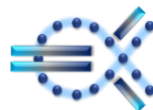


Ac-225 User Group at SNMMI

Date/Time: Sunday June 23rd at 4:00 – 5:00 pm
Location: Platinum Ballroom Salon 3, Anaheim Marriott



During production of ^{225}Ac from ^{232}Th via linear accelerator, the presence of ^{227}Ac and other minor impurities is unavoidable

At 1% activity, the molar ratio of ^{227}Ac to ^{225}Ac is 8.01

Thorium Cow Generated ^{225}Ac			
Radiosotopes Batch 183026 Batch Analysis Date: April 02, 2018	Activity Level		Comments
	mCi	%	
^{225}Ac	42.9	99.99	
^{225}Ra	$< 5 \times 10^{-3}$	$< 1 \times 10^{-2}$	Not detected
^{224}Ra	$< 5 \times 10^{-4}$	$< 1 \times 10^{-3}$	Not detected
^{229}Th	$< 2 \times 10^{-4}$	$< 5 \times 10^{-4}$	Not detected
All fissionable material	$< 3 \times 10^{-5}$	$< 7 \times 10^{-5}$	Extrapolated from earlier runs

Accelerated Generated ^{225}Ac			
Radiosotopes	Activity Level		Comments
	mCi	%	
^{225}Ac	2.2	99.99	
^{227}Ac	~0.02	~1	Extrapolated from earlier runs
^{223}Ra	$< 2 \times 10^{-4}$	$< 1 \times 10^{-3}$	Not detected
^{224}Ra	$< 2 \times 10^{-4}$	$< 1 \times 10^{-3}$	Not detected
^{227}Th	$< 2 \times 10^{-4}$	$< 1 \times 10^{-3}$	Not detected
^{229}Th	$< 2 \times 10^{-4}$	$< 1 \times 10^{-3}$	Not detected
^{140}Ba	$< 2 \times 10^{-4}$	$< 1 \times 10^{-3}$	Not detected
^{140}La	$< 2 \times 10^{-4}$	$< 1 \times 10^{-3}$	Not detected
^{241}Ce	$< 2 \times 10^{-4}$	$< 1 \times 10^{-3}$	Not detected

	Ac225	Ac227
Specific Activity of Ac225 (Ci/g)	58,000	72.375
Activity per gram of Ac225 (Ci)	58,000	580
Amount based on Activity (g)	1	8.01



To assess the potential impact of the ^{227}Ac impurity on antibody labeling efficiency and other parameters, studies were performed with lintuzumab-DOTA conjugates to comparatively label with both generator and linac ^{225}Ac

Even though the concentration of ^{227}Ac is higher than ^{225}Ac in accelerator material, labeling efficiency is similar to generator material and no free ^{225}Ac was detected after labeling

Critical quality attributes such as Radiochemical Purity and Immunoreactivity were similar for radio-conjugates generated from both ^{225}Ac sources

