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Supplementary Material

Investigation into the Use of Diaminodihydroxyaryl Derivative of Ethylenediaminetetraacetic Acid (DAHA-EDTA) for Cu-64 PET Imaging and Radioimmunotherapy

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This supplementary information contains the following additional data.

1. Typical HPLC profile for crude and purified final product.
2. Biodistribution of [Cu-64-DAHA-EDTA]-B72.3 in LS174t tumour bearing nude mice.
3. Tumour to key organ uptake ratios for all time points.
4. Dosimetry Data

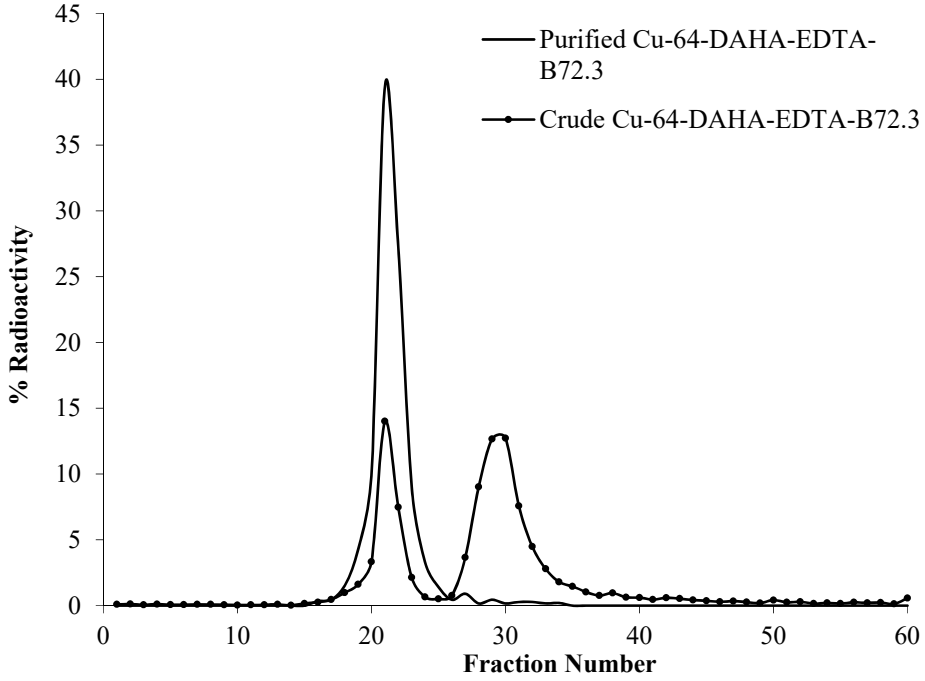

Fig.S1 A typical radioactive profile for crude and purified [Cu-64-DAHA EDTA]-B72.3 mAb

2) Biodistribution of [Cu-64-DAHA-EDTA]-B72.3 in LS174t tumour bearing nude mice.

Table S1 gives the full data set for the biodistribution of [Cu-64-DAHA-EDTA]-B72.3 in LS174t tumour bearing nude mice. A total of 45 animals: 5 animals per 9 time points and 16 organs per animal.

Table S1. Biodistribution of [Cu-64-DAHA-EDTA]-B72.3 in nu/nu tumour bearing mice

	% Injected Dose/g (Standard Deviation)*																	
Organ	**0.5 h**		**1 h**		**2 h**		**3 h**		**4 h**		**5 h**		**6 h**		**16 h**		**24 h**	
Liver	27.7	(3.0)	25.2	(3.6)	24.4	(1.5)	29.2	(10.2)	25.6	(2.6)	26.0	(2.4)	24.4	(3.2)	17.1	(1.2)	16.0	(1.3)
Spleen	7.9	(0.9)	6.1	(0.5)	7.3	(1.1)	6.3	(1.6)	7.8	(0.7)	7.2	(0.8)	7.2	(1.7)	6.4	(1.9)	6.7	(0.7)
Kidney	19.9	(3.0)	14.8	(1.3)	14.0	(1.5)	11.7	(1.5)	12.3	(1.1)	12.0	(1.9)	11.2	(1.1)	9.3	(0.6)	9.8	(0.4)
Muscle	3.6	(2.7)	2.1	(1.0)	2.1	(0.5)	1.2	(0.2)	1.6	(0.5)	1.5	(0.4)	1.0	(0.2)	1.3	(0.4)	1.2	(0.8)
Skin	4.3	(0.4)	4.3	(0.6)	5.6	(0.8)	4.9	(0.8)	5.1	(1.1)	5.0	(0.7)	4.7	(0.9)	3.0	(0.4)	3.3	(0.8)
Bone	4.7	(1.0)	3.5	(0.6)	3.6	(0.6)	2.7	(0.6)	3.3	(0.4)	3.1	(1.0)	2.7	(0.7)	2.8	(1.0)	2.5	(0.2)
Lungs	17.0	(2.4)	14.5	(1.1)	14.7	(1.3)	11.8	(2.0)	14.5	(1.9)	13.2	(1.4)	12.7	(1.8)	10.0	(0.6)	11.0	(0.8)
Hearts	13.7	(2.6)	8.6	(1.0)	9.1	(0.1)	6.8	(1.2)	7.9	(0.3)	6.6	(0.7)	6.8	(0.9)	5.2	(0.8)	6.0	(0.5)
Blood	25.7	(1.4)	17.7	(1.9)	13.8	(1.3)	10.5	(2.1)	9.8	(1.4)	8.7	(1.4)	7.7	(0.8)	6.3	(0.8)	3.9	(0.7)
Urine																		
Bladder	14.8	(17.5)	5.2	(5.4)	22.6	(17.5)	2.8	(3.7)	5.6	(3.1)	6.1	(1.8)	4.9	(3.5)	9.6	(12.4)	10.8	(15.6)
Stomach	7.6	(2.1)	8.8	(3.1)	9.2	(1.2)	8.6	(3.1)	8.7	(1.6)	9.2	(2.6)	7.7	(2.2)	4.2	(2.3)	3.5	(1.4)
GIT	7.1	(0.8)	9.2	(1.8)	12.1	(1.1)	11.6	(2.5)	14.1	(1.5)	11.9	(1.6)	13.5	(2.5)	8.5	(1.2)	7.3	(1.2)
Tail																		
Thyroid		(43.8)	2.0	(22.7)		(34.1)	7.9	(5.2)	9.3	(5.8)		(16.5)	4.8	(2.0)	5.6	(2.2)	9.6	(6.8)
Tumour	11.1	(6.7)	16.7	(7.9)	27.6	(9.6)	19.4	(5.0)	18.9	(2.0)	21.0	6.2	25.8	(7.5)	20.0	(0.5)	21.6	(1.8)

- These values are the average number from 5 mice/time point

3) Tumour to key organs uptake ratios for all time points.

Table S2. Ratio of Uptake of [Cu-64-DAHA-EDTA]-B72.3 in Tumour verses Key Organs.

	Organ Uptake Ratio of ^{64}Cu-DAHA-EDTA-B72.3 in nu/nu tumour bearing mice								
	0.5 h	**1 h**	**2 h**	**3 h**	**4 h**	**5 h**	**6 h**	**16 h**	**24 h**
Tumour/Blood	0.4	0.9	2.0	1.8	1.9	2.4	3.3	3.2	5.6
Tumour /Liver	0.4	0.7	1.1	0.7	0.7	0.8	1.0	0.9	1.3
Tumour/Kidney	0.7	1.1	2.0	1.7	1.5	1.7	2.3	2.1	2.2

4) Dosimetry Data

Table S3: Estimated Dosimetry of [Cu-64-DAHA-EDTA]-B72.3 in humans[a]

	Total Dose of ^{64}Cu	
Organ	**(mGy/MBq)**	***(rad/mCi)***
Adrenals	0.011	0.040
Brain	0.001	0.005
Breasts	0.006	0.024
Gall bladder Wall	0.015	0.057
LLI Wall	0.030	1.121
Small Intestine	0.115	0.425
Stomach	0.053	0.195
ULI Wall	0.200	0.740
Heart Wall	0.027	0.101
Kidneys	0.138	0.511
Liver	0.021	0.079
Lungs	0.022	0.081
Ovaries	0.022	0.081
Muscle	0.005	0.017
Pancreas	0.012	0.047
Red Marrow	0.014	0.054
Bone Surfaces	0.006	0.090
Skin	0.006	0.023
Spleen	0.060	0.224
Thymus	0.007	0.025
Testes	0.007	0.026
Thyroid	0.038	0.139
Bladder Wall	0.012	0.043
Uterus	0.019	0.066
Total Body	0.011	0.042
Effective Dose	0.062 mSv/MBq	0.228 mSv/MBq

[a]Software used for calculations was MIRDOSE 3. [b]Lower Large Intestine (LLI) [c]Upper Large Intestine (ULI)