Bifunctional bispidine derivatives for copper-64 labelling and Positron Emission Tomography

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Supplementary Informations

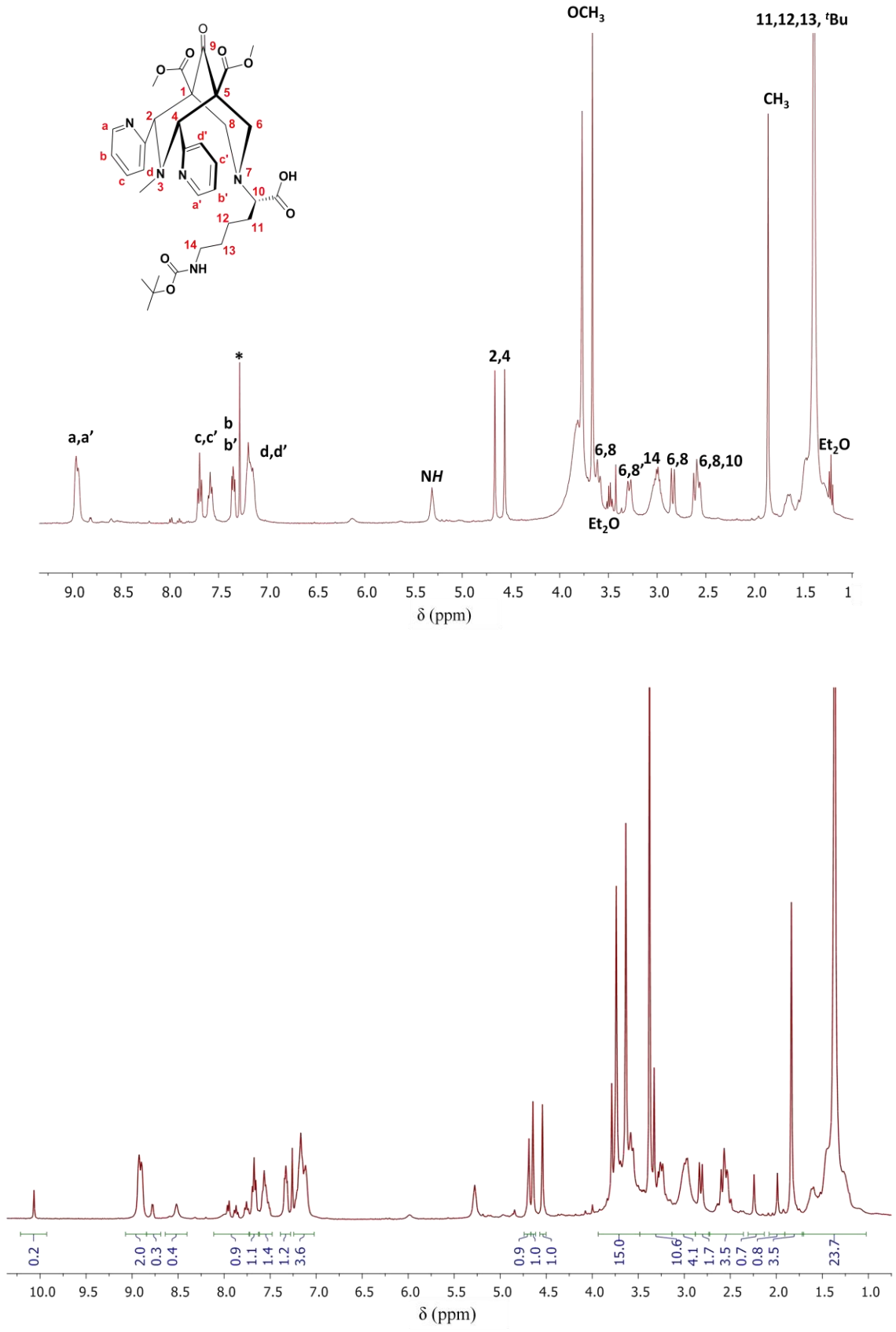

Figure S1. ^{1}H NMR spectrum of 1 (400MHz, $CDCl_3$) after (top) and before (bottom) purification.

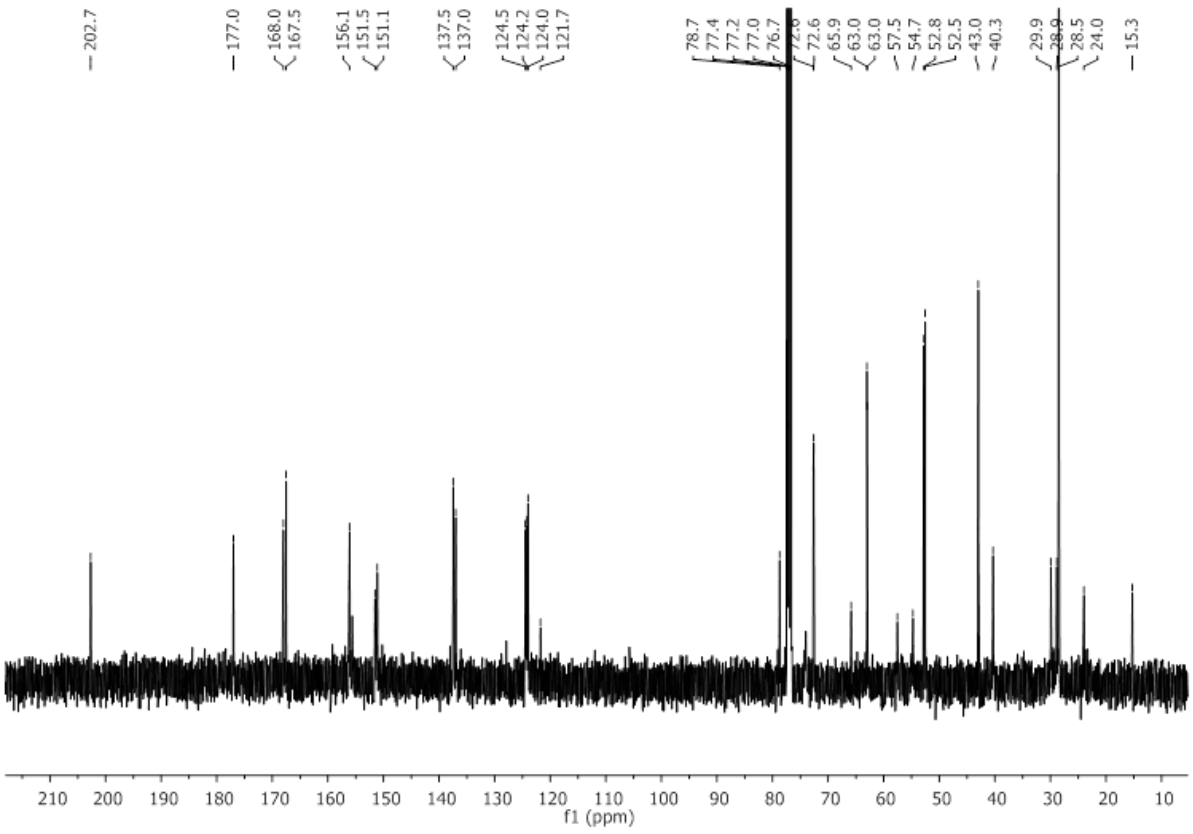

Figure S2. ^{13}C NMR spectrum of 1 (100MHz, $CDCl_3$).

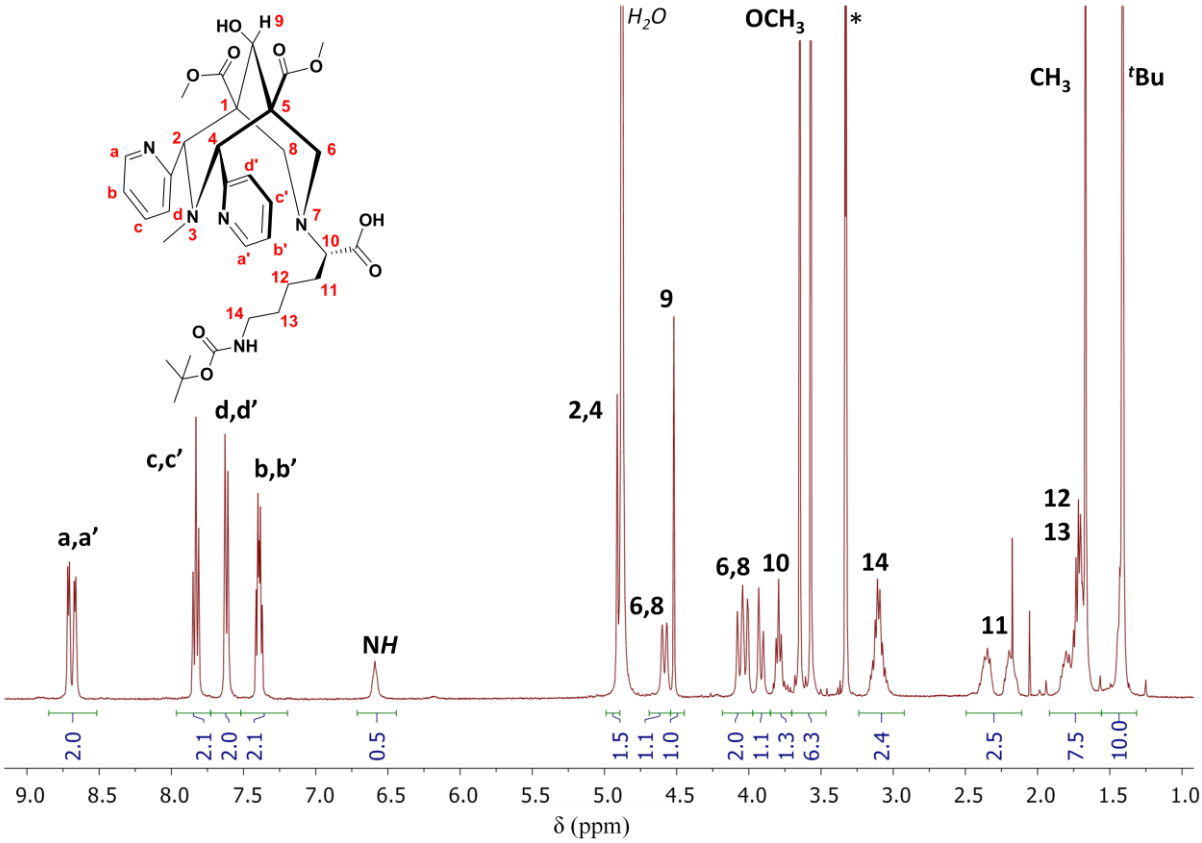

Figure S3. ^{1}H NMR spectrum of 2 (400MHz, CD_3OD).

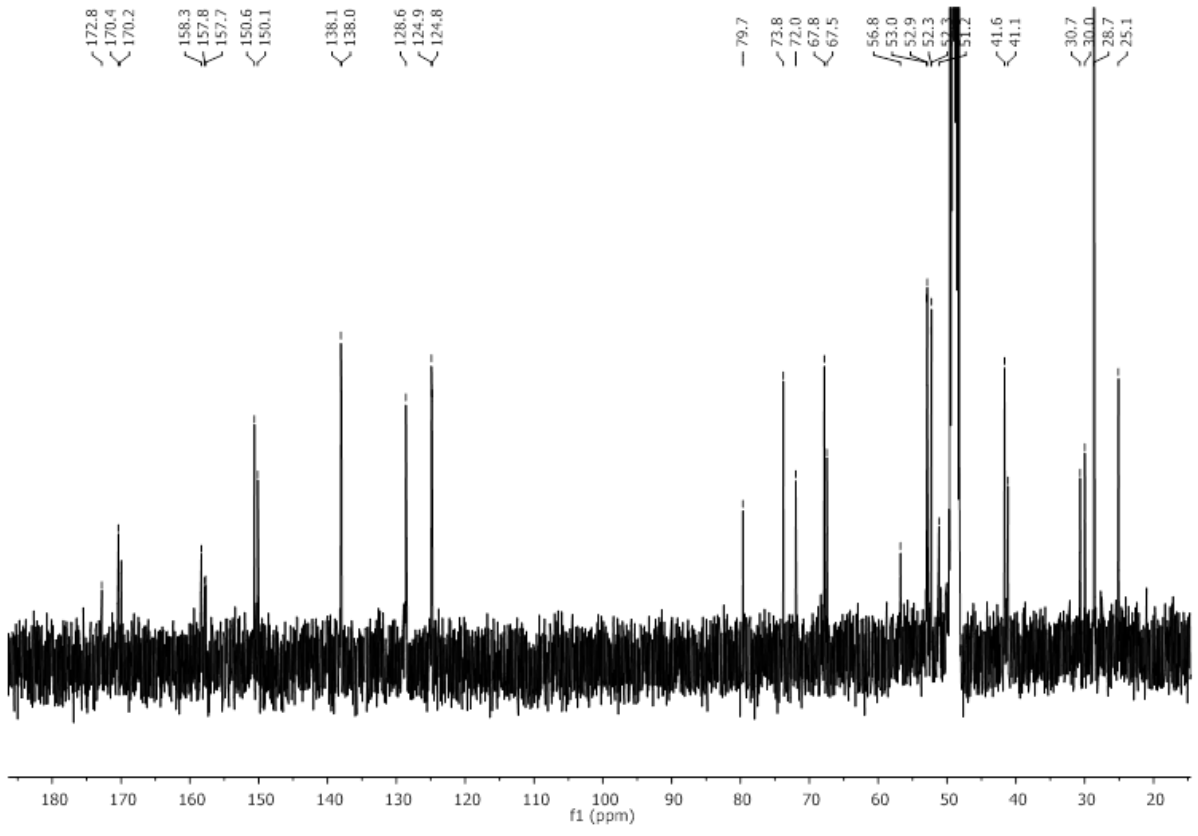

Figure S4. ^{13}C NMR spectrum of 2 (75MHz, CD_3OD).

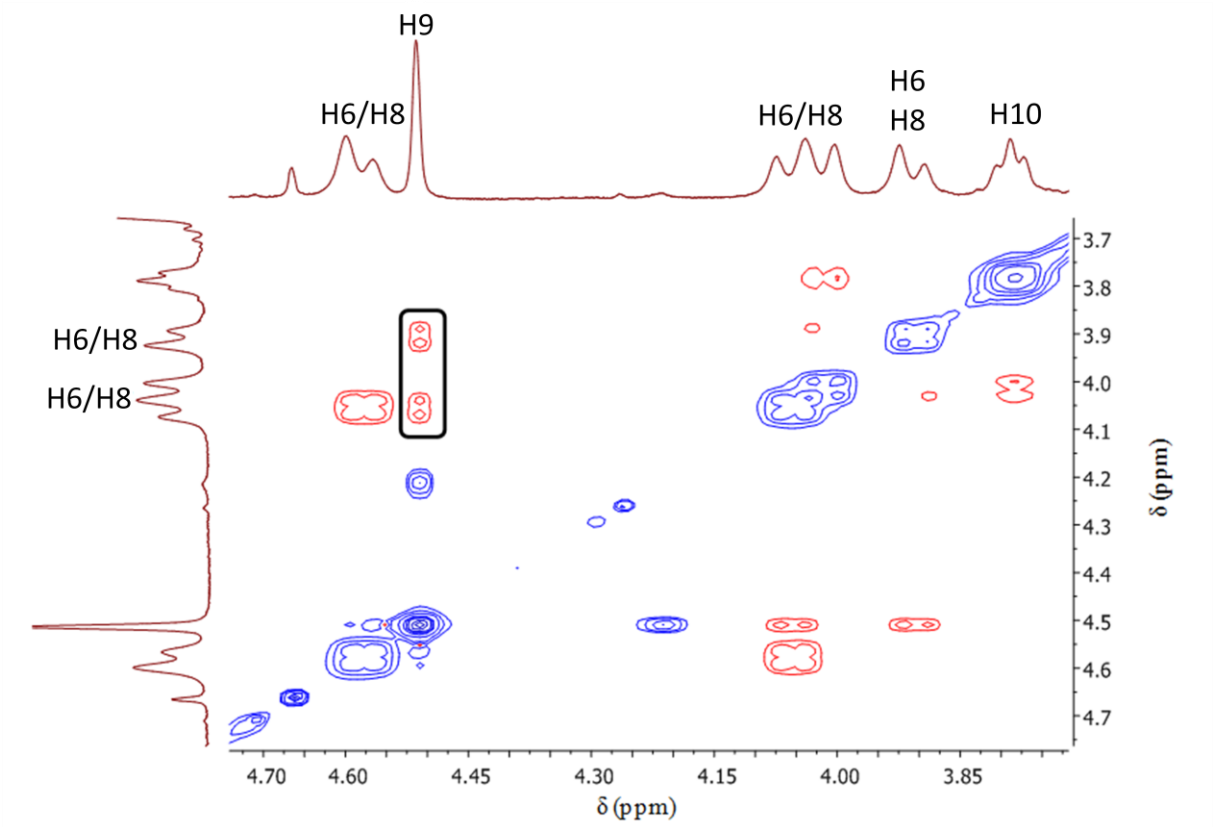

Figure S5. ^{1}H NOESY spectrum (400 MHz, CD_3OD) of 2 showing an Overhauser effect between protons H6/H8 and H9.

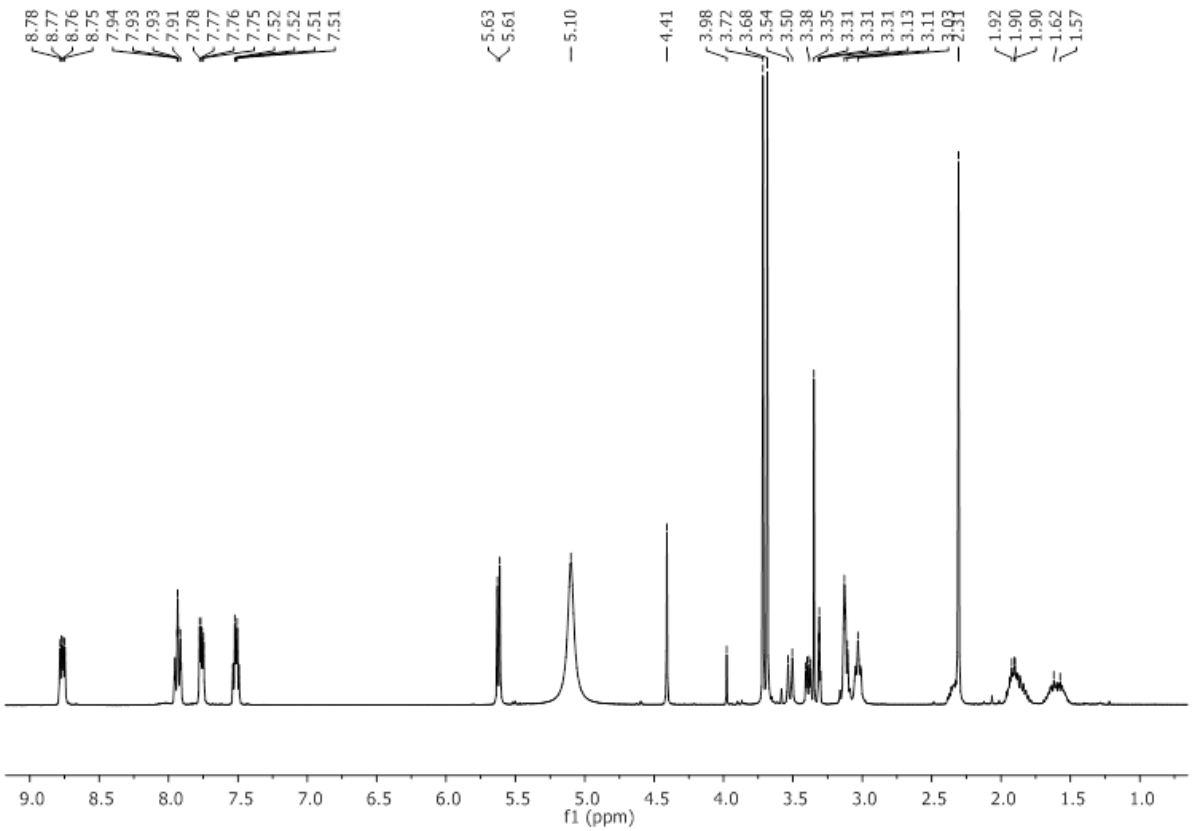

Figure S6. ^{1}H NMR spectrum of 3 (400MHz, CD_3OD).

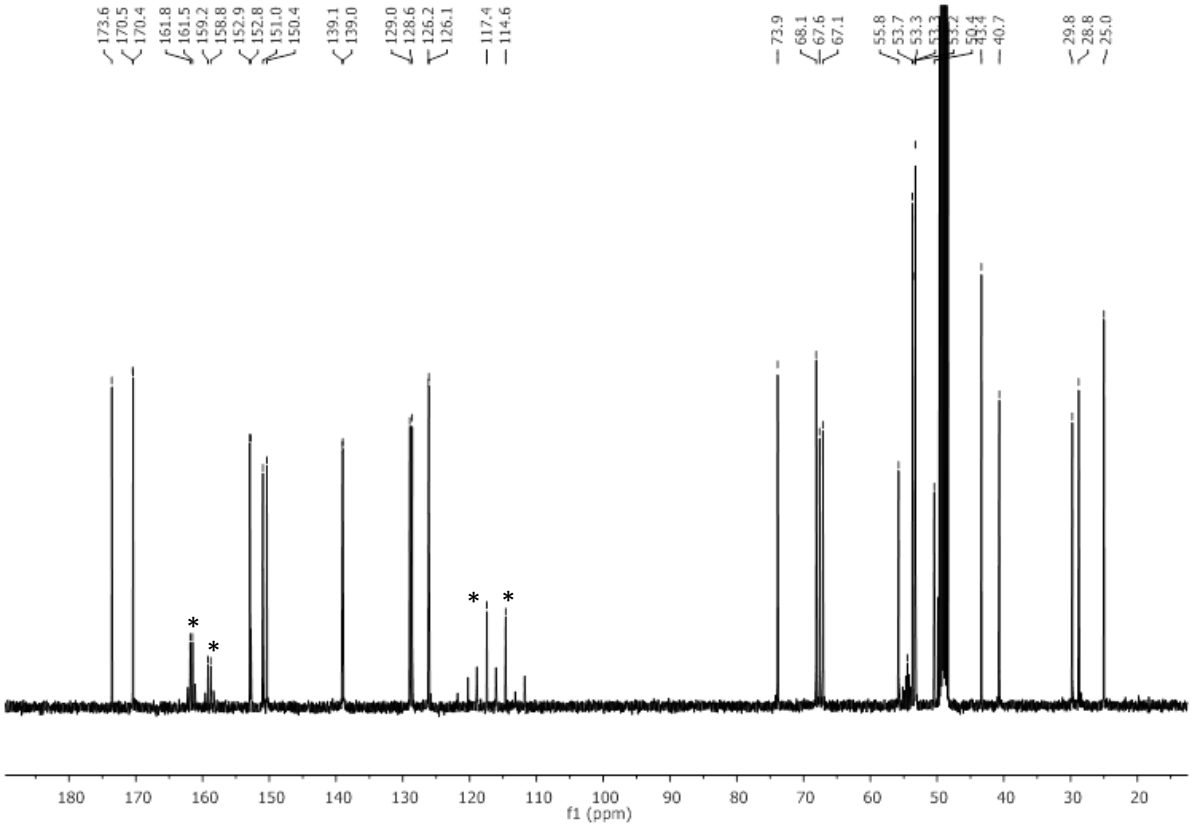

Figure S7. ^{13}C NMR spectrum of 3 (75MHz, D_2O, *TFA).

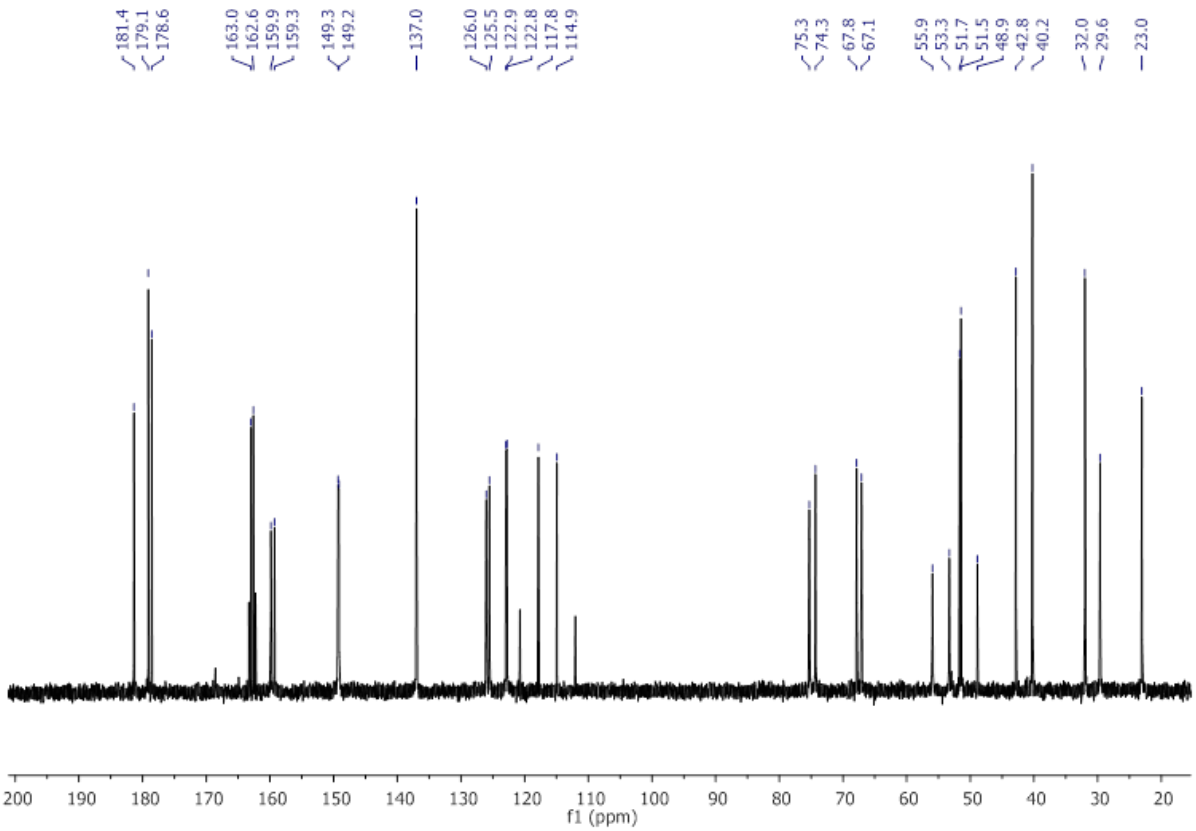

Figure S8. ^{13}C NMR spectrum of L_2 (100MHz, D_2O).

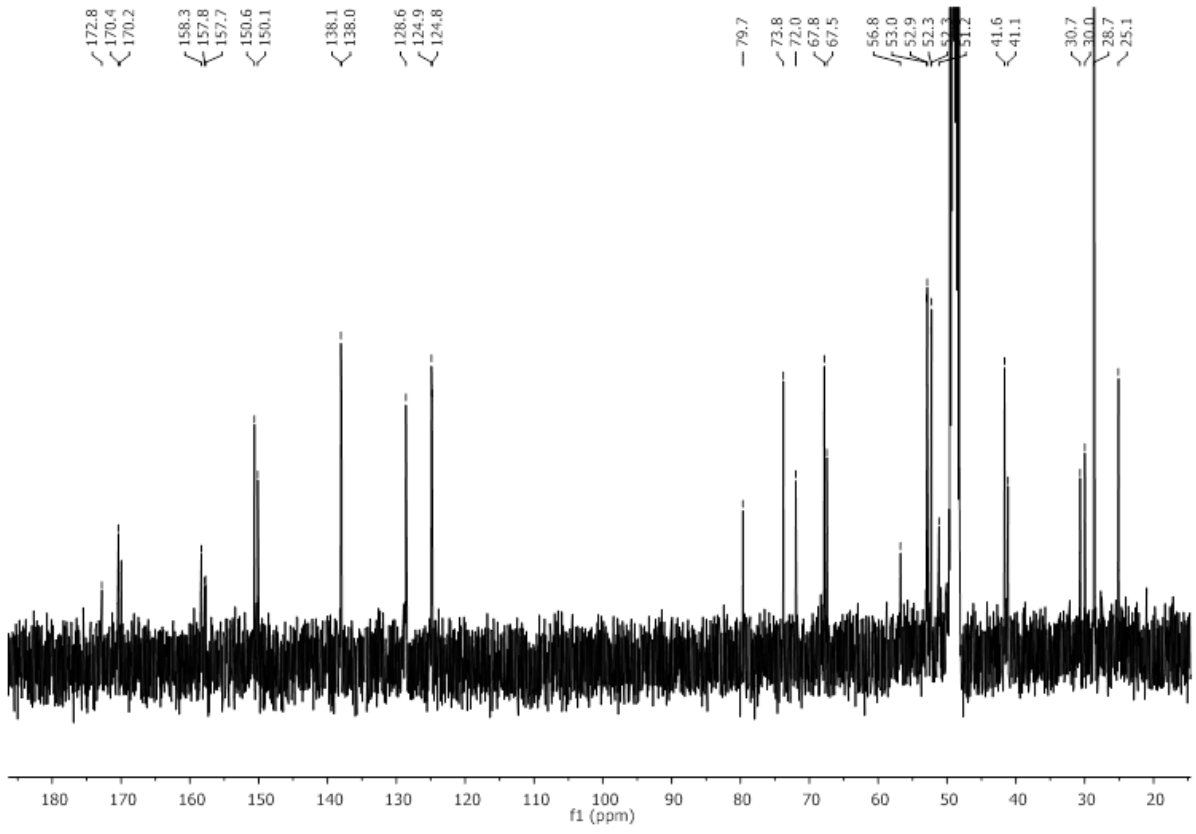

Figure S9. ^{13}C NMR spectrum of L_3 (100MHz, D_2O).

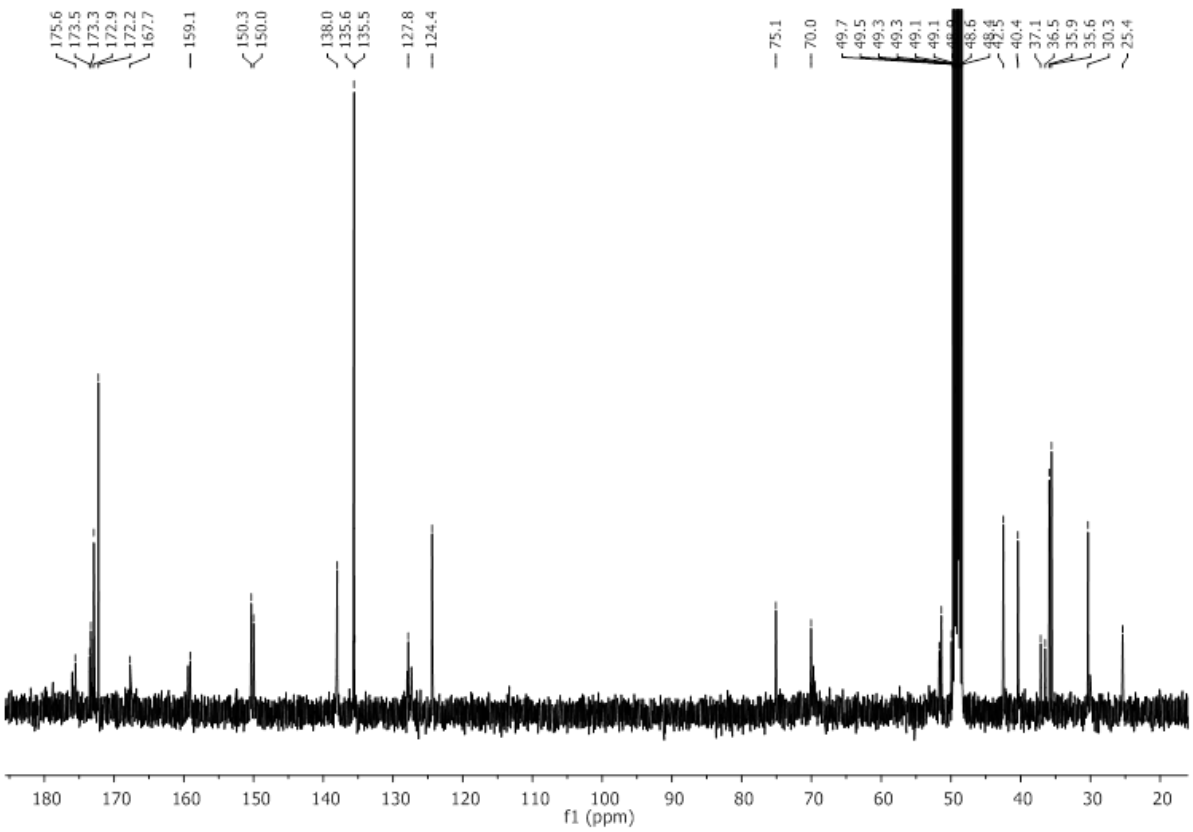

Figure S10. ^{13}C NMR spectrum of L_4 (100MHz, D_2O).

		t (min)					
	L/M	5	10	15	30	45	60
L_1	**1**	75	89	93	93	95	94
	2	92	94	n/a	92	93	94
	3	92	92	94	93	95	n/a
	5	92	93	92	94	93	94
	10	91	93	90	89	89	91
	100	88	91	91	n/a	n/a	n/a
L_2	**1**	16	n/a	17	28	34	33
	2	67	n/a	83	n/a	n/a	n/a
	3	84	n/a	87	n/a	n/a	n/a
	5	77	n/a	80	n/a	n/a	n/a
	10	87	n/a	87	90	89	90
	50	84	n/a	84	77	84	82
	100	81	n/a	81	85	85	86

Table S1. Time-dependence of the ^{64}Cu radiolabeling yields for L_1 and L_2 at different metal/ligand ratios (NH_4OAc 0.1 M pH 5.4, r.t.). Experimental conditions for L_2: source 1, 0.06 nmol ≤ n(ligand) ≤ 6.0 nmol, n(Cu) = 62.73 pmol, (^{64}Cu) = 34.8 MBq/nmol; for L_1: source 3, 0.25 nmol ≤ n(ligand) ≤ 25.0 nmol, n(Cu) = 15.7 pmol, A(^{64}Cu) = 25.3 MBq/nmol. All yields are given within the experimental uncertainties of the cyclone device of ±5%.

		t (min)					
	pH	5	10	15	30	45	60
L_1	**2**	82	90	93	93	92	95
	3	85	91	94	94	93	94
	4	90	92	93	92	91	95
	5	92	93	92	94	93	94
	6	90	90	92	93	94	93
L_2	**2**	16	23	31	55	67	79
	3	29	37	44	58	63	72
	4	86	87	90	91	91	91
	6	85	88	89	87	88	90

Table S2. Time-dependence of the radiolabeling yields of L_1 and L_2 at different pH values (r.t, ammonium acetate 0.1 M). Experimental conditions for L_2: source 2, n(ligand) = 0.44 nmol, n(Cu) = 22.4 pmol, A(^{64}Cu) = 25.3 MBq/nmol, L/M = 5 ; for L_1: source 4, n(ligand) = 1.0 nmol, n(Cu) = 15.7 pmol, A(^{64}Cu) = 25.3 MBq/nmol, L/M =1. All yields are given within the experimental uncertainties of the cyclone device of ±5%.