Supporting Information for:

Synthesis and characterization of lanthanide complexes supported by a new pentadentate schiff base and their application in the heteroselective polymerization of *rac*-lactide

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Table S1. Crystallographic Data for Complexes 1-3 and 5-7

Compound	**1**·THF·0.5hexane	**2**·THF·0.5toluene	**3**·3THF	**5**·3THF	**6**·THF	**7**·THF
Formula	$C_{64}H_{88}N_2O_5Sc$	$C_{64.5}H_{85}N_2O_5Yb$	$C_{73}H_{105}N_2O_8Y$	$C_{73}H_{105}N_2O_8Nd$	$C_{52}H_{76}N_3O_4Si_2Yb$	$C_{52}H_{76}N_3O_4Si_2Y$
fw	1010.32	1141.39	1227.50	1282.83	1036.38	952.25
T/K	223(2)	223(2)	223(10)	223(10)	293(2)	223(2)
Crystal system	monoclinic	monoclinic	monoclinic	monoclinic	monoclinic	monoclinic
Space group	*P* 2_1/*n*	*P* 2_1/*n*	*P* 2_1/*c*	*P* 2_1/*c*	*P* 2_1/*n*	*P* 2_1/*n*
a/Å	12.8779(9)	13.1060(3)	10.8744(3)	10.8719(18)	17.715(10)	17.6572(6)
b/Å	19.9196(14)	19.8031(4)	29.9882(13)	30.0322(4)	14.656(8)	14.6349(5)
c/Å	24.2784(19)	24.2374(5)	21.5416(8)	21.6152(5)	20.41(2)	20.3043(7)
β/deg	103.146(7)	103.0929(3)	99.001(3)	99.151(4)	98.17(2)	98.333(3)
V/Å^3	6064.8(7)	6127.0(2)	6938.3(4)	6967.7(5)	5247(7)	5191.5(3)
Z	4	4	4	4	4	4
D_{calcd}/g cm^{-3}	1.107	1.237	1.175	1.223	1.312	1.218
μ/mm^{-1}	0.168	1.573	0.894	0.798	1.872	1.214
F(000)	2188	2384	4026	2724	2156	2032
Crystal size/mm	0.30 x 0.20 x 0.10	0.60 x 0.40x 0.20	0.70 x 0.20 x 0.10	0.60 x 0.40 x 0.10	1.00 x 0.40 x 0.40	0.40 x 0.30 x 0.20
θ_{max}/deg	26.37	26.37	26.37	26.37	27.51	26.37
Collected	38195	40384	41035	53214	25045	37426
Unique reflns	12384	12514	14175	14233	9748	10607
GOF	1.044	1.075	1.021	1.050	0.995	0.976
R	0.0696	0.0364	0.0658	0.0418	0.0595	0.0460
w*R*	0.2074	0.0950	0.1922	0.1157	0.1364	0.0878
R_{int}	0.0598	0.0340	0.0613	0.0447	0.0588	0.0714
Largest diff. peak and hole/e Å^{-3}	0.691 and -0.421	1.401 and -0.721	0.764 and -0.809	1.078 and -0.589	0.748 and -1.164	0.334 and -0.390

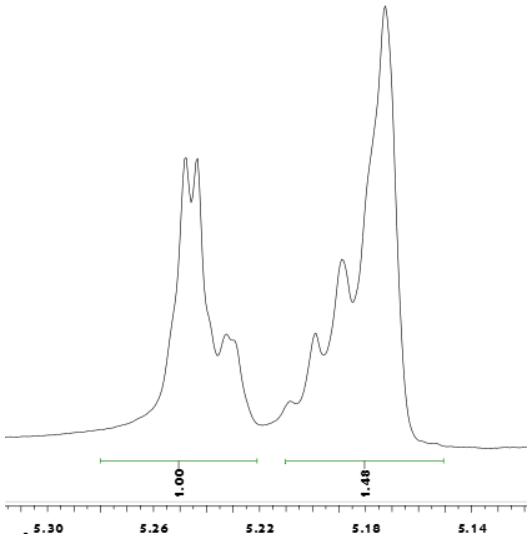

Fig. S1 Homonuclear decoupled ^{1}H NMR spectrum of the methine region of polylactide produced from *rac*-LA using complex **3** as initiator in THF at 25 °C (P_r = 0.81, Table 3, entry 8, 400 MHz, $CDCl_3$.)

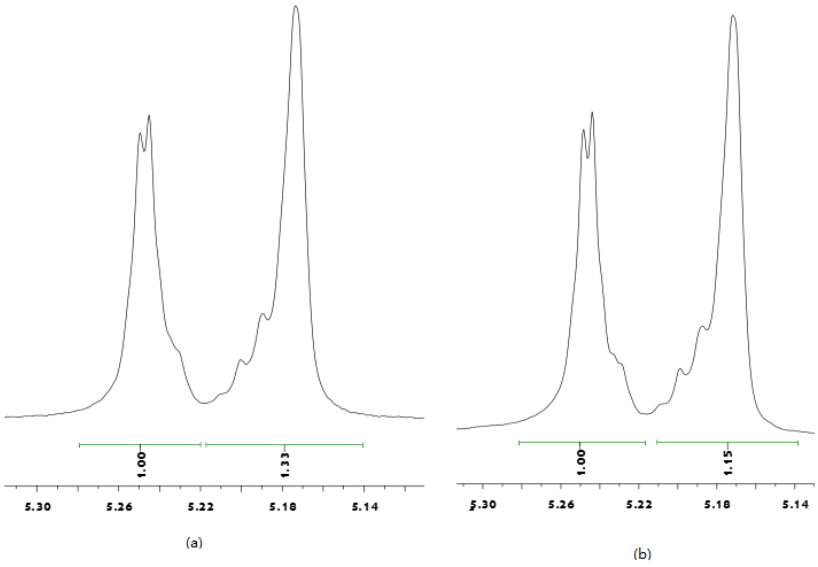

Fig. S2 Homonuclear decoupled ^{1}H NMR spectrum of the methine region of polylactides produced from *rac*-LA using complex **2** as initiator ((a) at 25 °C, P_r = 0.85, Table 3, entry 3; (b) at 0 °C, P_r = 0.93, Table 3, entry 7, 400 MHz, $CDCl_3$.)

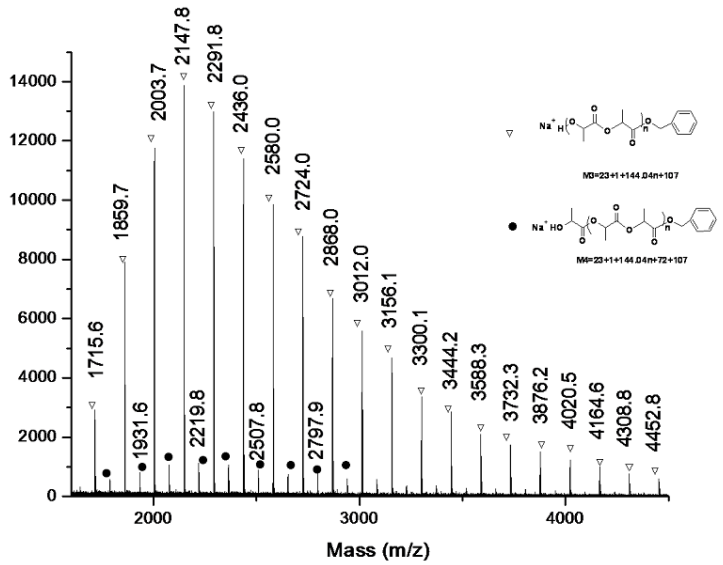

Fig. S3 MALDI-TOF mass spectrum of *rac*-LA oligomer initiated by complex **7** ($[M]_0/[I]_0$ =20:1, in THF, 25 °C; doped with CF_3CO_2Na).

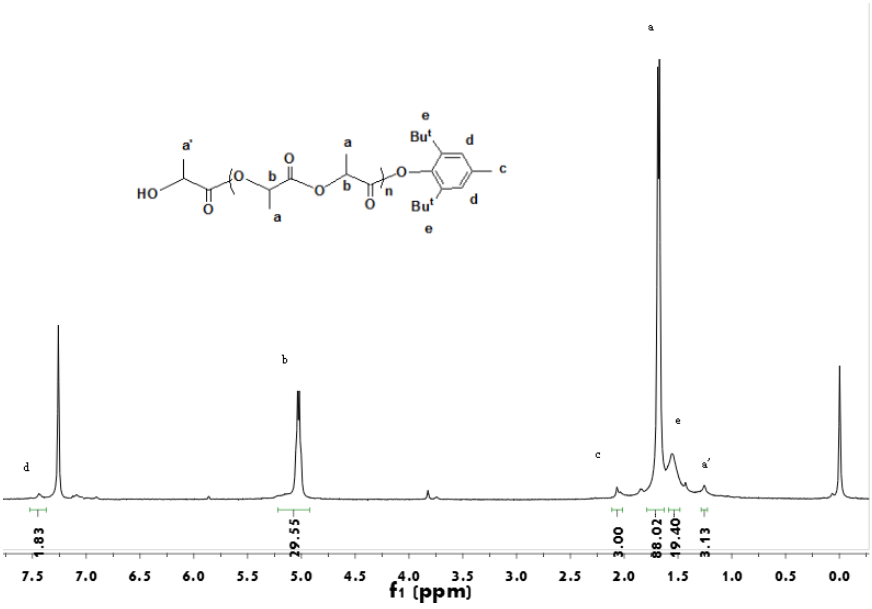

Fig. S4. ^{1}H NMR spectrum of *rac*-LA oligomer initiated by complex **2** in $CDCl_3$ ([M]/[I] = 20:1, in THF, 25 °C).