### **Supporting Information for**

## Rare-earth metal bis(aminobenzyl) complexes supported by pyrrolyl-

### functionalized arylamide ligands: synthesis, characterization and styrene

### polymerization performance

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SFig. 1. <sup>1</sup>H NMR (500 MHz, C<sub>6</sub>D<sub>6</sub>) spectrum of 2,5-Me<sub>2</sub>C<sub>4</sub>H<sub>2</sub>NCH<sub>2</sub>SiMe<sub>2</sub>NHC<sub>6</sub>H<sub>5</sub> (HL<sup>1</sup>)



SFig. 2. <sup>13</sup>C NMR (125 MHz, C<sub>6</sub>D<sub>6</sub>) spectrum of 2,5-Me<sub>2</sub>C<sub>4</sub>H<sub>2</sub>NCH<sub>2</sub>SiMe<sub>2</sub>NHC<sub>6</sub>H<sub>5</sub> (HL<sup>1</sup>)



SFig. 3. <sup>1</sup>H NMR (500 MHz, C<sub>6</sub>D<sub>6</sub>) spectrum of 2,5-Me<sub>2</sub>C<sub>4</sub>H<sub>2</sub>NCH<sub>2</sub>SiMe<sub>2</sub>NHC<sub>6</sub>H<sub>4</sub>Cl-*p* (HL<sup>2</sup>)



SFig. 4. <sup>13</sup>C NMR (125 MHz, C<sub>6</sub>D<sub>6</sub>) spectrum of 2,5-Me<sub>2</sub>C<sub>4</sub>H<sub>2</sub>NCH<sub>2</sub>SiMe<sub>2</sub>NHC<sub>6</sub>H<sub>4</sub>Cl-*p* (HL<sup>2</sup>)



SFig. 5. <sup>1</sup>H NMR spectrum of (2,5-Me<sub>2</sub>C<sub>4</sub>H<sub>2</sub>NCH<sub>2</sub>SiMe<sub>2</sub>NC<sub>6</sub>H<sub>5</sub>)Sc(CH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>NMe<sub>2</sub>-*o*)<sub>2</sub>(1)



SFig. 6. <sup>13</sup>C NMR spectrum of  $(2,5-Me_2C_4H_2NCH_2SiMe_2NC_6H_5)Sc(CH_2C_6H_4NMe_2-o)_2(1)$ 



SFig. 7. <sup>1</sup>H NMR spectrum of  $(2,5-Me_2C_4H_2NCH_2SiMe_2NC_6H_5)La(CH_2C_6H_4NMe_2-o)_2(2)$ 



SFig. 8.  ${}^{13}$ C NMR spectrum of (2,5-Me<sub>2</sub>C<sub>4</sub>H<sub>2</sub>NCH<sub>2</sub>SiMe<sub>2</sub>NC<sub>6</sub>H<sub>5</sub>)La (CH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>NMe<sub>2</sub>-o)<sub>2</sub>(**2**)



SFig. 10. <sup>13</sup>C NMR spectrum of  $(2,5-Me_2C_4H_2NCH_2SiMe_2NC_6H_5)Lu (CH_2C_6H_4NMe_2-o)_2 (3)$ 



SFig. 11. <sup>1</sup>H NMR spectrum of (2,5-Me<sub>2</sub>C<sub>4</sub>H<sub>2</sub>NCH<sub>2</sub>SiMe<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>Cl-*p*)Sc(CH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>NMe<sub>2</sub>-*o*)<sub>2</sub>(4)



SFig. 12. <sup>13</sup>C NMR spectrum of  $(2,5-Me_2C_4H_2NCH_2SiMe_2NC_6H_4Cl-p)Sc(CH_2C_6H_4NMe_2-o)_2$  (4)



SFig. 14. <sup>13</sup>C NMR spectrum of  $(2,5-Me_2C_4H_2NCH_2SiMe_2NC_6H_4Cl-p)La(CH_2C_6H_4NMe_2-o)_2(5)$ 



SFig. 15. <sup>1</sup>H NMR spectrum of  $(2,5-Me_2C_4H_2NCH_2SiMe_2NC_6H_4Cl-p)Lu(CH_2C_6H_4NMe_2-o)_2$  (6)



SFig. 16. <sup>13</sup>C NMR spectrum of (2,5-Me<sub>2</sub>C<sub>4</sub>H<sub>2</sub>NCH<sub>2</sub>SiMe<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>Cl-*p*)Lu(CH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>NMe<sub>2</sub>-*o*)<sub>2</sub>(**6**)



SFig. 17 GPC curve for representative polymer



