

Supplementary Materials

Preclinical Evaluation of a ^{64}Cu -Based Theranostic Approach in a Murine Model of Multiple Myeloma

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Table S1 : Specific activity of [⁶⁴Cu]Cu-TE1PA-9E7.4.

Experiments	PET imaging	Therapy using 22MBq	Therapy using 35 MBq	Therapy using 55 MBq	Therapy using 65 MBq
Specific activity (MBq/mg) at the end of radiosynthesis	236	262	383 ± 46	580 ± 50	651

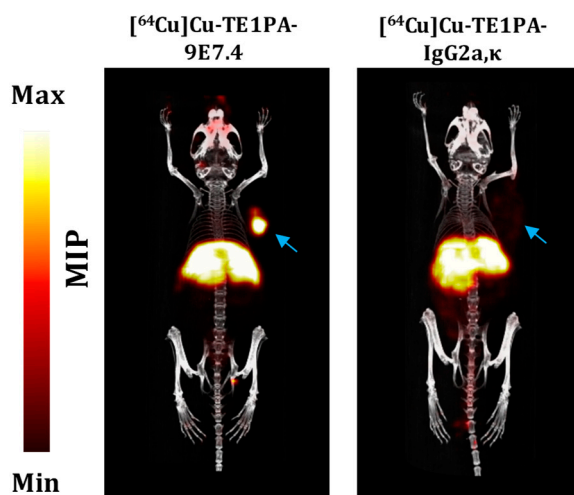


Figure S1. In vivo PET-CT imaging in MOPC315.BM tumour-bearing mice. Images were acquired 24 h after i.v injection of [⁶⁴Cu]Cu-TE1PA-9E7.4 (10.01 MBq ;25 µg of 9E7.4) or [⁶⁴Cu]Cu-TE1PA-IgG2a,κ (7.1 MBq; 25 µg of IgG2a,κ isotype). Mice were imaged 5 minutes, 2, 24, 48 and 72 h post injection. Images are presented as MIP ("maximum intensity projection"). Blue arrows indicate the location of the MOPC315.BM tumour.

Table S2: Ex vivo biodistribution experiments in normal (healthy) mice. Experiments were performed at 5 minutes, 2, 24, 48 and 72 h post intravenous injection of [⁶⁴Cu]Cu-TE1PA-9E7.4 (8.5 ± 0.75 MBq ;25 µg of 9E7.4).. * Values statistically different from the values obtained in the biodistribution of mice bearing a MOPC315.BM s.c tumour; † statistically different from that obtained at the previous time p.i (multiple t-tests with the Holm-Sidak method, p<0.05).

	Healthy mice				
	5 min p.i	2 h p.i	24 h p.i	48 h p.i	72 h p.i
Liver	35.8 ± 8.4	27.8 ± 12.3	21.8 ± 5.8 *	15.0 ± 3.8 *†	15.7 ± 1.4 *
Blood	26.6 ± 7.8	14.6 ± 8.2 †	7.0 ± 1.2 *	5.3 ± 0.6 *	2.7 ± 0.07 *
Muscle	1.1 ± 0.2	0.9 ± 0.2	1.0 ± 0.3	0.8 ± 0.1	0.9 ± 0.2
Salivary glands	3.3 ± 1.1	ND	3.8 ± 0.9	3.4 ± 0.3	3.1 ± 0.3 *
Brain	1.2 ± 0.4	0.8 ± 0.4	0.4 ± 0.0	0.3 ± 0.0	0.4 ± 0.1
Nodes	0.9 ± 0.2	0.8 ± 0.2	1.7 ± 0.4	1.5 ± 0.3	1.5 ± 0.2
Bones	2.1 ± 0.4	2.0 ± 1.0	1.9 ± 0.4	1.7 ± 0.4	1.5 ± 0.2
Lungs	11.0 ± 3.8	6.1 ± 3.1	6.5 ± 1.5	5.8 ± 1.2	5.8 ± 0.9 *
Heart	9.2 ± 3.1	5.1 ± 2.5	3.6 ± 0.8	3.0 ± 0.4	2.5 ± 0.2
Spleen	6.9 ± 1.7	10.9 ± 4.7	13.7 ± 2.7 *	12.5 ± 2.5 *	11.8 ± 1.4 *

Kidneys	9.8 ± 3.0	10.5 ± 4.7	8.8 ± 1.5	7.1 ± 0.8	5.2 ± 0.4 *
Empty bowel	3.0 ± 0.8	3.8 ± 1.1	7.5 ± 1.5 *	8.5 ± 1.3 *	6.9 ± 0.7 *
Empty stomach	1.7 ± 0.8	2.3 ± 0.4	3.5 ± 0.9	3.2 ± 0.8	3.2 ± 0.1 *

Table S3: Ex vivo biodistribution experiments in MOPC315.BM tumour bearing mice. Experiments were performed at 5 minutes, 2, 24, 48 and 72 h post intravenous injection of [⁶⁴Cu]Cu-TE1PA-9E7.4 (8.46 ± 0.47 MBq ;25 µg of 9E7.4). Tumor-to-selected tissues ratios at 24 and 48 h p.i. are also presented. * Values statistically different from the values obtained in the biodistribution of healthy mice; † values statistically different from that obtained at the previous p.i. time (multiple t-tests with the Holm-Sidak method, p<0.05).

Tumour-bearing mice s.c MOPC315.BM

	5 min p.i	2 h p.i	24 h p.i	48 h p.i	72 h p.i
Tumor	9.2 ± 0.7	45.6 ± 5.1 †	32.3 ± 5.7 †	62.5 ± 17.1 †	33.2 ± 12.5 †
Liver	29.8 ± 0.4	23.5 ± 1.6 †	10.4 ± 2.1 *†	9.1 ± 1.5 *†	7.2 ± 1.0 *
Blood	27.8 ± 2.9	10.9 ± 0.4 †	2.8 ± 0.3 *†	2.5 ± 0.3 *	1.4 ± 0.2 *
Muscle	0.8 ± 0.1	0.7 ± 0.3	0.5 ± 0.1	0.4 ± 0.1	0.4 ± 0.0 *
Salivary glands	2.5 ± 0.4	1.9 ± 0.3	1.5 ± 0.1	1.6 ± 0.1	1.1 ± 0.1
Brain	1.5 ± 0.1	0.3 ± 0.1	0.2 ± 0.0	0.2 ± 0.0	0.2 ± 0.0
Nodes	0.8 ± 0.2	1.3 ± 1.3	1.7 ± 0.6	0.98 ± 0.2	1.0 ± 0.4
Bones	2.0 ± 0.3	1.6 ± 0.3	0.9 ± 0.1	1.0 ± 0.1	0.7 ± 0.1
Lungs	12.6 ± 2.4	5.5 ± 0.3 †	3.0 ± 0.3	3.1 ± 0.4	2.0 ± 0.3 *
Heart	8.9 ± 0.6	4.3 ± 0.3 †	1.6 ± 0.1	1.6 ± 0.1	1.3 ± 0.1
Spleen	5.3 ± 0.5	7.3 ± 1.2	4.9 ± 0.8 *	6.1 ± 0.8 *	4.3 ± 0.8 *
Kidneys	8.6 ± 0.7	12.0 ± 1.0	6.8 ± 0.2 †	6.1 ± 0.5	3.5 ± 0.1 *
Empty bowel	2.33 ± 0.37	4.9 ± 0.7	3.0 ± 0.5 *	4.0 ± 0.8 *	2.0 ± 0.3 *
Empty stomach	1.55 ± 0.18	2.2 ± 0.1	1.4 ± 0.1	1.8 ± 0.2	1.1 ± 0.1 *
<i>Tumor-to-blood ratio</i>			11.5 ± 2.0	24.2 ± 5.4	
<i>Tumor-to-muscle ratio</i>			65.5 ± 22	145 ± 44	
<i>Tumor-to-liver ratio</i>			3.1 ± 0.1	6.7 ± 1.5	
<i>Tumor-to-bone ratio</i>			37.8 ± 7.9	62.2 ± 13.7	