Electronic supplementary information for:

Rare-earth complexes supported by an ansa-bis(amidinate) ligand with a rigid *o*-phenylene linker: synthesis, structure, and catalytic activity for polymerization of cyclic esters

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Supporting Information

I Crystallographic data of the complexes

Table S1 Crystallographic data and structure refinement for complexes **2**, **3**

Crustal date	**2**	**3**
Empirical formula	$C_{38}H_{58}N_5OSi_2Y$	$C_{38}H_{58}ErN_5OSi_2$
Formula weight	745.98	824.33
Crystal system,	Orthorhombic	Orthorhombic
Space group	Ama2	Ama2
a (Å)	18.4951(17)	18.4980(12)
b (Å)	21.577(2)	21.5082(17)
c (Å)	10.5804(10)	10.6134(7)
α (°)	90.00	90.00
β (°)	90.00	90.00
γ (°)	90.00	90.00
V (Å^3)	4222.3(7)	4222.6(5)
T (K)	293(2)	293(2)
D_{calc} (g cm^{-3})	1.174	1.297
μ (mm^{-1})	1.471	2.077
Z	4	4
F(0 0 0)	1584	1700
Reflections collected/unique	23319/4981	23830/4983
R (int)	0.0513	0.0262
Completeness to θ (%)	99.8	99.7
λ (Mo Kα radiation) (Å)	0.71073	0.71073
θ Range (°)	1.89- 27.56	1.89 to 27.54
GOF	1.020	1.016
R_1 , wR_2 [I> 2σ (I)]	0.0469, 0.1059	0.0218, 0.0490
R_1, wR_2 (all data)	0.0832, 0.1236	0.0278, 0.0511
Largest diff. peak and hole (e Å^{-3})	0.305 and -0.344	0.501 and -0.307

Table S2 Crystallographic data and structure refinement for complexes **4, 5**

Crustal date	**4**	**5**
Empirical formula	$C_{84}H_{96}N_{12}La_2$	$C_{84}H_{96}N_{12}Nd_2$
Formula weight	1551.54	1562.20
Crystal system,	Monoclinic	Monoclinic
Space group	$P2_1/n$	$P2_1/c$
a (Å)	13.0485(12)	12.9980(5)
b (Å)	19.6899(18)	19.4421(7)
c (Å)	31.006(3)	31.006(3)
α (°)	90.00	90.00
β (°)	91.50	112.1490(10)°
γ (°)	90.00	90.00

V (Å^3)	7963.5(13)	7761.2(5)
T (K)	293(2)	293(2)
D_{calc} (g cm^{-3})	1.294	1.337
μ (mm^{-1})	1.108	1.374
Z	4	4
F(0 0 0)	3192	3216
Reflections collected/unique	79888/14535	69681/17852
R (int)	0.0586	0.0929
Completeness to θ (%)	99.7	99.9
λ (Mo Kα radiation) (Å)	0.71073	0.71073
θ Range (°)	1.225- 25.344	2.197-27.554
GOF	1.092	1.029
R_1 , wR_2 [I> 2σ (I)]	0.0582, 0.1246	0.0535, 0.1301
R_1, wR_2 (all data)	0.0873, 0.1378	0.0801, 0.1452
Largest diff. peak and hole (e Å^{-3})	1.339 and 1.065	2.279 and -1.729

II Copies of ^{1}H NMR, ^{13}C NMR Spectra of the complex **2**

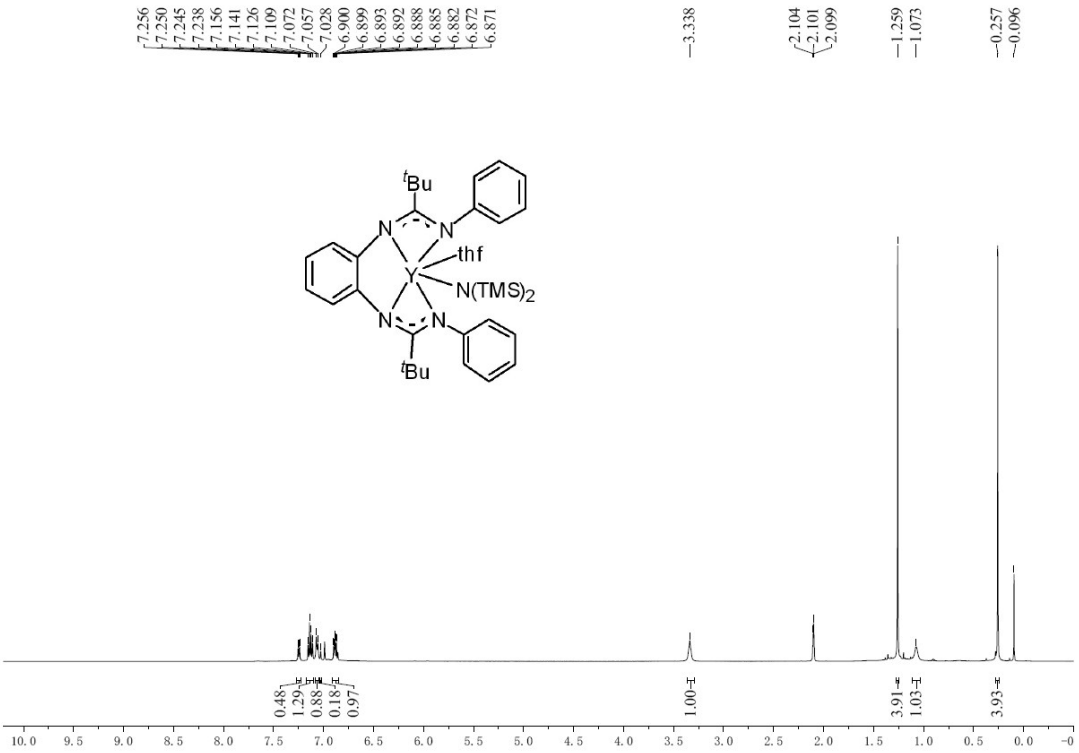

Figure S1. ^{1}H NMR spectrum (500 MHz, C_7D_8, 298 K) of the complex **2**

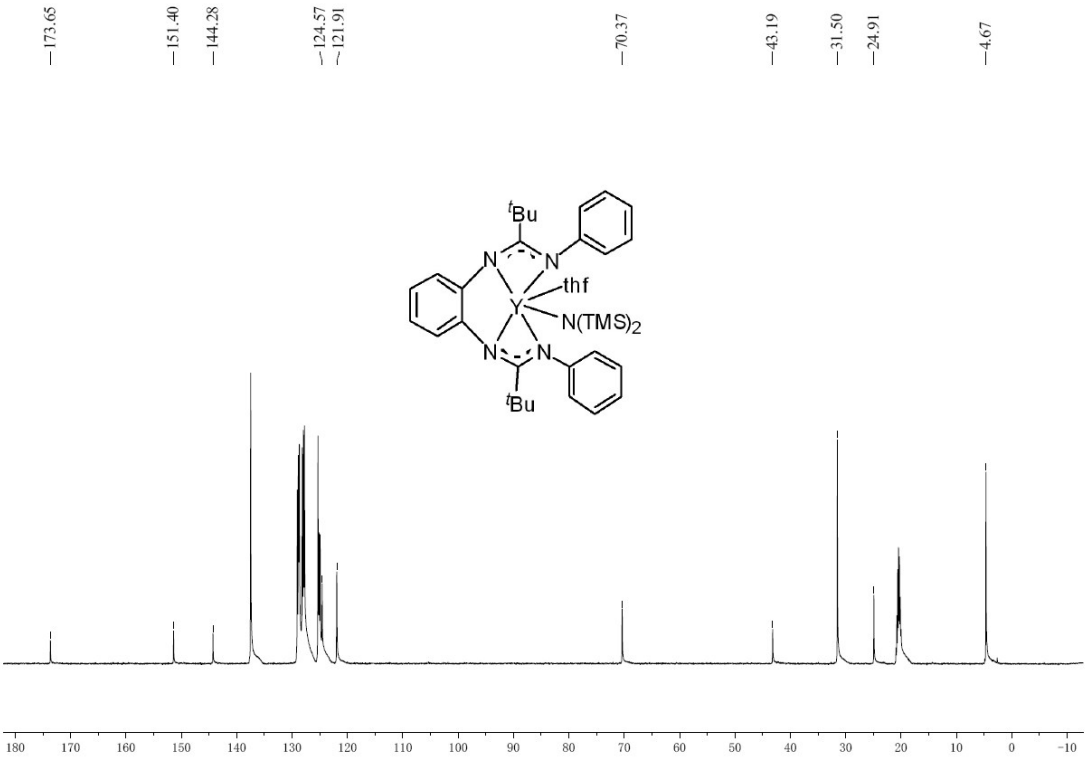

Figure S2. ^{13}C NMR spectrum (125 MHz, C_7D_8, 298 K) of the complex **2**

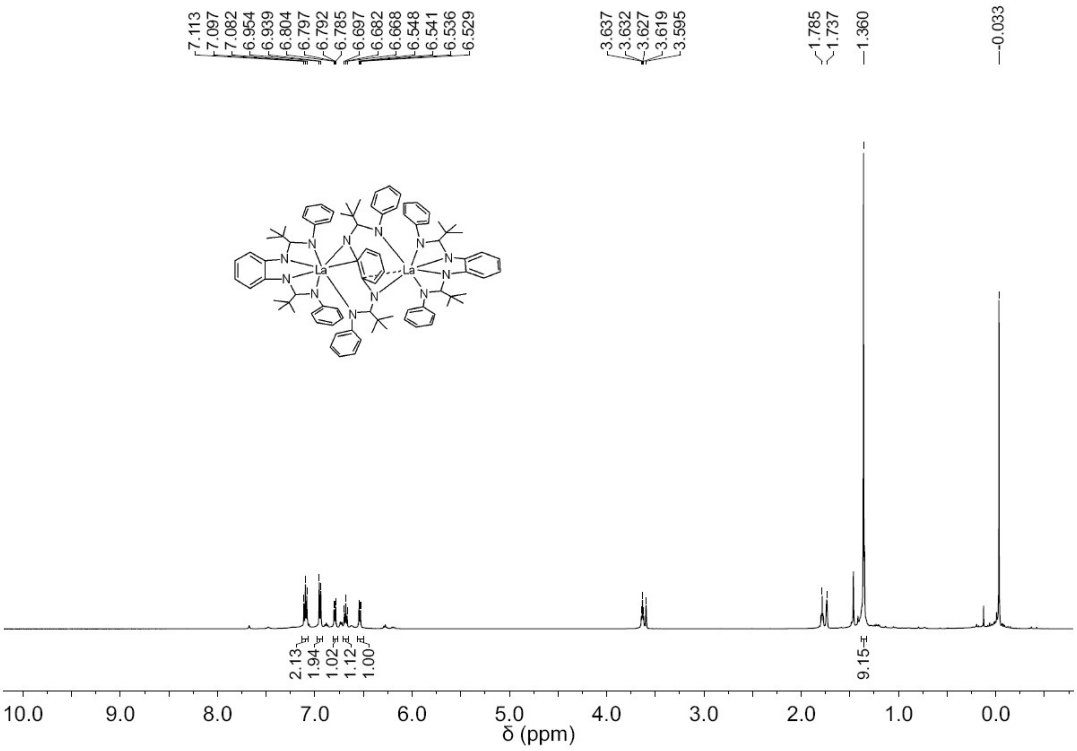

Figure S3. ^{1}H NMR spectrum (500 MHz, C_4D_8O, 298 K) of the complex **4**

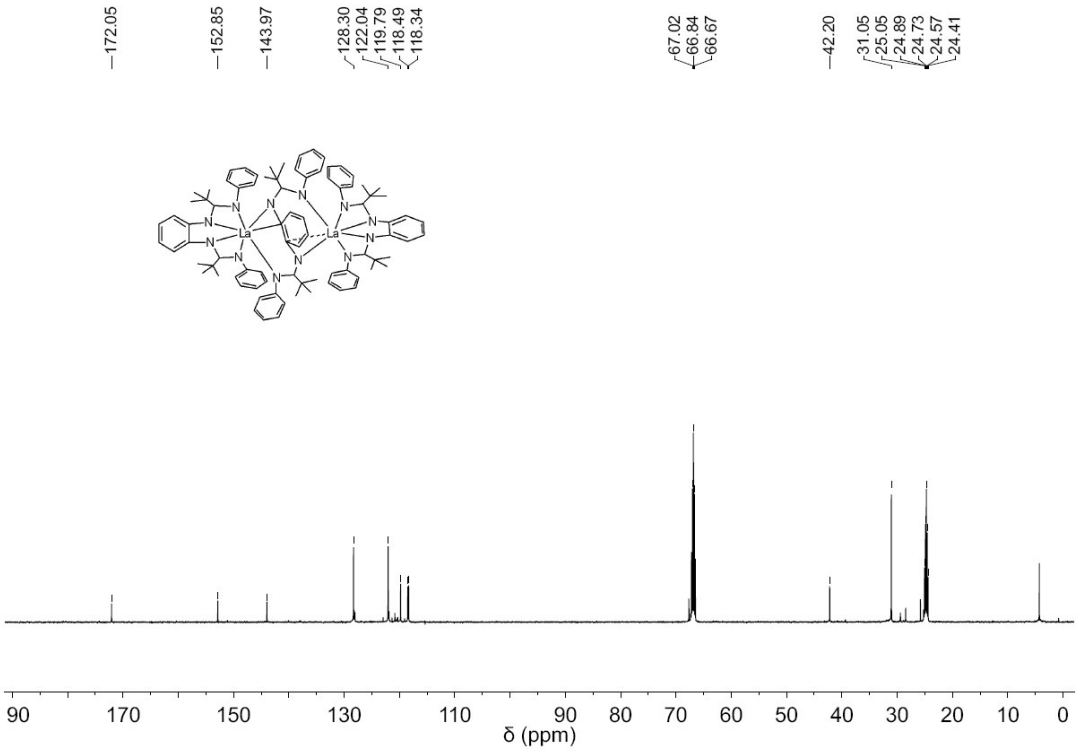

Figure S4. ^{13}C NMR spectrum (125 MHz, C_4D_8O, 298 K) of the complex **4**

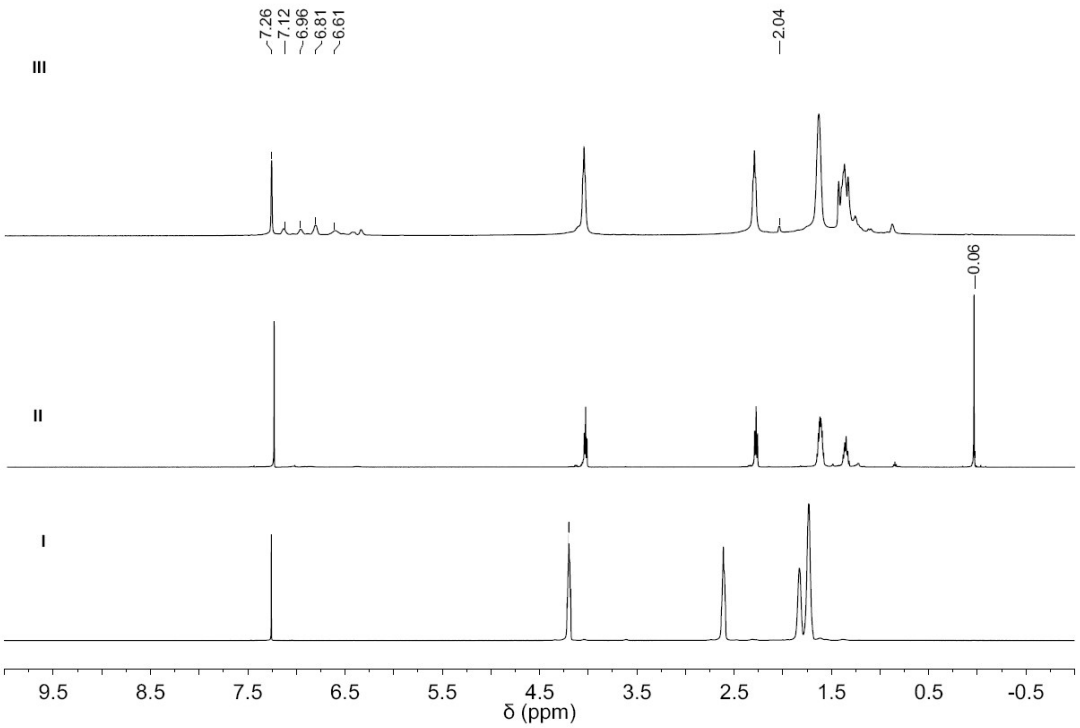

Figure S5. ^1H NMR spectra ($CDCl_3$ without TMS, 500 MHz) of (I) ε-CL; (II) the oligomer of ε-CL obtained using complex **2** as initiator ([ε-CL]/[**2**]) = 20, in toluene, room temperature; (III) the oligomer of ε-CL obtained using complex **4** as initiator ([ε-CL]/[**4**]) = 20, in toluene, room temperature.

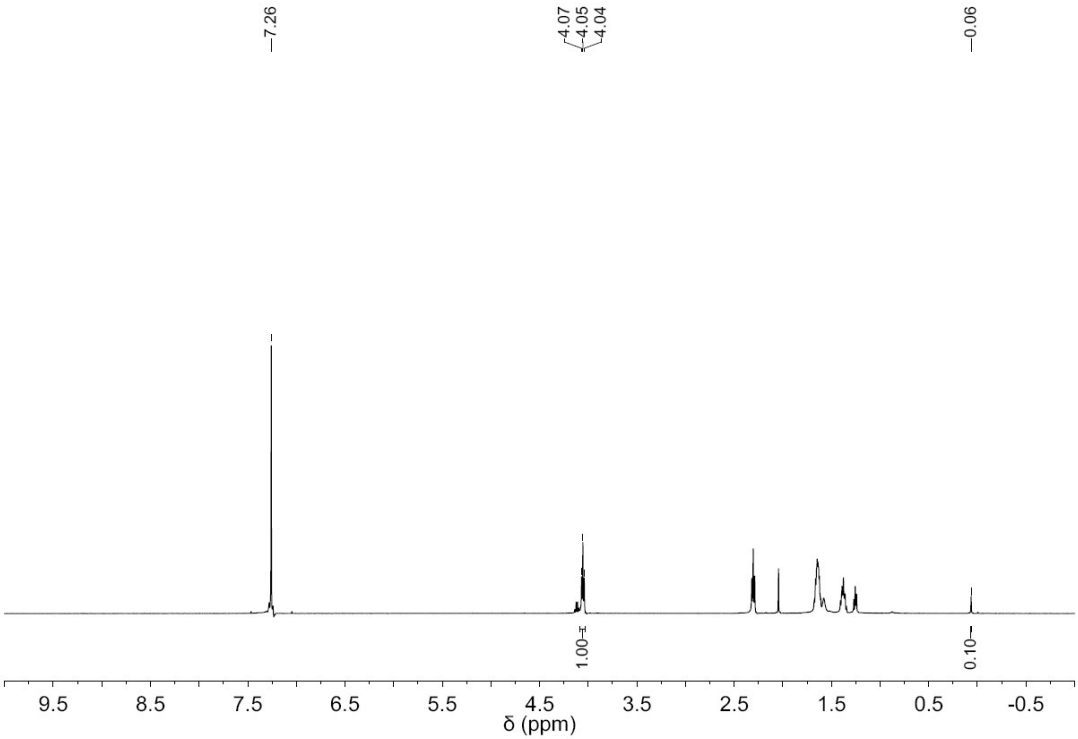

Figure S6. ^{1}H NMR spectra ($CDCl_3$ without TMS, 500 MHz) of ε-CL under [ε-CL]/[**2**]) = 100:1. From the NMR spectrum, it was found that integral ratio of CH_2 : $N(SiMe_3)_2$ = 10:1, the number of H atoms of CH_2 : $N(SiMe_3)_2$ = 1:9, the calculated molecular weight is 10260 $g.mol^{-1}$. The theoretical value may be 11400 $g.mol^{-1}$. So, the calculated molecular weight is in good agreement with the theoretical value.