T2_F18_1200_em_1F.pet
Subject ID: JC_04_1007_LnCap_T2_F18_1200_e
Sex o, Age-DOB: -13-Aug-2015 14:49:27

Mi OMa 3.1072E5
Scale: 0.98



MIP

Source

Angle: 357°

(S):PT:3.1 SUV-bw

FIGURE 10

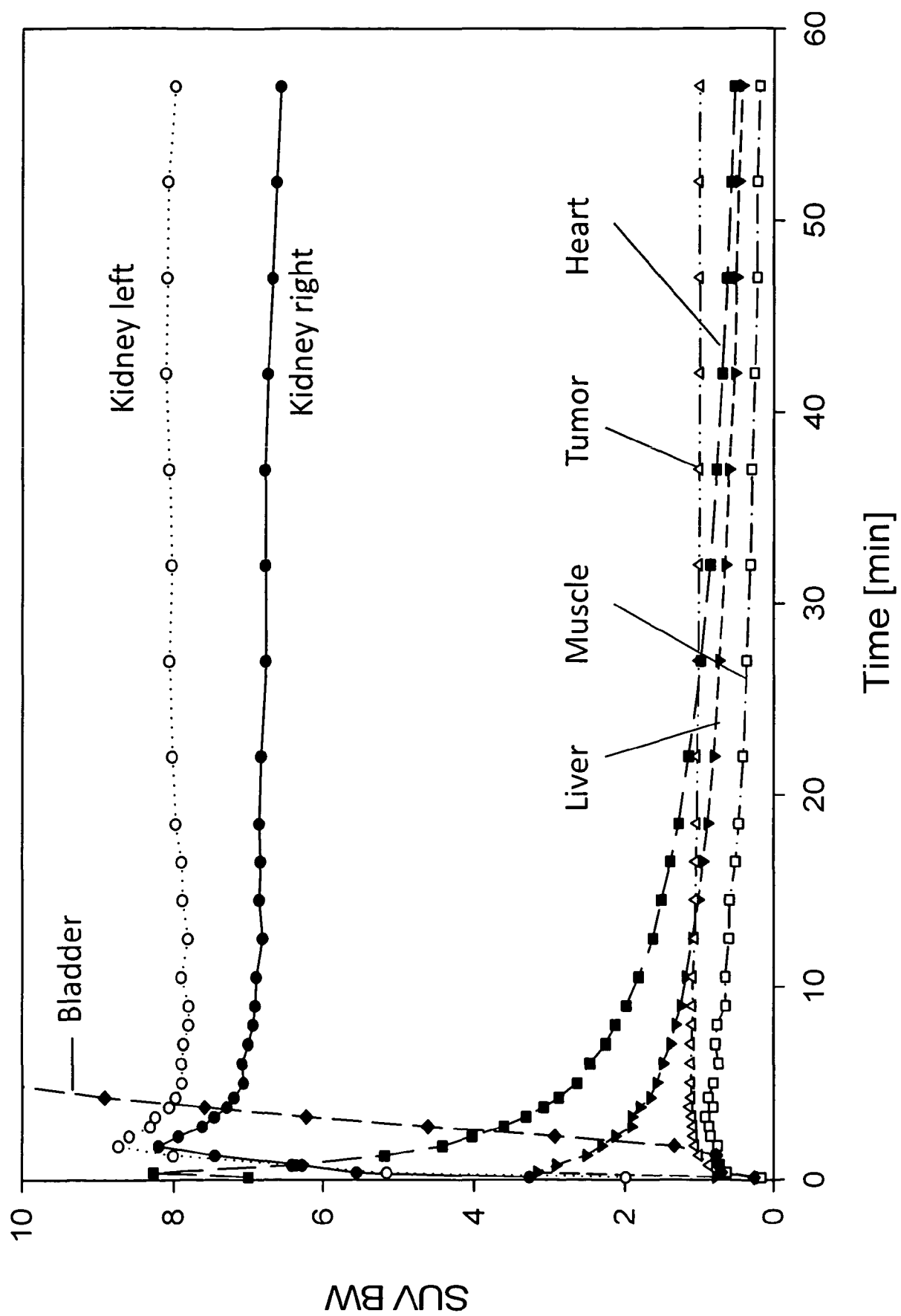


FIGURE 11

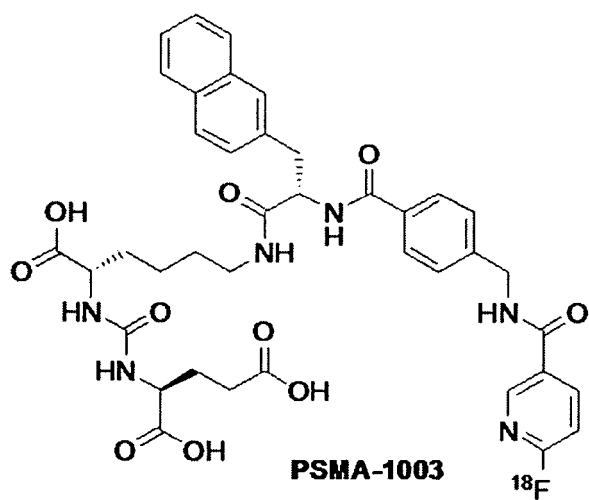
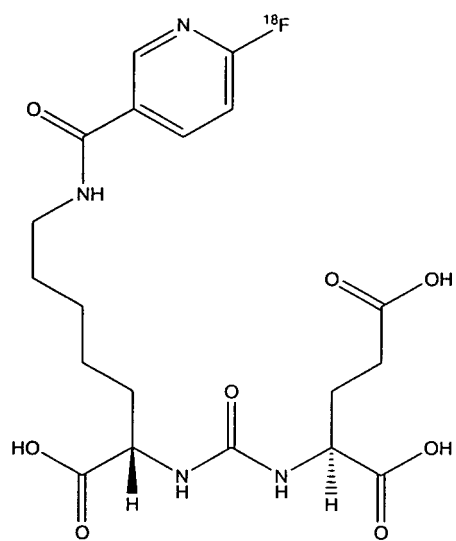


Figure 12



PSMA-1009 or [^{18}F]DCFPyL
(Y. Chen et al., Clin. Cancer
Res. 2011, 17, 7645-7653)

5

Figure 13

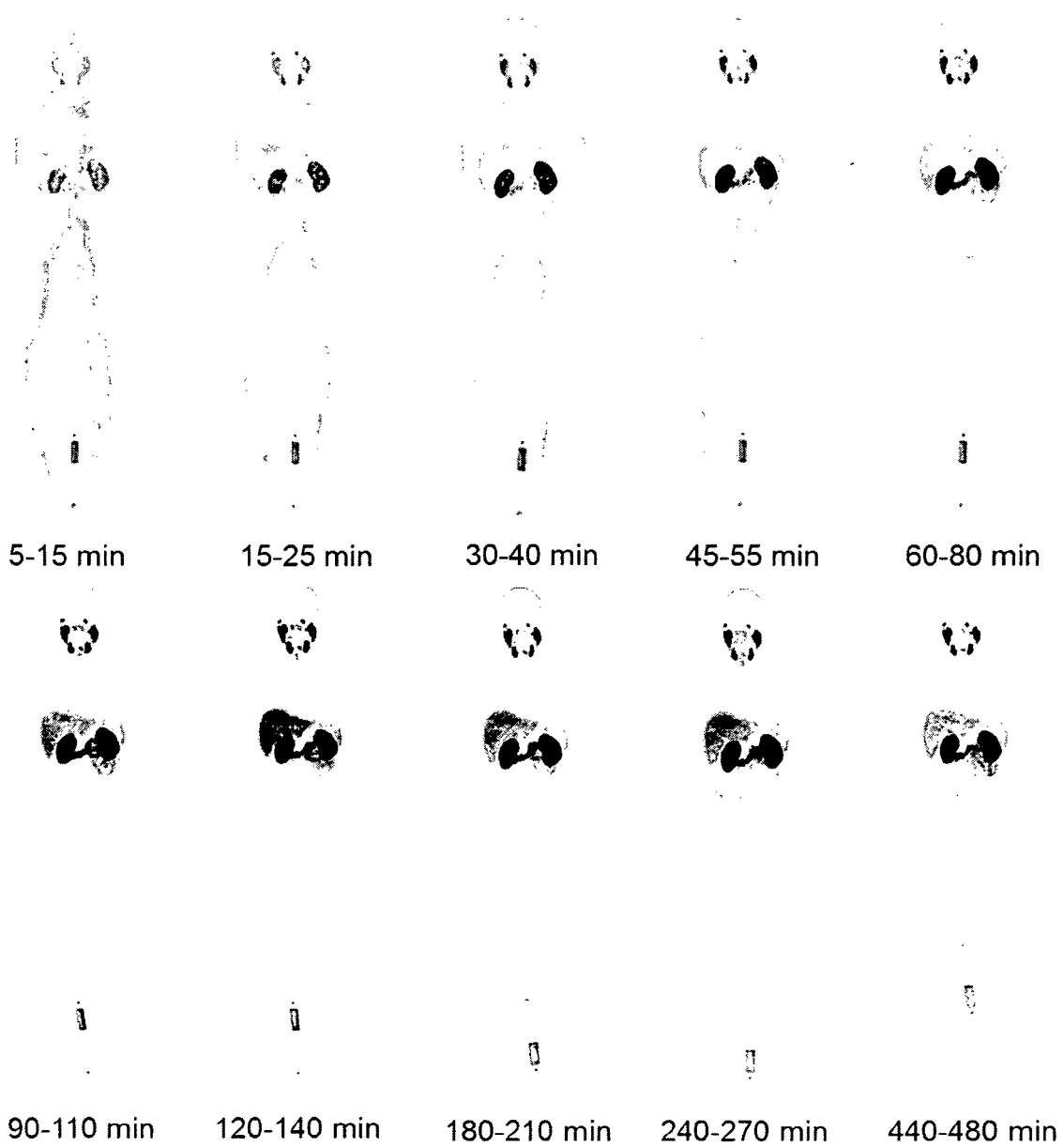
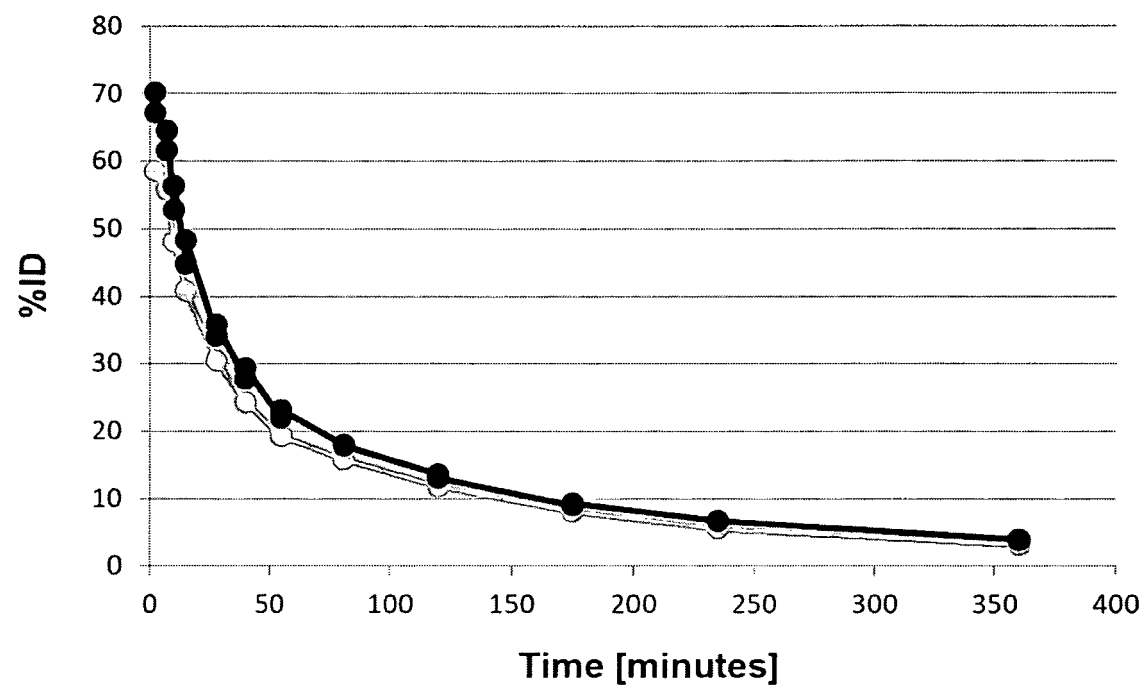


Figure 14



5 Figure 15

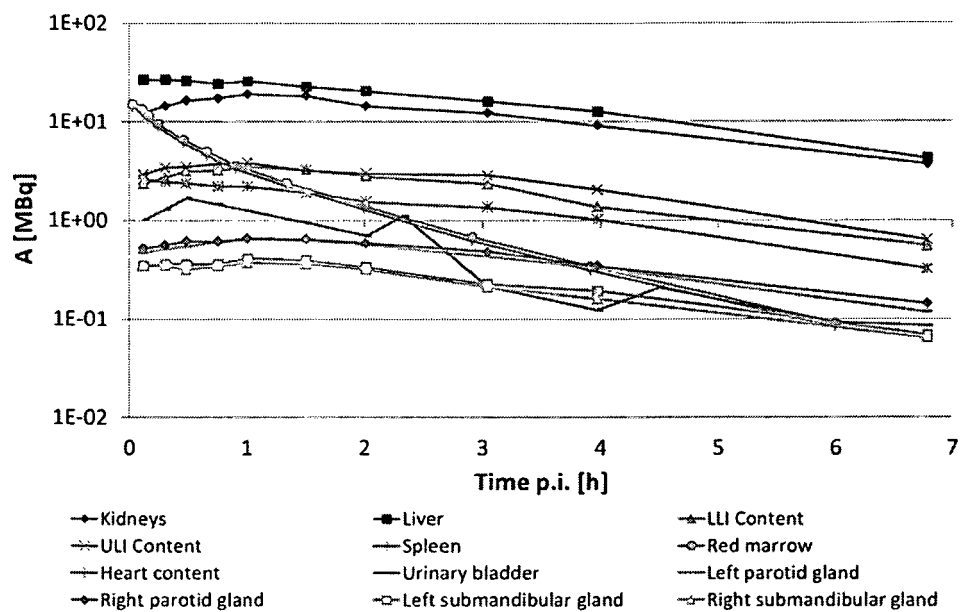


Figure 16

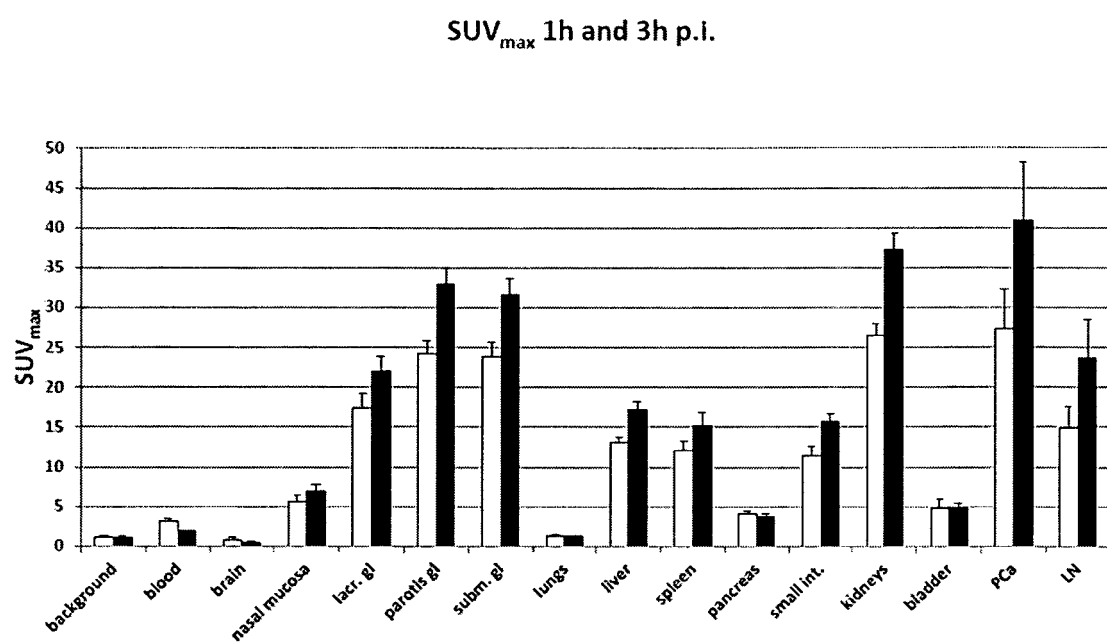


Figure 17

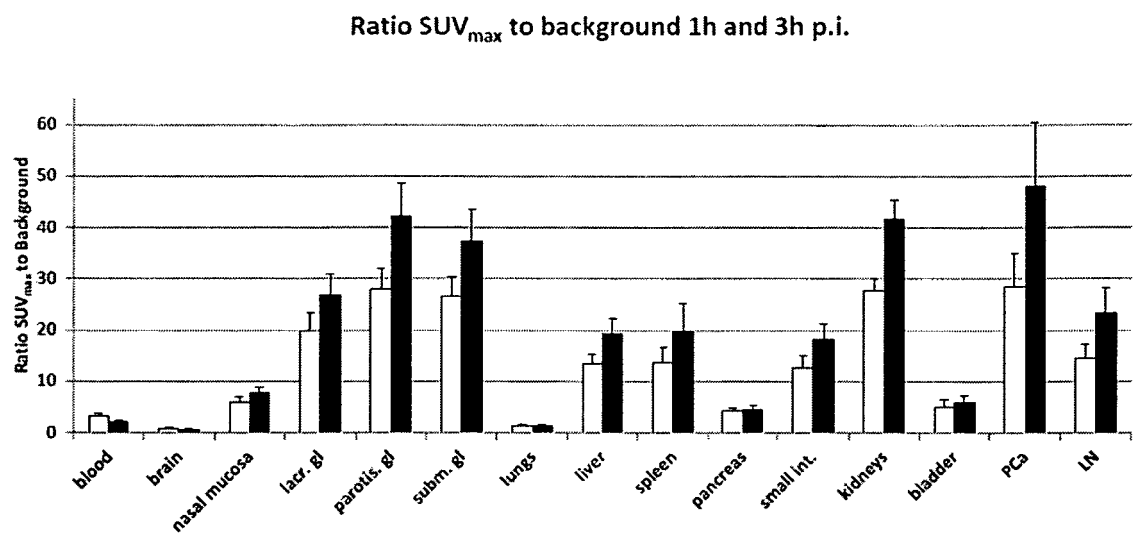


Figure 18

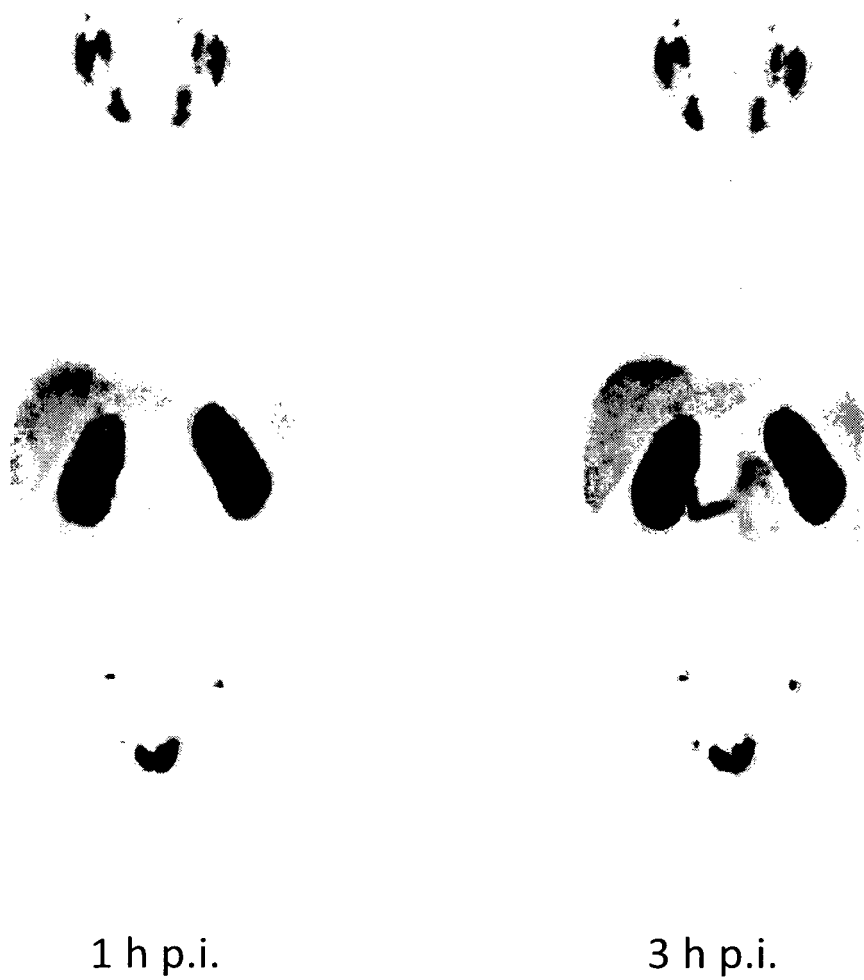


Figure 19

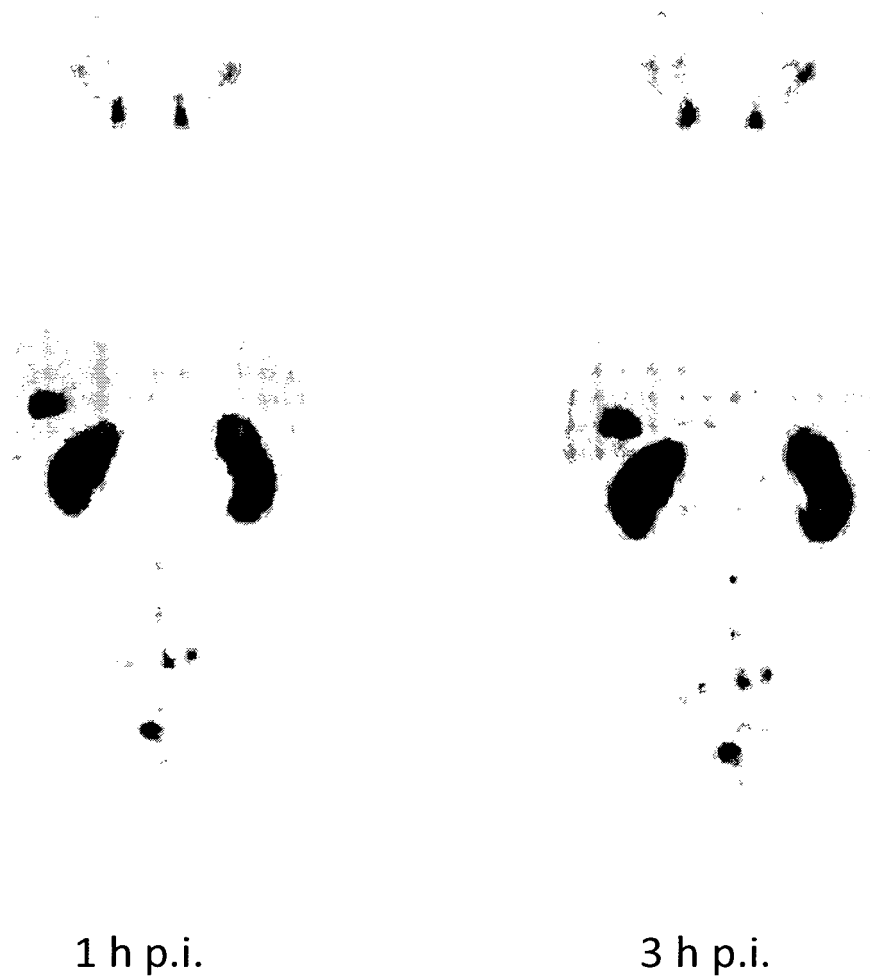
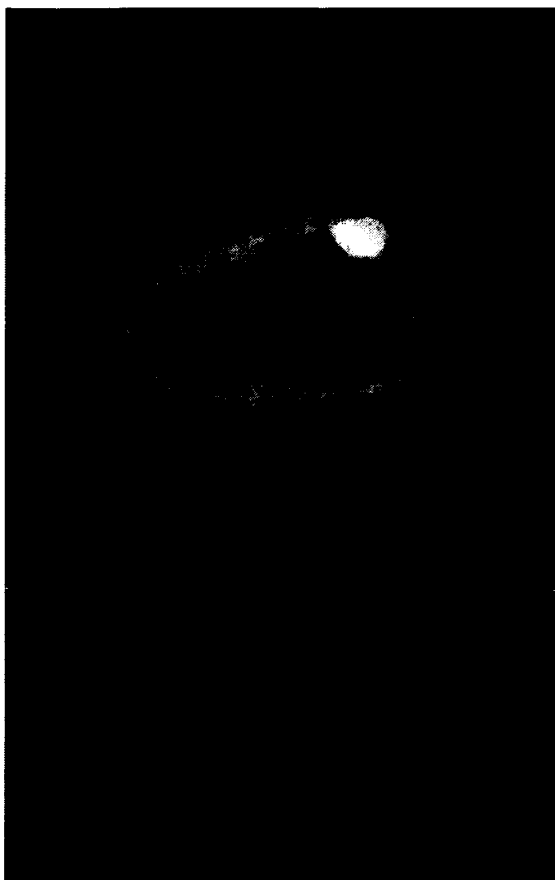


Figure 20

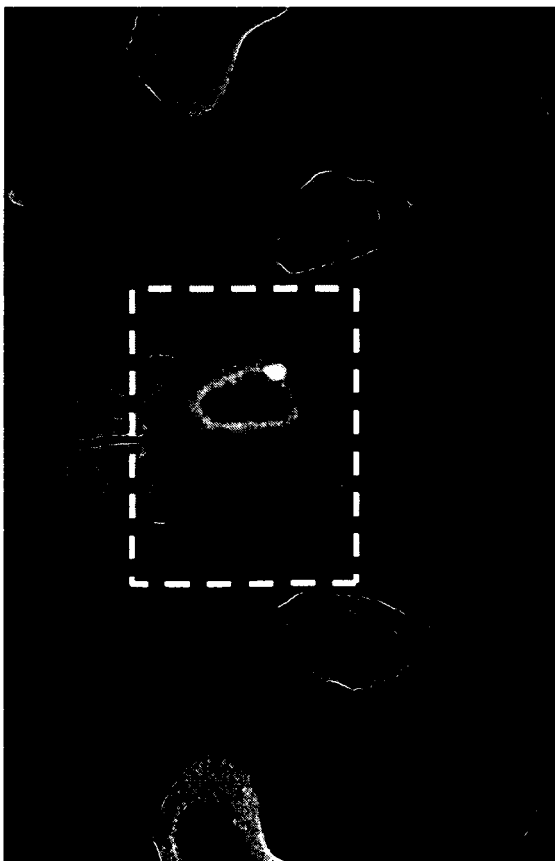
B.



D.



A.



C.



FIGURE 21