

A Modular Strategy for the Construction of Radiometallated Antibodies for Positron Emission Tomography Based on Inverse Electron Demand Diels-Alder Click Chemistry

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	6 h	12 h	24 h	48 h	72 h
HER2+/Blood	0.5 ± 0.3	1.5 ± 0.5	2.5 ± 1.0	3.9 ± 0.9	4.7 ± 0.5
HER2+/HER2-	1.7 ± 0.8	2.8 ± 1.0	2.9 ± 0.6	5.1 ± 1.7	4.7 ± 0.5
HER2+/Heart	2.1 ± 1.1	3.6 ± 1.6	6.1 ± 1.6	10.2 ± 3.4	9.7 ± 5.3
HER2+/Lungs	0.9 ± 0.4	2.5 ± 0.6	4.1 ± 1.6	5.5 ± 1.4	5.8 ± 0.3
HER2+/Liver	0.9 ± 0.4	2.4 ± 0.5	2.7 ± 0.6	6.9 ± 1.2	6.8 ± 0.8
HER2+/Spleen	0.9 ± 0.6	2.4 ± 0.6	2.5 ± 0.7	7.7 ± 1.5	8.0 ± 1.6
HER2+/Stomach	5.5 ± 3.1	23.9 ± 10.6	10.9 ± 2.4	33.8 ± 9.8	30.6 ± 3.5
HER2+/Sm. Inst.	3.0 ± 1.8	11.4 ± 2.7	7.5 ± 3.7	20.0 ± 3.6	21.2 ± 1.1
HER2+/Lg. Inst.	5.2 ± 2.4	14.1 ± 2.8	8.4 ± 4.9	31.4 ± 8.7	27.6 ± 5.6
HER2+/Kidney	1.9 ± 0.9	4.9 ± 1.4	9.0 ± 5.2	11.0 ± 2.2	12.2 ± 1.2
HER2+/Muscle	17.3 ± 9.6	34.1 ± 20.6	43.5 ± 23.2	44.0 ± 11.7	68.9 ± 8.9
HER2+/Bone	3.4 ± 3.3	17.1 ± 3.5	7.3 ± 1.6	40.0 ± 10.1	21.2 ± 9.0

Table S2. Tumor to organ ratios obtained from data collected in biodistribution experiment employing ^{89}Zr -DFO-T/N-trastuzumab in mice bearing bilateral s.c. BT-474 (HER2-positive) and MDA-MB-468 (HER2-negative) xenografts (n = 4 for each time point)

	6 h	24 h	48 h	72 h	96 h	120 h
HER2+/Blood	0.5 ± 0.2	1.3 ± 0.7	2.7 ± 1.1	3.1 ± 0.5	3.6 ± 0.5	3.8 ± 0.7
HER2+/HER2-	2.0 ± 1.1	3.6 ± 1.2	4.4 ± 2.7	4.5 ± 0.8	4.3 ± 1.8	4.0 ± 0.4
HER2+/Heart	1.0 ± 0.4	2.7 ± 1.1	10.7 ± 5.8	7.8 ± 3.2	8.5 ± 3.3	6.7 ± 0.7
HER2+/Lungs	1.5 ± 0.5	3.1 ± 1.1	6.1 ± 2.7	6.3 ± 2.6	5.2 ± 3.1	5.4 ± 1.4
HER2+/Liver	0.9 ± 0.3	2.8 ± 0.8	4.0 ± 1.7	4.8 ± 0.6	5.6 ± 1.3	5.2 ± 2.8
HER2+/Spleen	2.0 ± 0.6	3.4 ± 1.4	4.3 ± 1.5	5.0 ± 1.8	5.7 ± 3.0	6.5 ± 3.2
HER2+/Stomach	3.4 ± 1.2	15.7 ± 2.4	25.6 ± 7.7	37.6 ± 10.1	38.0 ± 8.9	38.8 ± 6.8
HER2+/Sm. Inst.	2.7 ± 1.0	7.7 ± 1.2	8.1 ± 3.1	15.6 ± 3.9	19.0 ± 4.9	15.9 ± 3.0
HER2+/Lg. Inst.	5.1 ± 1.9	23.1 ± 7.4	37.6 ± 5.9	32.7 ± 13.2	72.2 ± 22.9	49.9 ± 18.0
HER2+/Kidney	1.4 ± 0.6	3.7 ± 0.6	9.1 ± 2.0	6.5 ± 1.6	7.1 ± 0.8	8.0 ± 2.7
HER2+/Muscle	10.4 ± 4.1	21.1 ± 3.5	40.0 ± 13.2	34.1 ± 7.1	32.8 ± 4.6	27.9 ± 2.7
HER2+/Bone	1.9 ± 0.6	3.7 ± 0.8	4.4 ± 1.2	4.9 ± 0.8	4.9 ± 1.2	4.6 ± 0.5

Figure S1. Maximum intensity projection from PET image of ^{89}Zr -DFO-T/N-trastuzumab trastuzumab (0.56 – 0.74 MBq [15-20 μCi] in 200 μL 0.9% sterile saline) in a mouse bearing bilateral BT-474 (HER2-positive, right shoulder) and MDA-MB-468 (HER2-negative, left shoulder) at t = 96 h. The white lines are shown to illustrate the HER2-positive tumor, HER2-negative tumor, and residual bone uptake.

