

Aluminum Chelates Supported by β -Quinolyl Enolate Ligands: Synthesis and ROP of ϵ -CL

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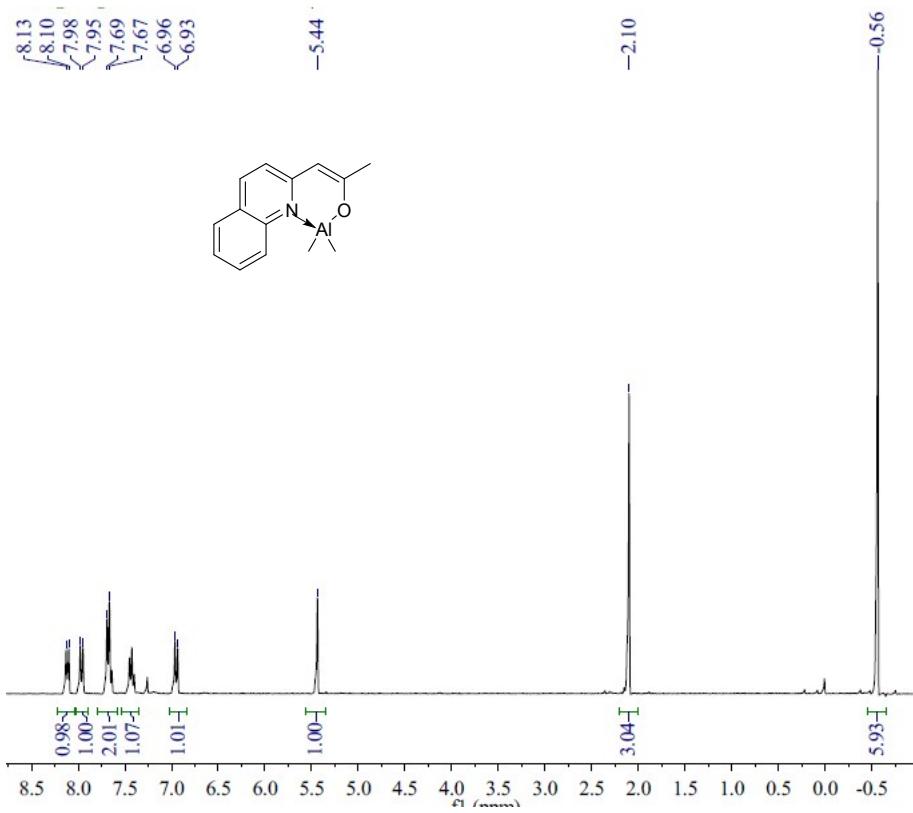


Figure S1 ¹H NMR spectrum of complex **1b** (300 MHz, CDCl₃)

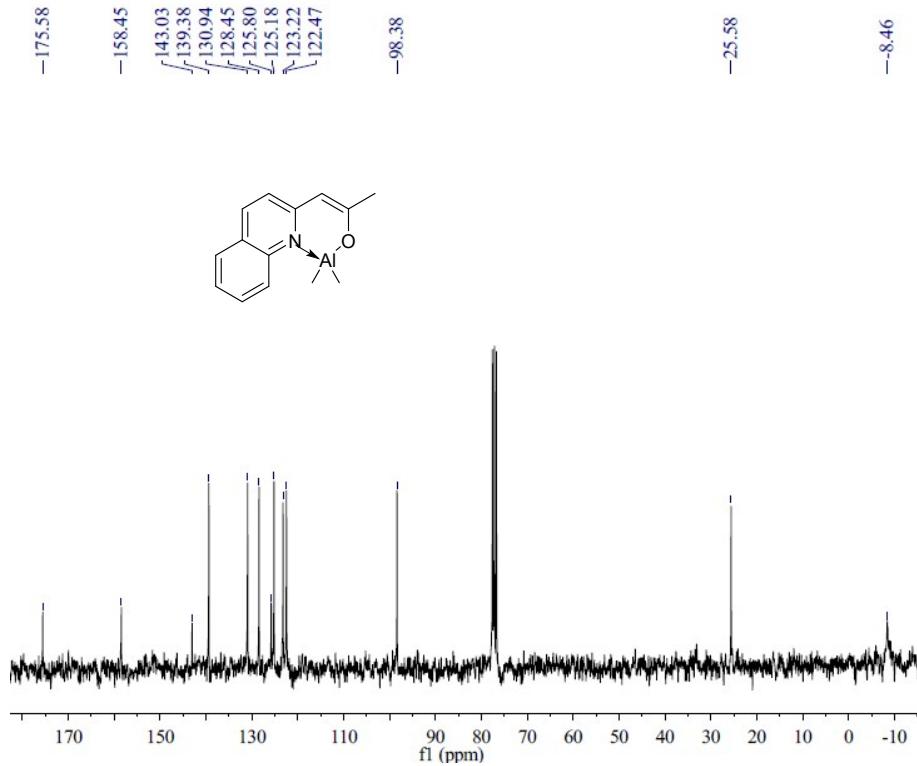


Figure S2 ¹³C NMR spectrum of complex **1b** (75 MHz, CDCl₃)

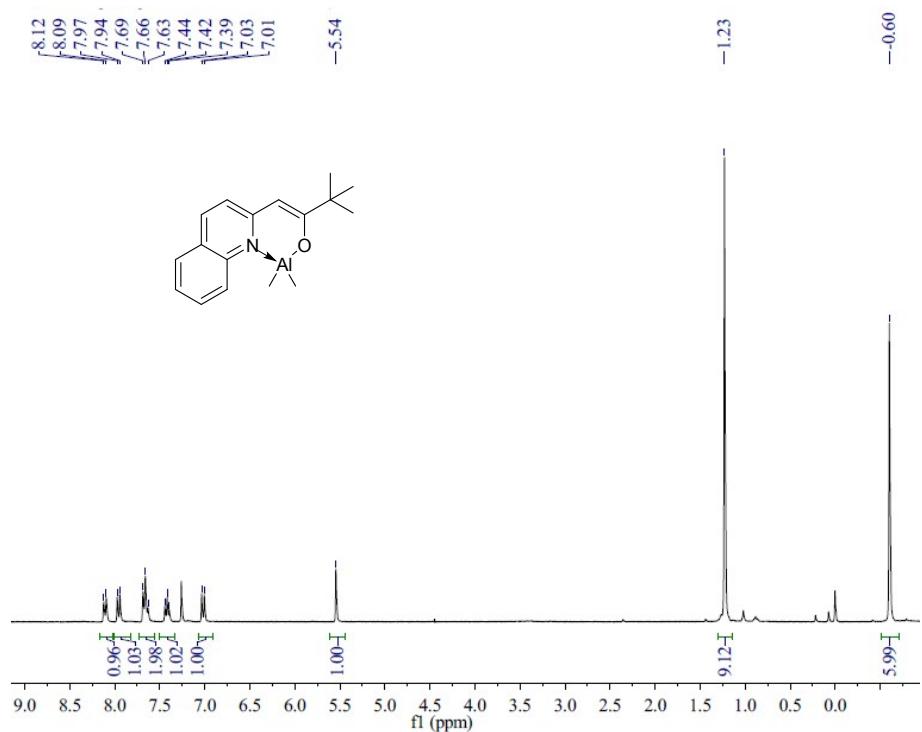


Figure S3 ¹H NMR spectrum of complex **2b** (300 MHz, CDCl₃)

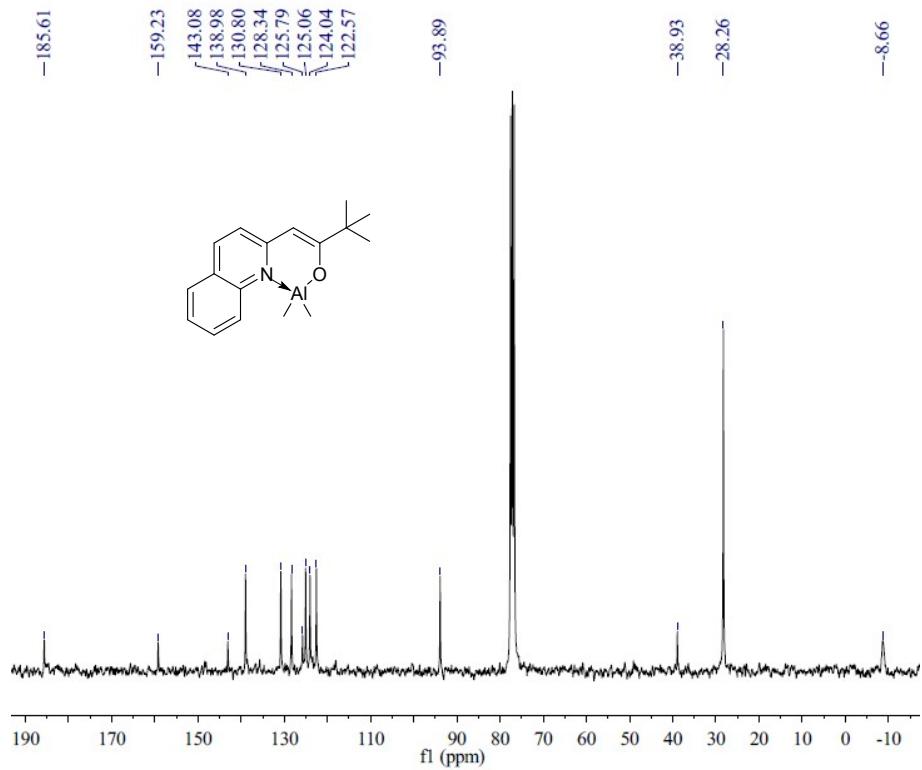


Figure S4 ¹³C NMR spectrum of complex **2b** (75 MHz, CDCl₃)

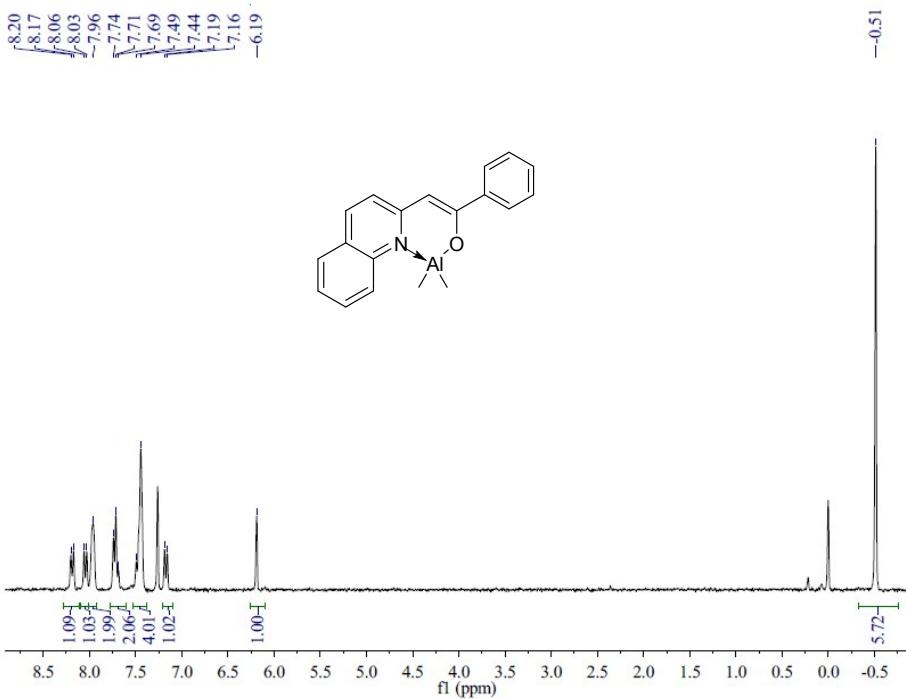


Figure S5 ¹H NMR spectrum of complex **3b** (300 MHz, CDCl₃)

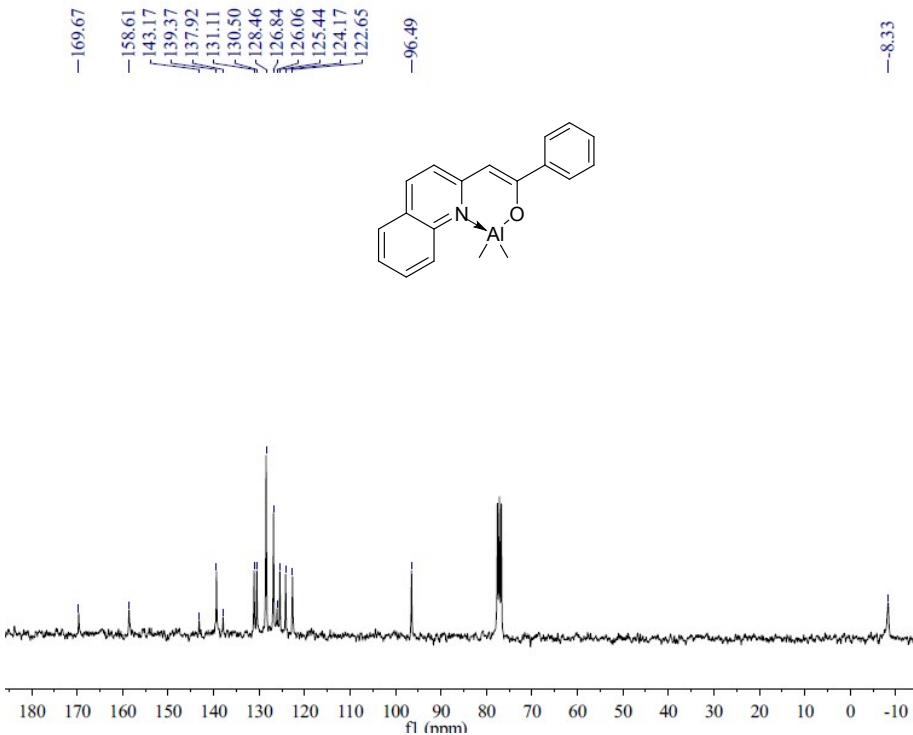


Figure S6 ¹³C NMR spectrum of complex **3b** (75 MHz, CDCl₃)

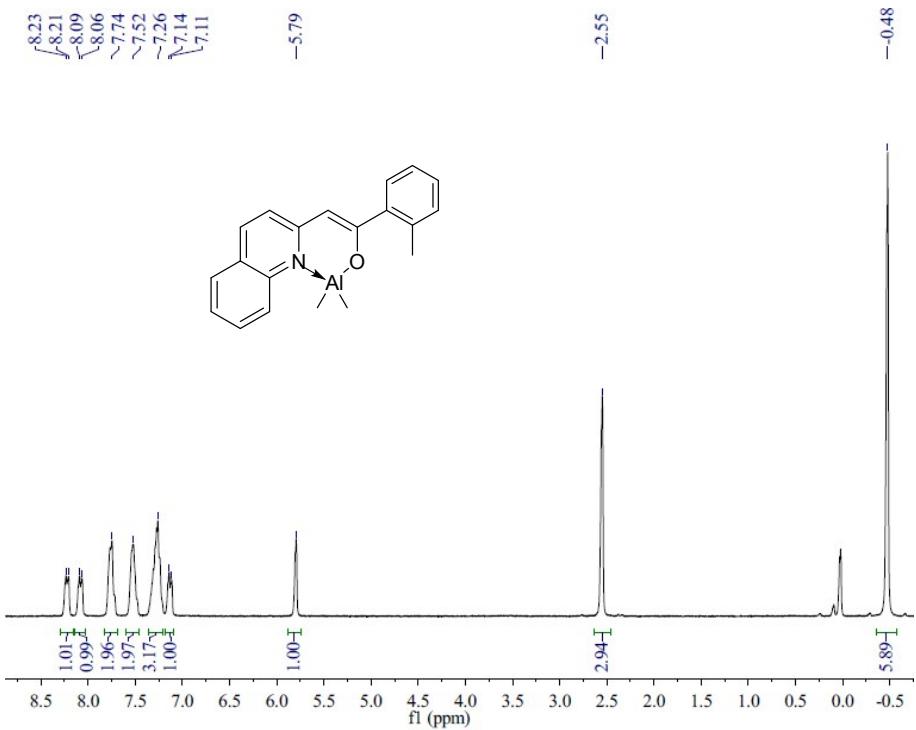


Figure S7 ¹H NMR spectrum of complex **4b** (300 MHz, CDCl₃)

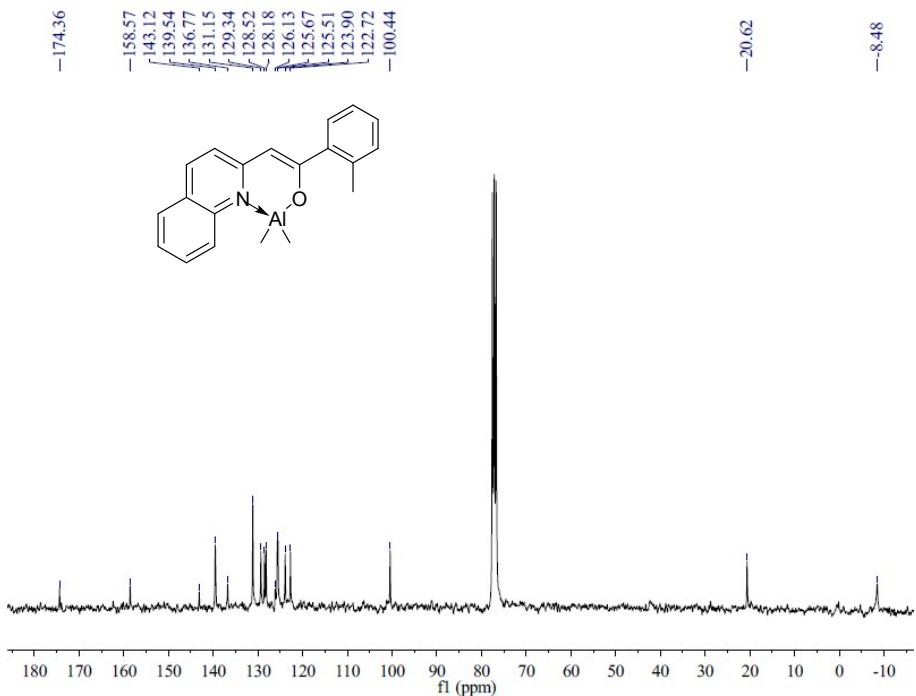


Figure S8 ¹³C NMR spectrum of complex **4b** (75 MHz, CDCl₃)

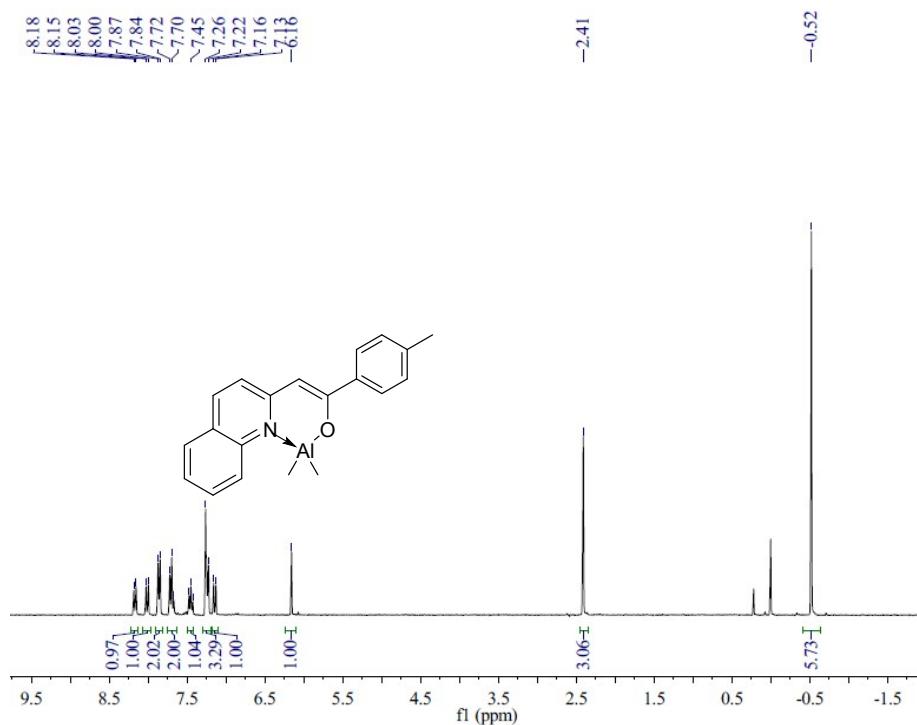


Figure S9 ¹H NMR spectrum of complex **5b** (300 MHz, CDCl₃)

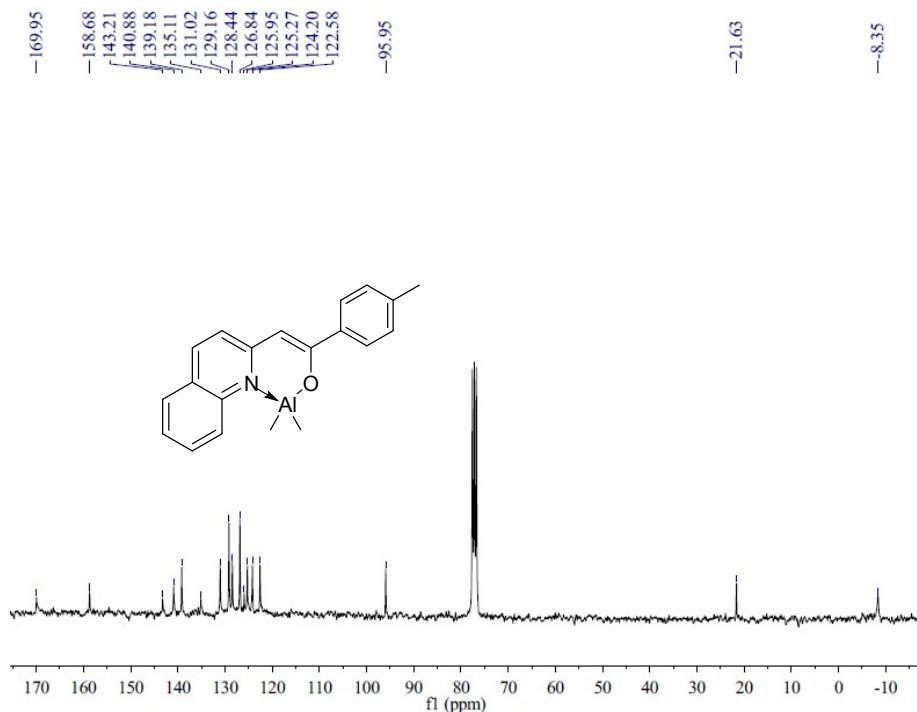


Figure S10 ¹³C NMR spectrum of complex **5b** (75 MHz, CDCl₃)

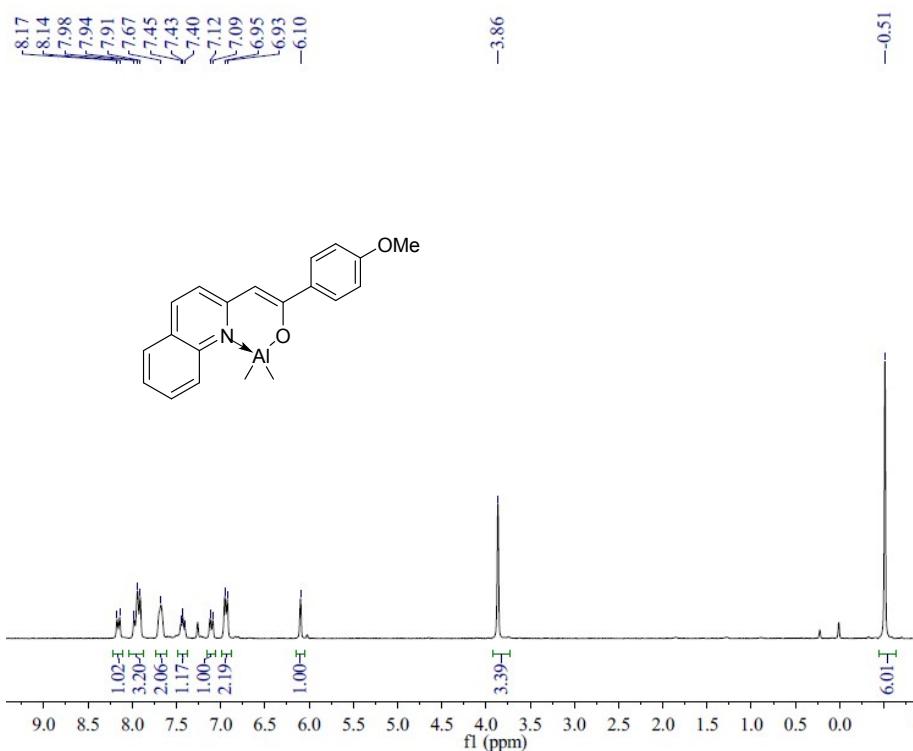


Figure S11 ¹H NMR spectrum of complex **6b** (300 MHz, CDCl₃)

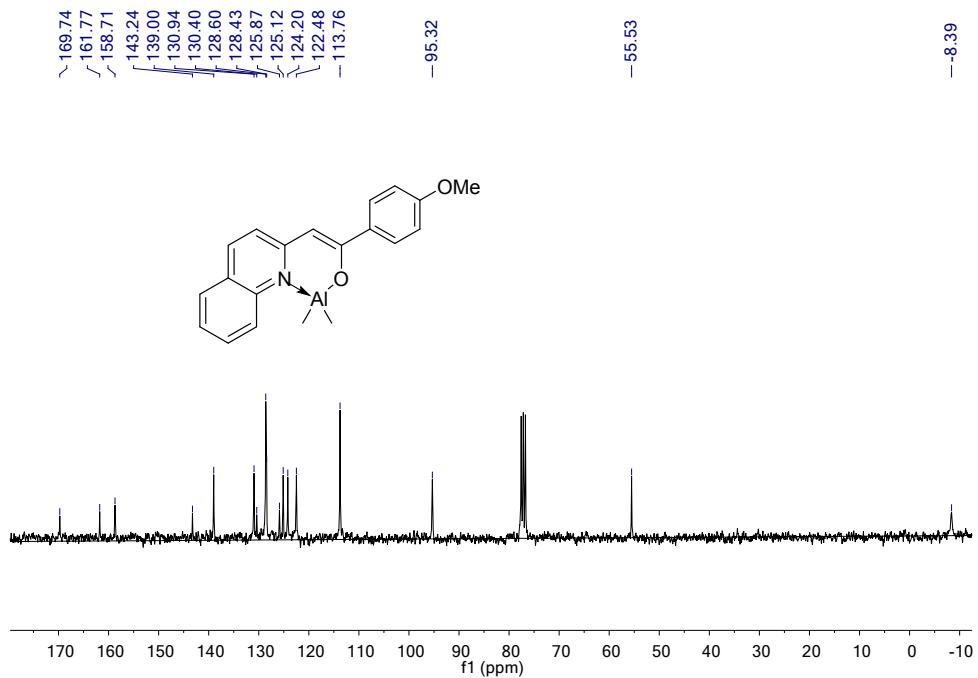


Figure S12 ¹³C NMR spectrum of complex **6b** (75 MHz, CDCl₃)

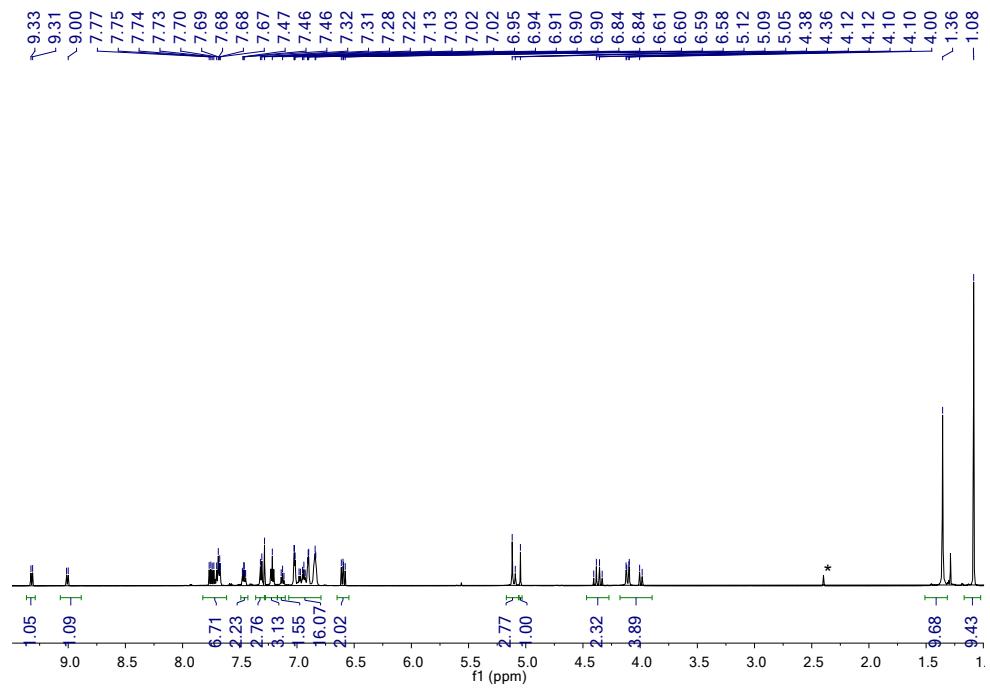


Figure S13 ^1H NMR spectrum of complex **2c** (600 MHz, CDCl_3) (* were the signals of toluene)..

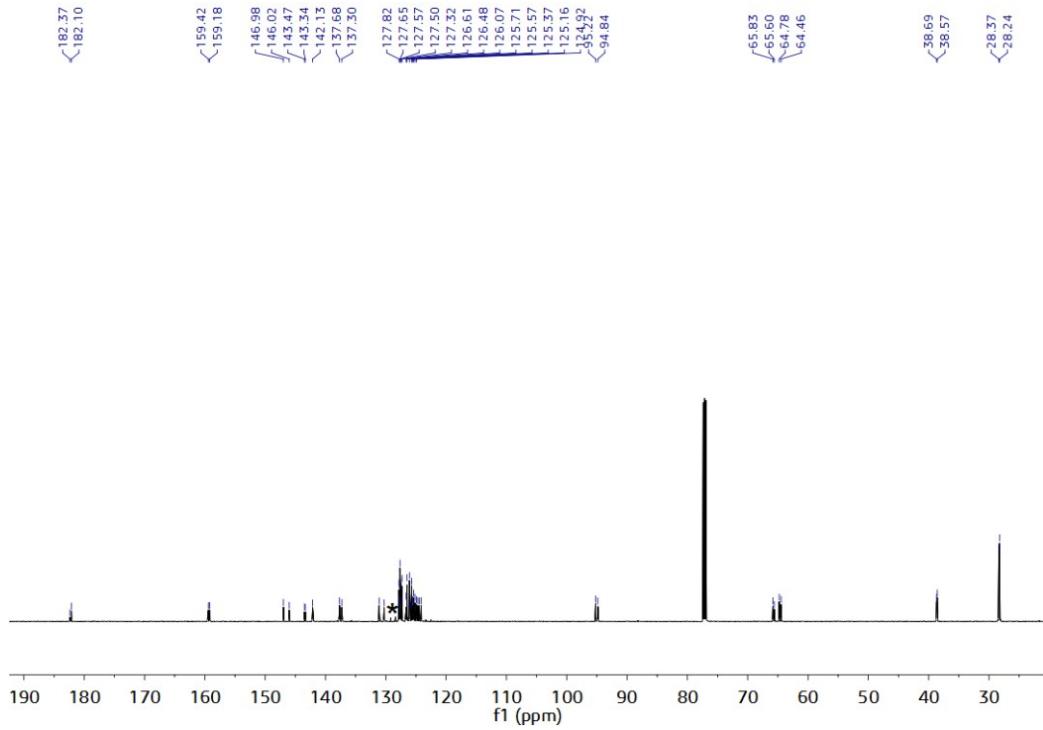


Figure S14 ^{13}C NMR spectrum of complex **2c** (150 MHz, CDCl_3) (* were the signals of toluene).

Table S1 The variations of [CL] in ROP process using all Al complexes in toluene 5 mL, $[CL]_0 = 1.0$ M at 80 °C. (**1b-6b** : $[CL]_0 : [Al]_0 : [BnOH]_0 = 100 : 1 : 1$; **2c** : $[CL]_0 : [Al]_0 = 100 : 1$)

1b		2b		3b	
Time (min)	Conv. (%)	Time (min)	Conv. (%)	Time (min)	Conv. (%)
10	40	10	42	10	23
20	71	20	61	20	43
30	83	30	71	30	56
40	89	40	81	40	74
50	94	50	88	50	83
60	96	60	92	60	91
$k_{obs} = 0.0555(1) \text{ min}^{-1}$		$k_{obs} = 0.0423(5) \text{ min}^{-1}$		$k_{obs} = 0.0357(6) \text{ min}^{-1}$	

4b		5b		6b	
Time (min)	Conv. (%)	Time (min)	Conv. (%)	Time (min)	Conv. (%)
10	30	10	33	20	32
20	55	20	61	40	56
30	75	30	77	60	78
40	82	40	88	80	84
50	88	50	92	100	89
60	92	60	95	120	92
$k_{obs} = 0.0425(6) \text{ min}^{-1}$		$k_{obs} = 0.0503 \text{ min}^{-1}$		$k_{obs} = 0.0220(3) \text{ min}^{-1}$	

2c	
Time (min)	Conv. (%)
2	27
4	58
8	83
12	93
16	98
$k_{obs} = 0.2334(9) \text{ min}^{-1}$	

Table S2 The M_n or polydispersity in different conversion using **1b**, **2b**, **5b** and **2c** in toluene 5 mL, $[CL]_0 = 1.0$ M at 80 °C (**1b-6b** : $[CL]_0$: $[Al]_0$: $[BnOH]_0 = 100 : 1 : 1$; **2c** : $[CL]_0$: $[Al]_0 = 100 : 1$)

1b			2b			5b		
Conv.	$M_{n, GPC} (10^{-4})$	PDI	Conv. (%)	$M_{n, GPC} (10^{-4})$	PDI	Conv. (%)	$M_{n, GPC} (10^{-4})$	PDI
(%)								
40	0.58 (0.32)	1.16	42	0.63 (0.35)	1.15	33	0.54 (0.30)	1.14
71	0.76 (0.43)	1.41	61	0.75 (0.42)	1.38	61	0.74 (0.41)	1.41
83	0.84 (0.47)	1.37	71	0.89 (0.50)	1.29	77	0.89 (0.50)	1.43
89	0.87 (0.49)	1.44	81	0.94 (0.53)	1.38	88	0.96 (0.54)	1.53
94	0.89 (0.50)	1.47	88	1.03 (0.58)	1.55	92	1.01 (0.57)	1.51
96	0.93 (0.52)	1.52	92	1.09 (0.61)	1.57	95	1.05 (0.59)	1.47

2c		
Conv.	$M_{n, GPC} (10^{-4})$	PDI
(%)		
35	0.40 (0.22)	1.12
58	0.52 (0.29)	1.18
83	0.78 (0.44)	1.33
93	0.83 (0.46)	1.52
98	0.91 (0.51)	1.59

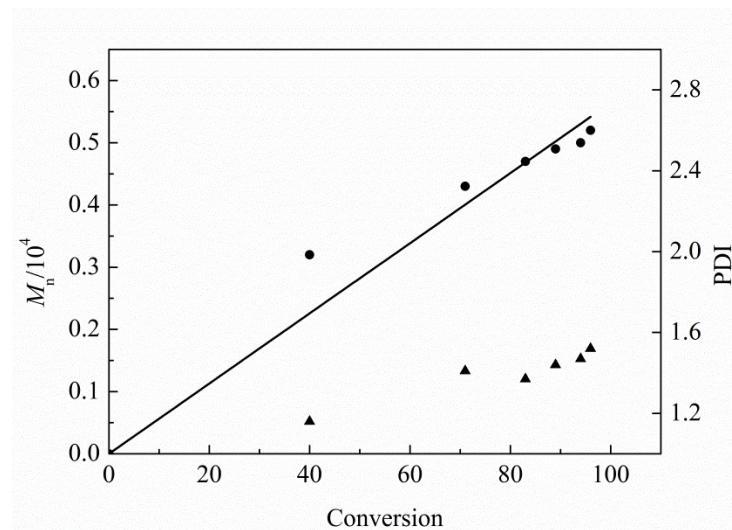


Figure S15 Relationship between M_n (●, obtained from GPC analysis) or polydispersity (▲, M_w/M_n) with ε-CL conversion using **1b**/BnOH in toluene at 80 °C with a ratio of $[CL]_0 : [Al]_0 : [BnOH]_0 = 100 : 1 : 1$

1 : 1.

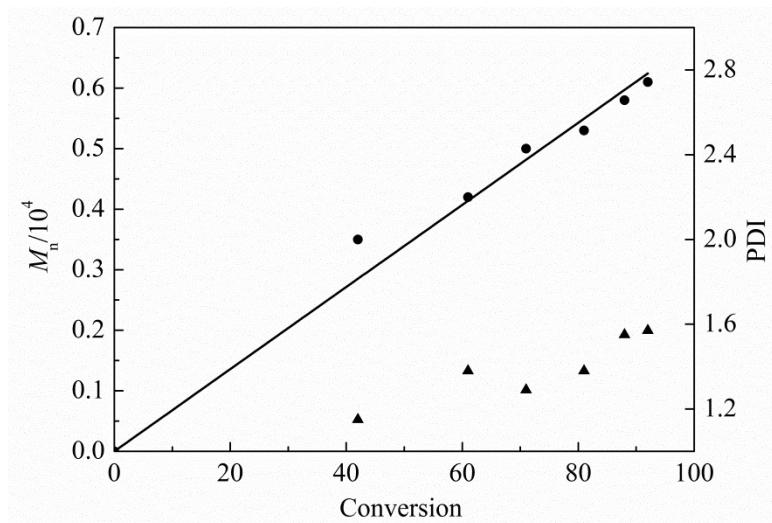


Figure S16 Relationship between M_n (●, obtained from GPC analysis) or polydispersity (▲, M_w/M_n) with ϵ -CL conversion using **2b**/BnOH in toluene at 80 °C with a ratio of $[CL]_0 : [Al]_0 : [BnOH]_0 = 100 : 1 : 1$.

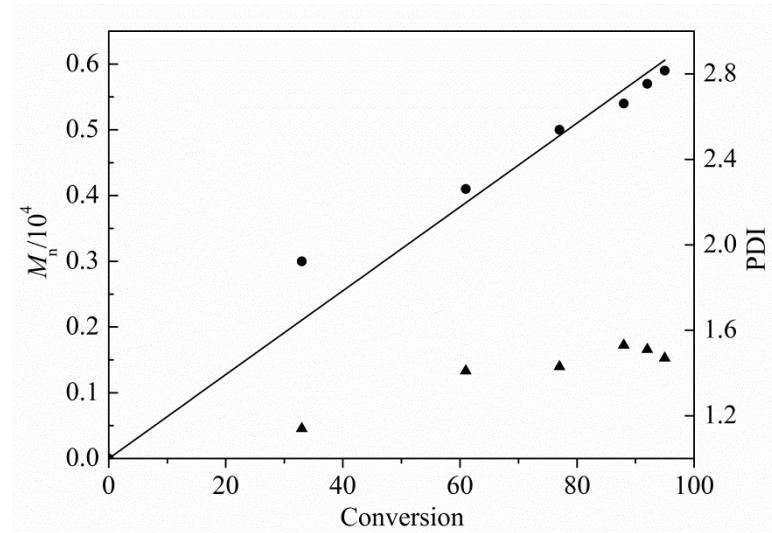


Figure S17 Relationship between M_n (●, obtained from GPC analysis) or polydispersity (▲, M_w/M_n) with ϵ -CL conversion using **5b**/BnOH in toluene at 80 °C with a ratio of $[CL]_0 : [Al]_0 : [BnOH]_0 = 100 : 1 : 1$.