SUPPLEMENTARY INFORMATION

The use of radiocobalt as a label improves imaging of EGFR using DOTA-conjugated Affibody molecule

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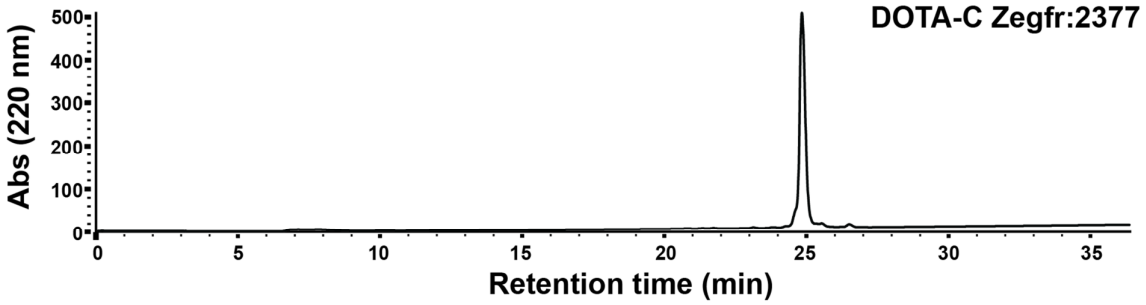
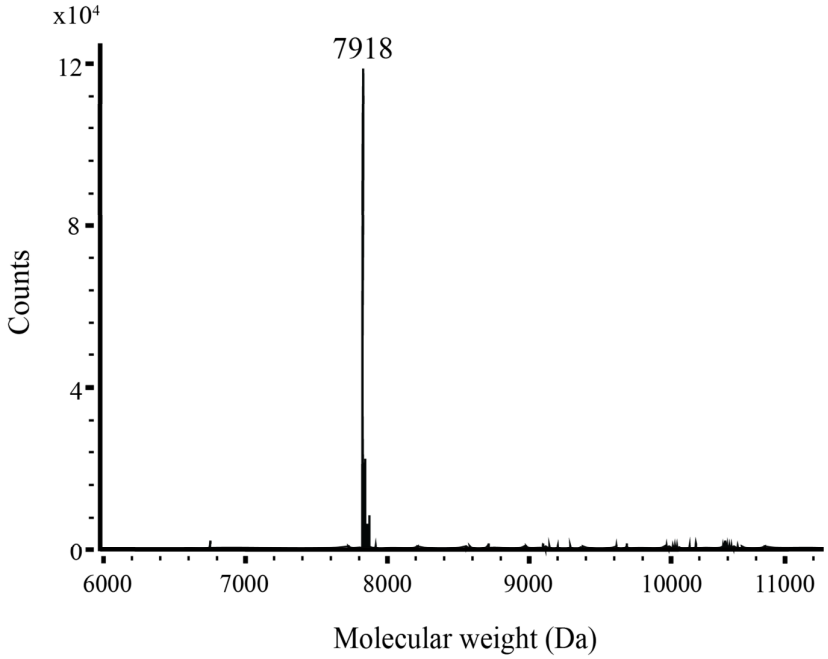
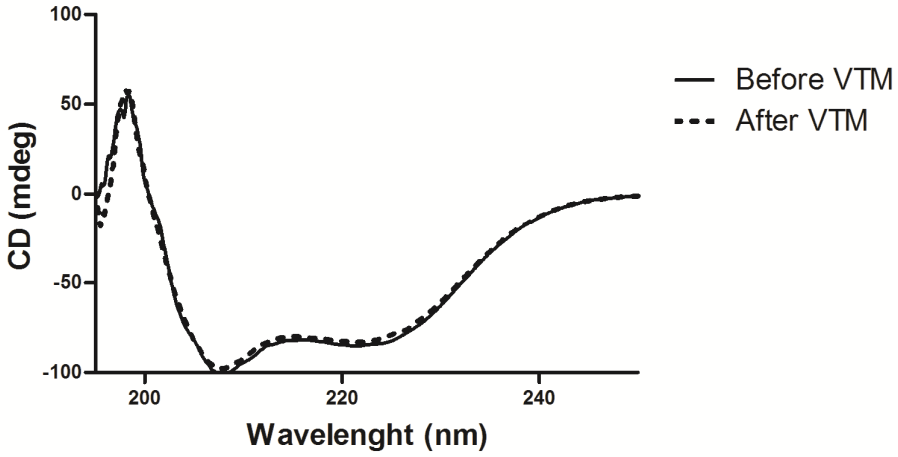


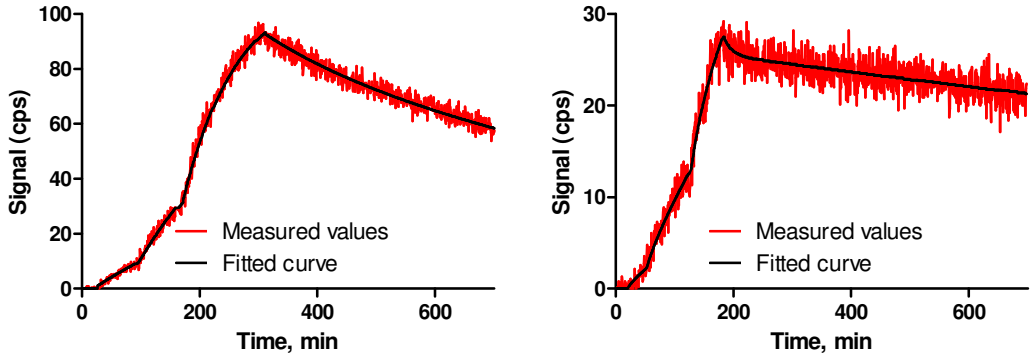
Supplementary Figure S1. Analytical RP-HPLC analysis of purified DOTA-$Z_{EGFR:2377}$. The absorbance was measured at 220 nm.



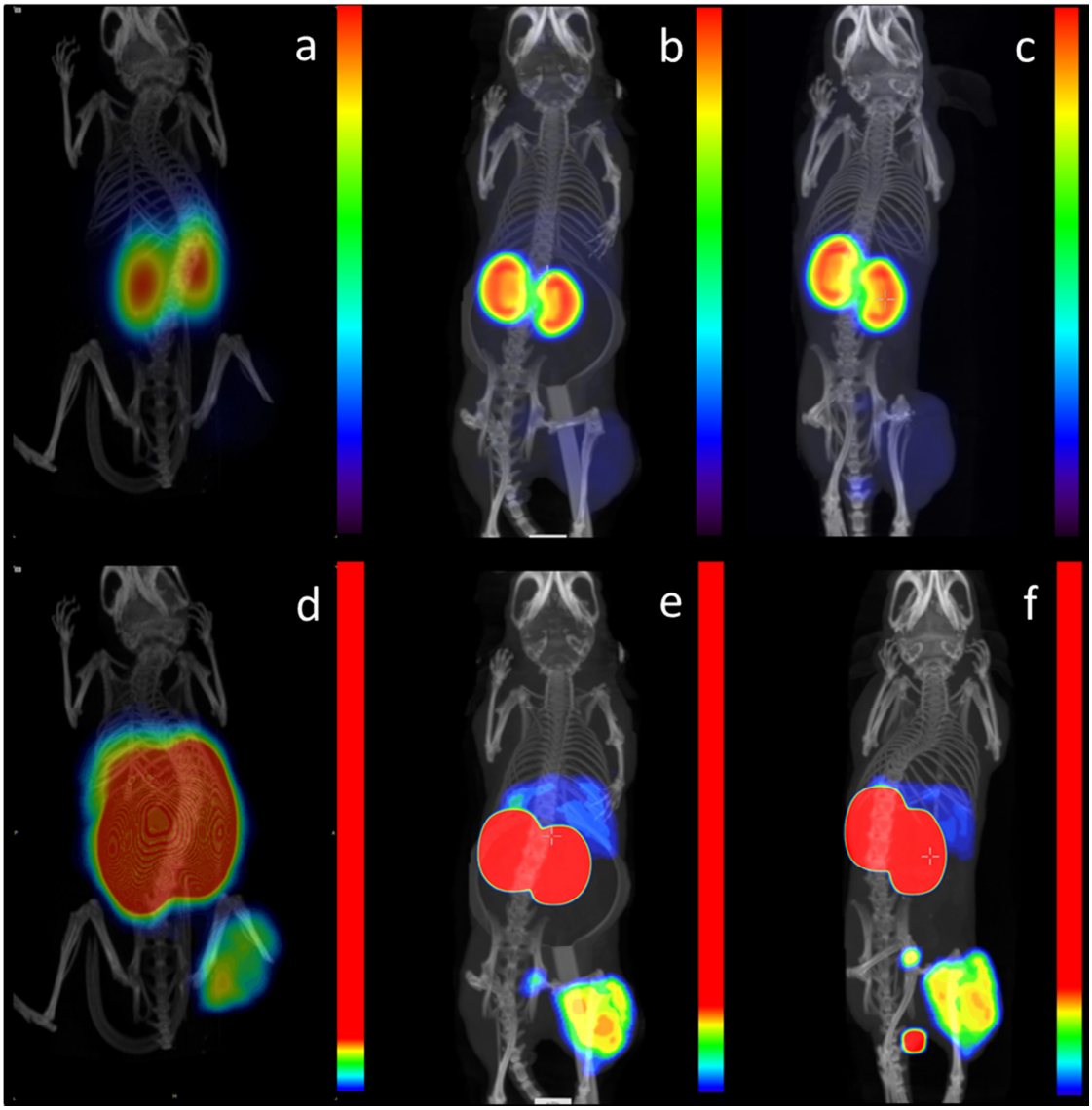
Supplementary Figure S2. Mass spectrum of purified DOTA-$Z_{EGFR:2377}$.



Supplementary Figure S3. Overlay of circular dichroism spectra from 195- 250 nm for DOTA-$Z_{EGFR:2377}$ before (solid line) and after (dashed line) heating from 20-90°C.



Supplementary Figure S4. Representative sensorgrams of the LigandTracer measurement to determine the kinetics and affinity of ^{111}In- DOTA-$Z_{EGFR:2377}$ (left) and ^{57}Co-DOTA-$Z_{EGFR:2377}$ (right) to EGFR on A431 cells.



Supplementary Figure S5. PET/CT imaging using ^{68}Ga-DOTA-$Z_{EGFR:2377}$ (a and d) and microSPECT/CT using ^{57}Co-DOTA-$Z_{EGFR:2377}$ at 3 h (b and e) and 24 h (c and f) after injection of mice bearing EGFR-expressing A431 xenografts. The relative colour scales were normalized to the highest activity in images a, b and c, and then adjusted to provide first red pixel in tumours in images d, e and f (8, 13 and 17% of the full scale, respectively).

Supplementary Table S1. Radiochemical yields and specific activities of imaging probes used in this study.

	Yield, decay corrected; %	Max. specific activity at the end of synthesis; MBq/µg (GBq/µmol)
^{57}Co-DOTA-$Z_{EGFR:2377}$	> 99%	0.30 (2.34)
^{55}Co-DOTA-$Z_{EGFR:2377}$	> 99%	0.98 (7.05)
^{68}Ga-DOTA-$Z_{EGFR:2377}$	98.9±0.5%	2.05 (16.3)

Supplementary Table S2. Long-lived positron-emitting radionuclides. Data are taken from

Tolmachev, V. & Stone-Elander S. Radiolabelled proteins for positron emission tomography: Pros and cons of labelling methods. *Biochim. Biophys. Acta.* **1800**, 487-510 (2010).

Nuclide	Half-life, hour	Mode of decay	Principal photon emissions, keV (abundance in %)
^{55}Co	17.5	β^+ 76 % EC 24 %	**511(152%),** 477(20.2 %), 931(75 %), 1317(7.1%), 1408(16.9%)
^{64}Cu	12.7	β^+ 18 β^- 37% EC 24 %	**511(36%),** 1346(0.5%)
^{76}Br	16.2	β^+ 54% EC 46%	**511(108%),** 559(74%), 657(15.9%),1216(8.8%), 1854(14.7%), 2391(4.7%), 2792(5.6%), 2950.5(7.4%)
^{86}Y	14.7	β^+ 33 % EC 67 %	**511(66%),** 443(16.9%), 628(32.6%), 646(9.2%), 703(15.4%), 778(22.4%), 1077(82.5%), 1153(30.5%), 1854(17.2%), 1920(20.8%)
^{89}Zr	78.4	β^+ 23% EC 77%	**511(46%),** 909(100%)
^{124}I	100.2	β^+ 23% EC 77%	**511(46%),** 603(61%), 723(9.96%), 1691(10.4%)