SUPPLEMENTARY INFORMATION

Effective Separation of Am(III) from Cm(III) Using Modified BTPhen Ligands

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1. ^{1}H and ^{13}C NMR Spectra

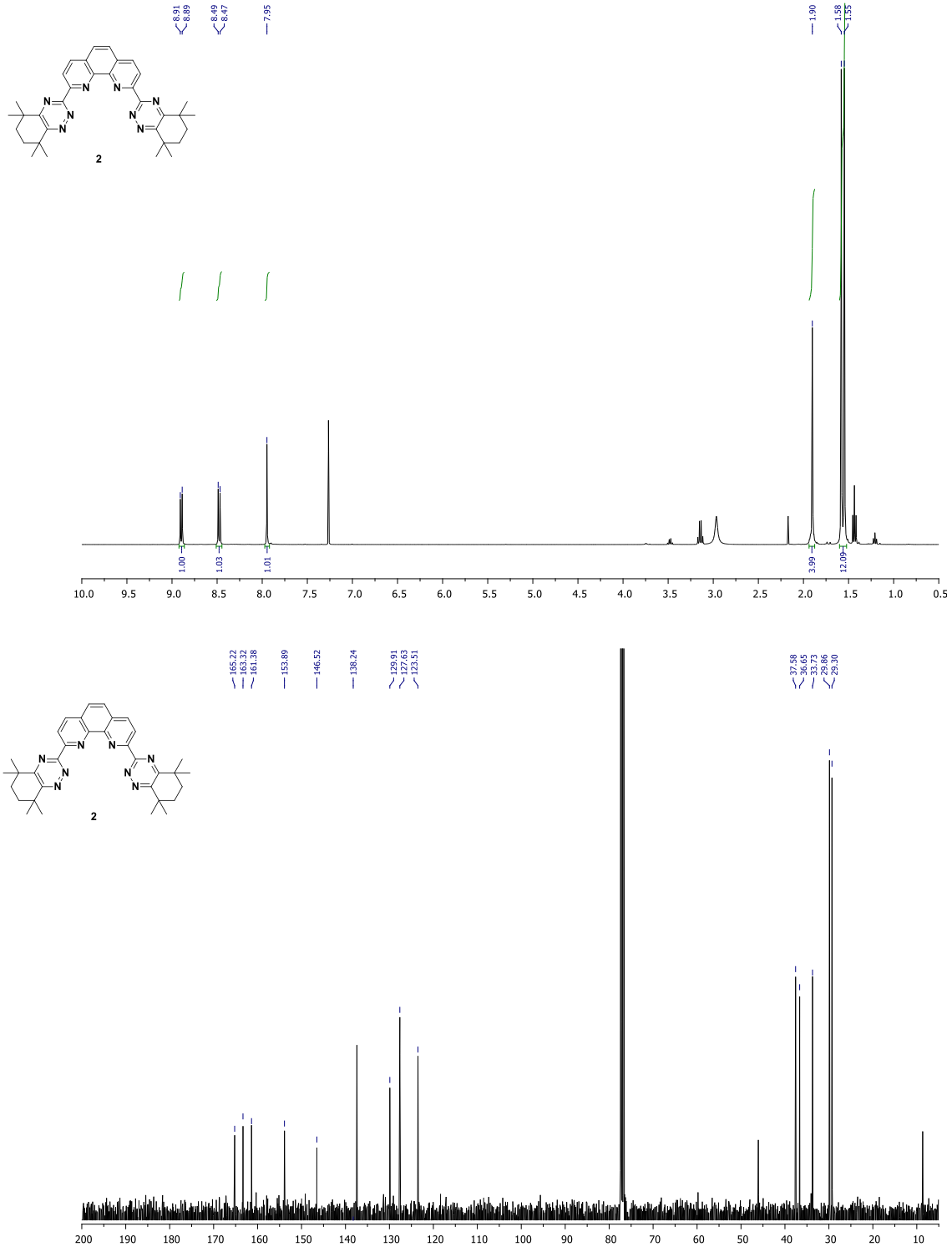

Figure S1. ^{1}H and ^{13}C NMR spectra of $CyMe_4$-BTPhen **2**.

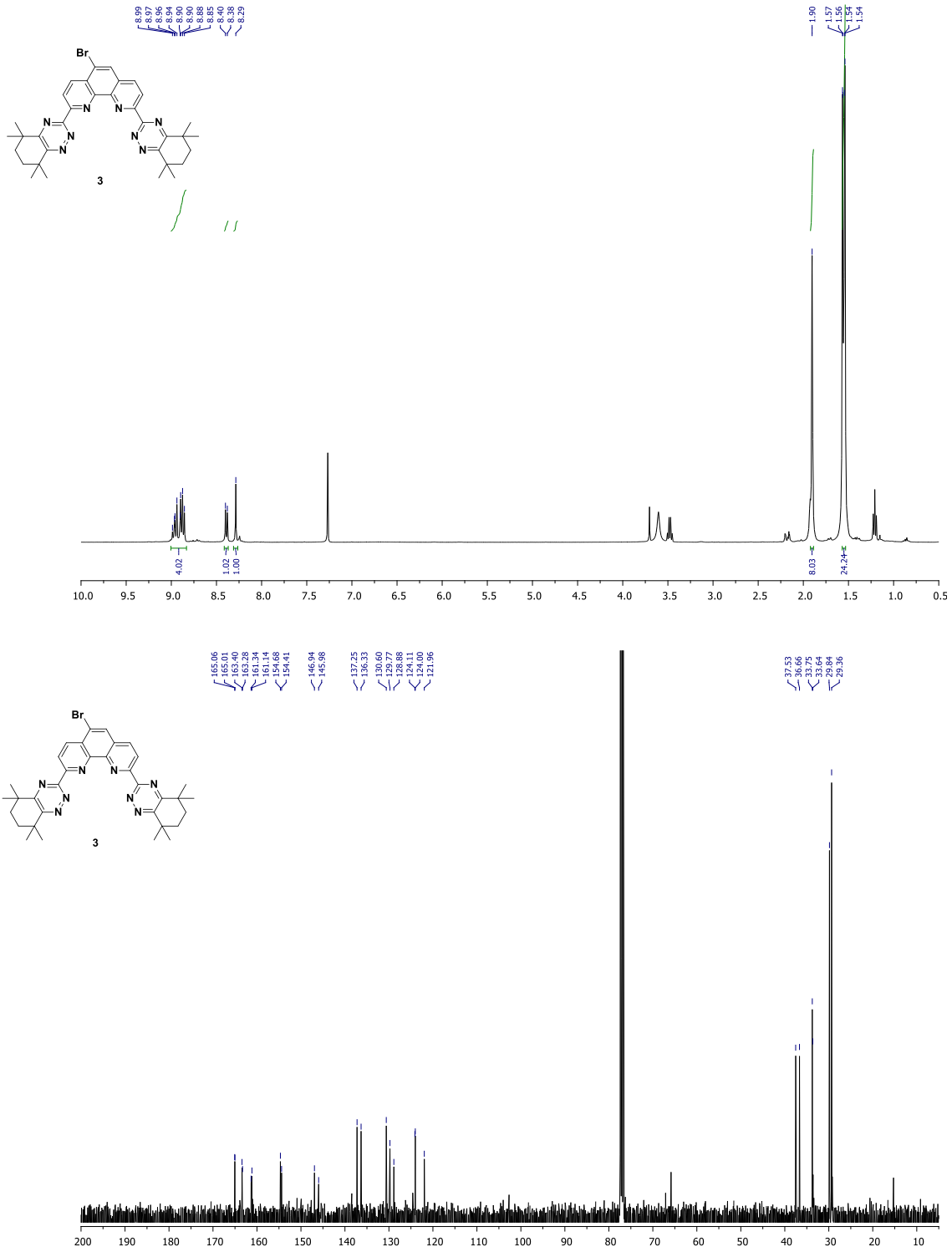

Figure S2. ^{1}H and ^{13}C NMR spectra of 5-BrCyMe$_4$-BTPhen **3**.

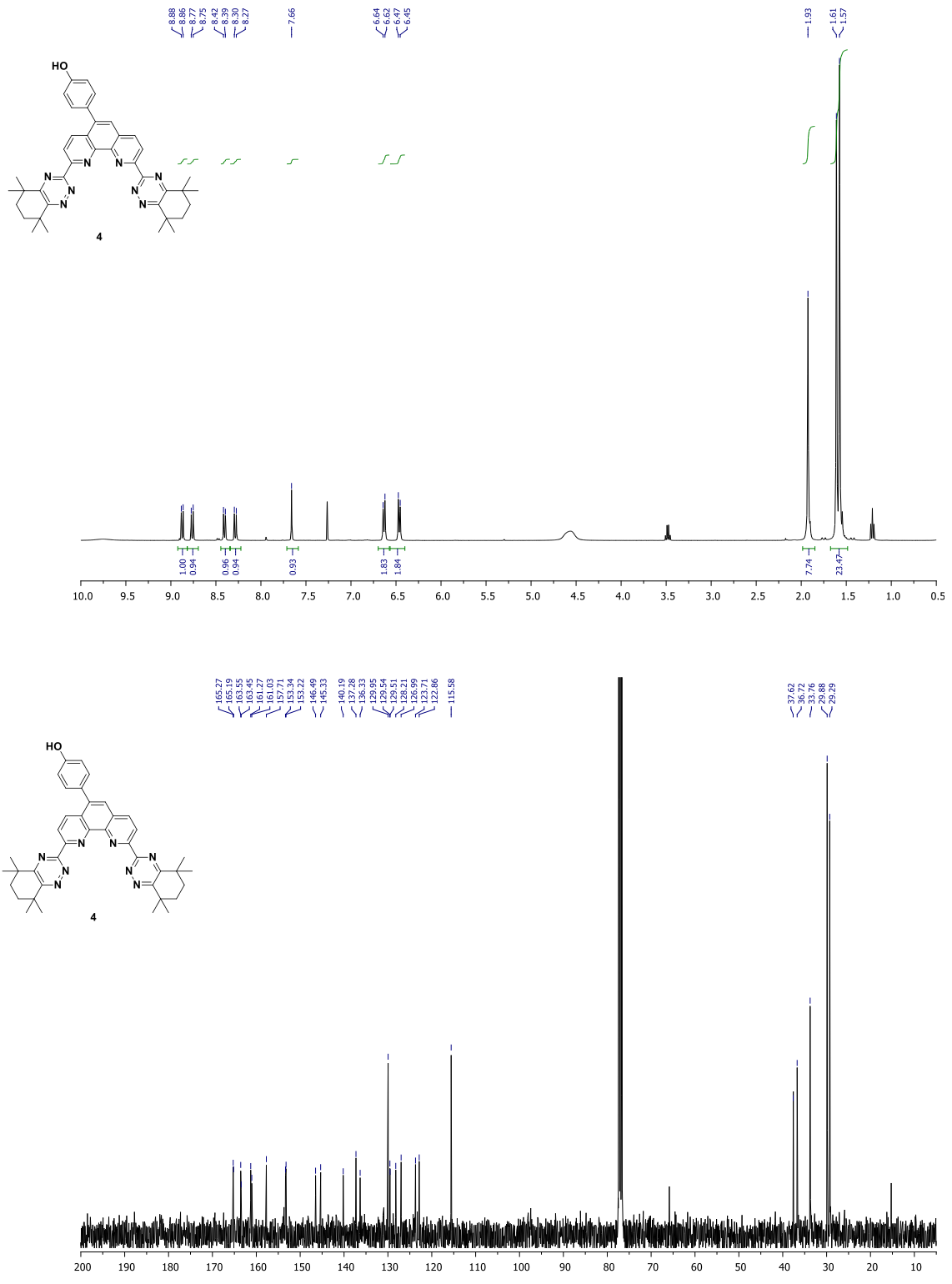

Figure S3. ^{1}H and ^{13}C NMR spectra of 5-(4-hydroxyphenyl)-CyMe$_4$-BTPhen **4**.

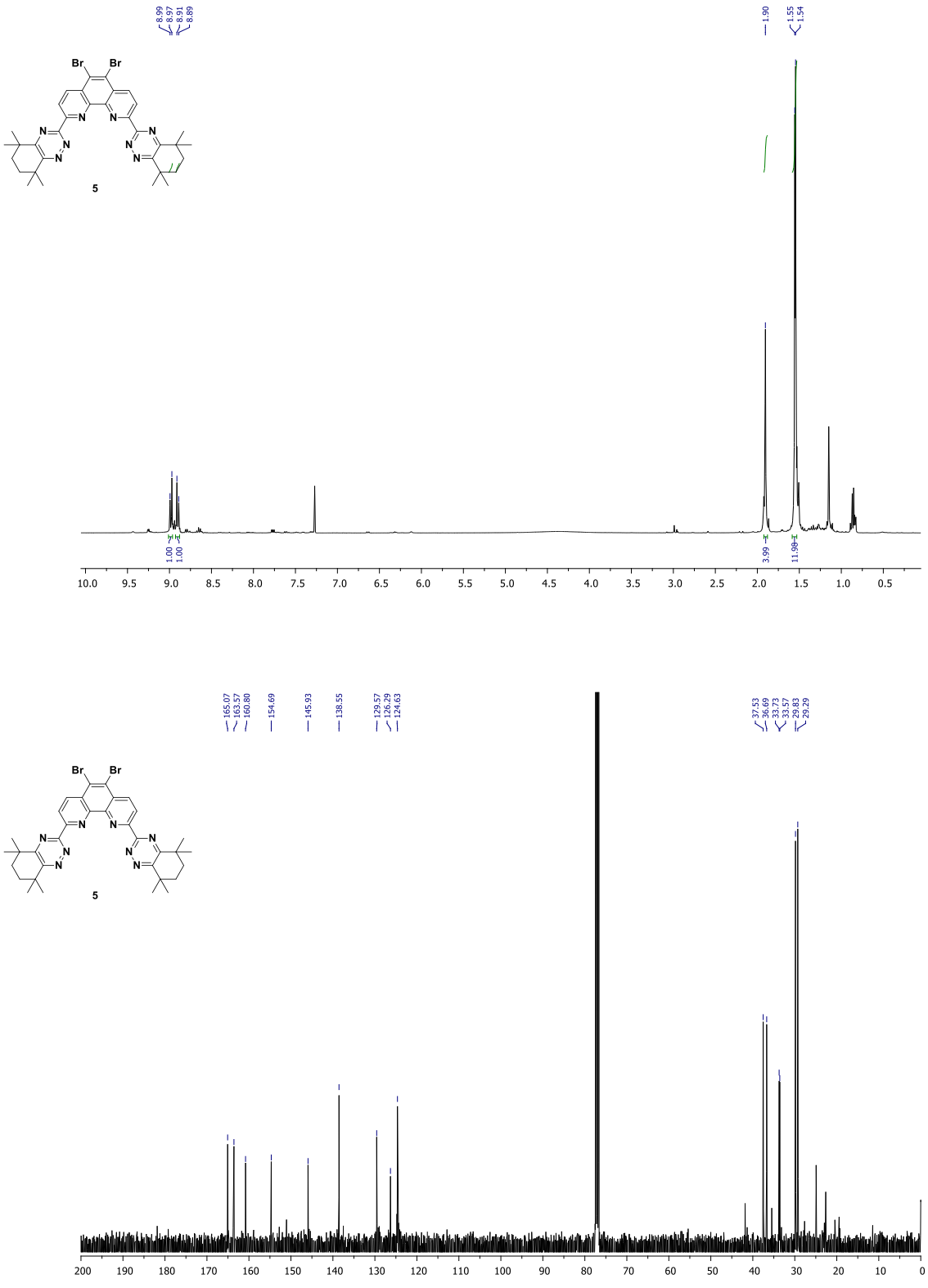

Figure S4. ^{1}H and ^{13}C NMR spectra of 5,6-diBrCyMe$_4$-BTPhen **5**.

2. Extraction Results

Table S1 Distribution ratios (*D*) and separation factors (SF) of Am(III) and Cm(III) at varying HNO_3 concentration as a function of time for $CyMe_4$-BTPhen **2**.

[HNO_3]	**t (min)**	D_{Am}	D_{Cm}	$SF_{Am/Cm}$
0.1	30	471	440	1.1
	60	377	300	1.3
	120	382	317	1.2
	240	461	322	1.4
0.3	30	774	706	1.1
	60	501	513	1
	120	657	556	1.2
	240	359	319	1.1
1	30	511	390	1.3
	60	369	298	1.2
	120	450	372	1.2
	240	634	447	1.4
3	30	523	441	1.2
	60	239	211	1.1
	120	717	573	1.2
	240	777	566	1.4

Table S2 Distribution ratios (*D*) and separation factors (SF) of Am(III) and Cm(III) at varying HNO_3 concentration as a function of time for Br-$CyMe_4$-BTPhen **3**.

[HNO_3]	**t (min)**	D_{Am}	D_{Cm}	$SF_{Am/Cm}$
0.1	30	26	4.2	6.2
	60	61	9.3	6.6
	120	49	23	2.1
	240	50	25	2.0
0.3	30	44	6.1	7.2
	60	208	35	5.9
	120	161	81	2.0
	240	166	79	2.1
1	30	260	59	4.4
	60	301	138	2.2
	120	268	136	2.0
	240	281	163	1.7
3	30	479	243	2.0
	60	370	192	1.9
	120	439	256	1.7
	240	414	219	1.9

Table S3 Distribution ratios (*D*) and separation factors (SF) of Am(III) and Cm(III) at varying HNO_3 concentration as a function of time for 5-(4-hydroxyphenyl)-CyMe$_4$-BTPhen **4**.

[HNO_3]	**t (min)**	D_{Am}	D_{Cm}	$SF_{Am/Cm}$
0.1	30	6.4	2.5	2.6
	60	24	5.7	4.2
	120	473	54	8.8
	240	680	290	2.3
0.3	30	18	6.8	2.6
	60	63	14	4.6
	120	1237	174	7.1
	240	1334	862	1.5
1	30	106	28	3.8
	60	832	153	5.4
	120	1415	707	2.0
	240	1025	636	1.6
3	30	1101	669	1.6
	60	2496	1111	2.2
	120	1104	753	1.5
	240	1165	790	1.5

Table S4 Extraction of Am(III) and Eu(III) by Br_2-CyMe4-BTPhen **5** as a function of nitric acid concentration (contact time 60 min).

[HNO_3]	D_{Am}	D_{Eu}	$SF_{Am/Eu}$
0.1	3.6	0.02	168
0.3	5.7	0.03	196
1	30	0.17	176
3	103	0.42	243

Table S5 Extraction of Am(III) and Cm(III) by Br_2-CyMe4-BTPhen **5** as a function of nitric acid concentration (contact time 60 min).

[HNO_3]	D_{Am}	D_{Cm}	$SF_{Am/Cm}$
0.1	4.0	1.9	2.1
0.3	6.2	3.0	2.1
1.0	32	17	1.9
3.0	112	64	1.8