

## Supporting Information for

# Rare earth metal bis(silylamine) complexes bearing pyridyl-functionalized indenyl ligand: synthesis, structure and performance in the living polymerization of L-lactide and *rac*-lactide

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## Contents

Fig S1 Molecular Structure of **2**

Fig S2 Molecular Structure of **3**

Fig S3 <sup>1</sup>H NMR of **1**

Fig S4 <sup>13</sup>C NMR of **1**

Fig S5 <sup>1</sup>H NMR of **2**

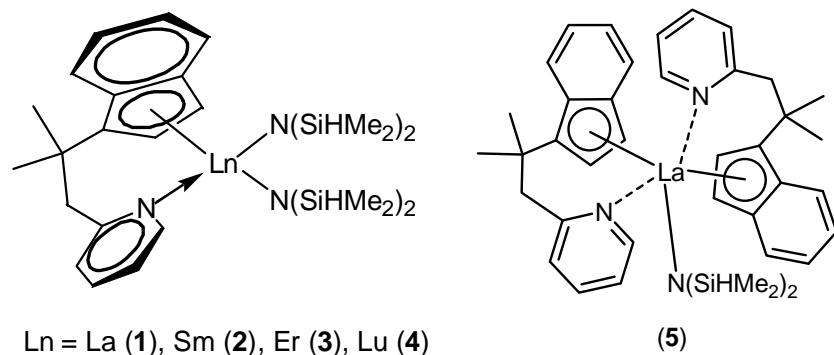
Fig S6 <sup>1</sup>H NMR of **4**

Fig S7 <sup>13</sup>C NMR of **4**

Fig S8 <sup>1</sup>H–<sup>13</sup>C HMBC spectrum of **4**

Fig S9 <sup>1</sup>H NMR of **5**

Fig S10 <sup>13</sup>C NMR of **5**



Ln = La (**1**), Sm (**2**), Er (**3**), Lu (**4**)

(**5**)

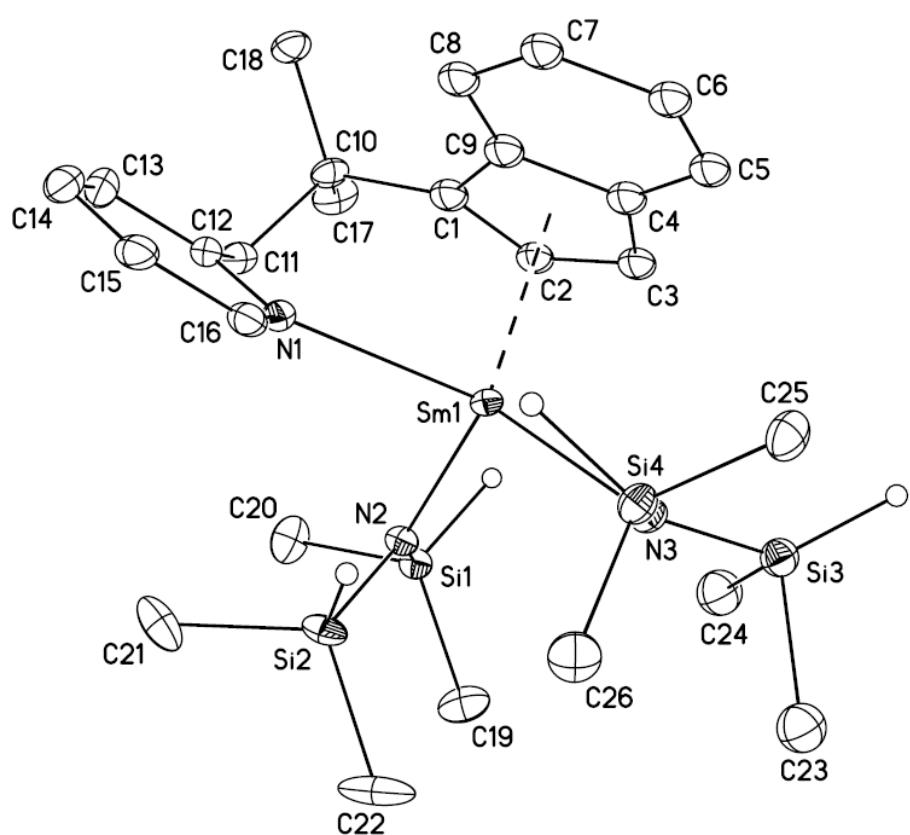


Fig S1. Molecular structure of **2**. Selected bond distances ( $\text{\AA}$ ) and bond angles ( $^{\circ}$ ) for complex **2**: Sm(1)-N(1) 2.594(6), Sm(1)-N(2) 2.300(6), Sm(1)-N(3) 2.297(6), Sm(1)-C(1) 2.765(8), Sm(1)-C(2) 2.728(9), Sm(1)-C(3) 2.702(9), Sm(1)-C(4) 2.747(9), Sm(1)-C(9) 2.794(8), C(1)-C(2) 1.415(13), C(2)-C(3) 1.377(12), C(3)-C(4) 1.394(13), C(4)-C(9) 1.456(13), C(9)-C(1) 1.441(12), Cp<sub>centroid</sub>-Sm(1) 2.476(10); N(3)-Sm(1)-N(2) 100.1(2), Cp<sub>centroid</sub>-Sm(1)-N1 95.0(3).

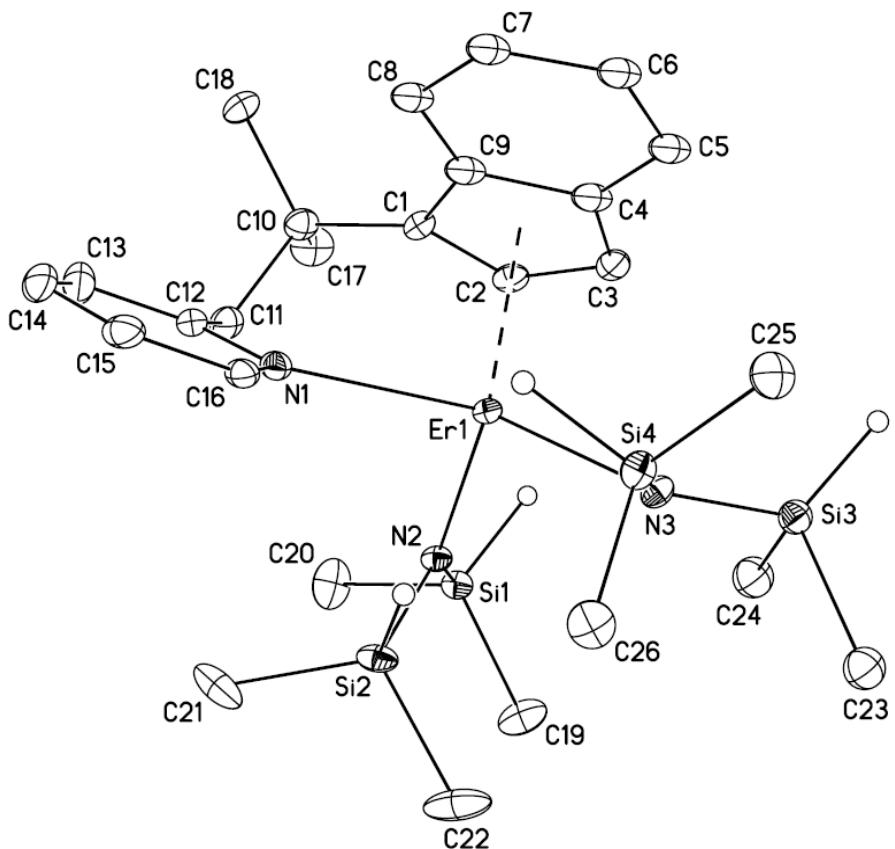


Fig S2. Molecular structure of **3**. Selected bond distances ( $\text{\AA}$ ) and bond angles ( $^\circ$ ) for complex **3**: Er(1)-N(1) 2.513(6), Er(1)-N(2) 2.229(5), Er(1)-N(3) 2.240(5), Er(1)-C(1) 2.674(7), Er(1)-C(2) 2.617(6), Er(1)-C(3) 2.618(7), Er(1)-C(4) 2.664(8), Er(1)-C(9) 2.699(8), C(1)-C(2) 1.404(10), C(2)-C(3) 1.393(10), C(3)-C(4) 1.386(11), C(4)-C(9) 1.455(12), C(1)-C(9) 1.428(9), N(3)-Lu(1)-N(2) 99.2(2), Cp<sub>centroid</sub>-Er(1) 2.368(11); N(3)-Er(1)-N(2) 99.5(2), Cp<sub>centroid</sub>-Er(1)-N1 97.6(3).

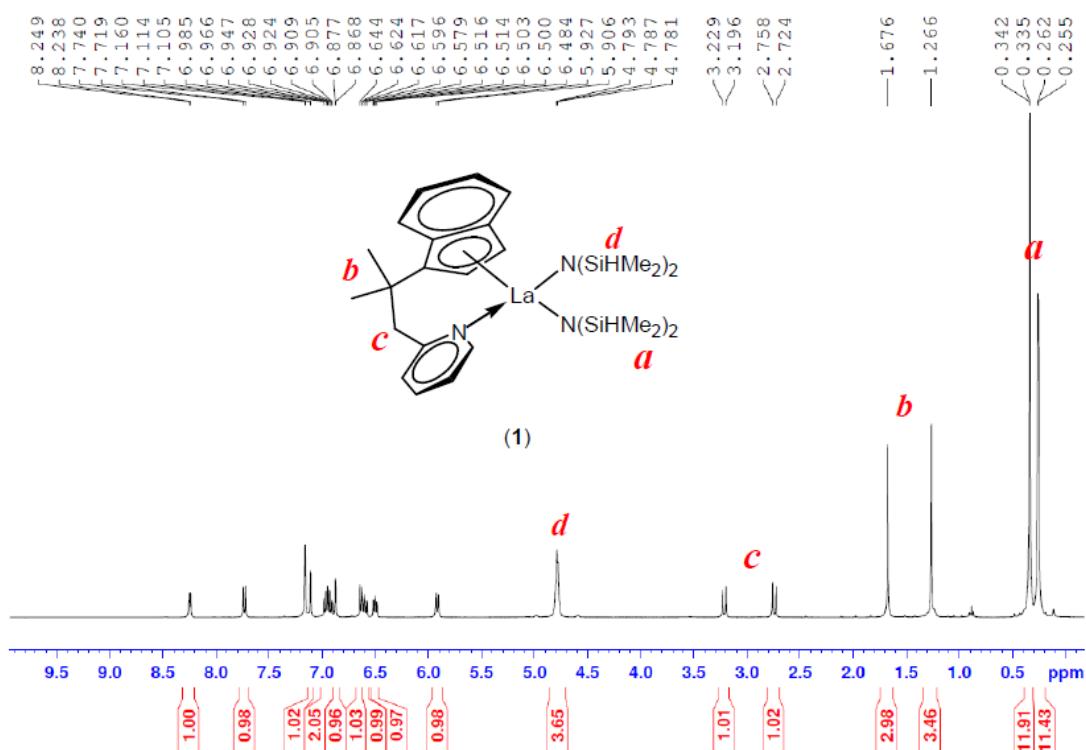


Fig S3. <sup>1</sup>H NMR spectrum of **1**

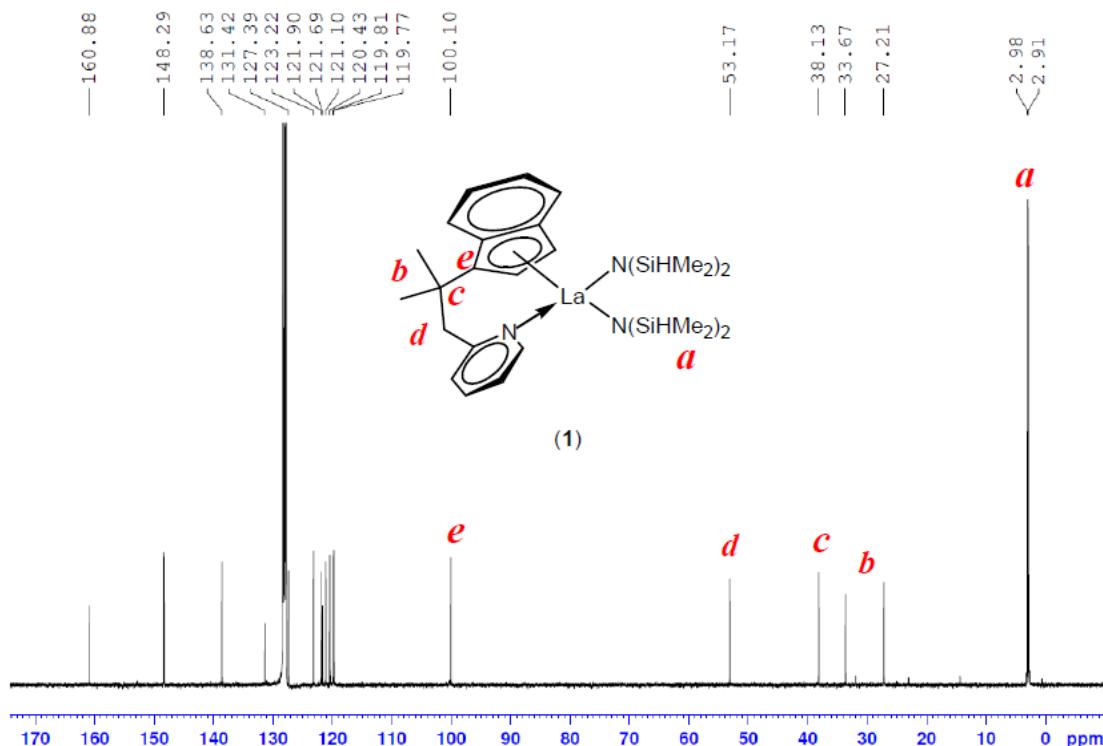


Fig S4. <sup>13</sup>C NMR spectra of **1**

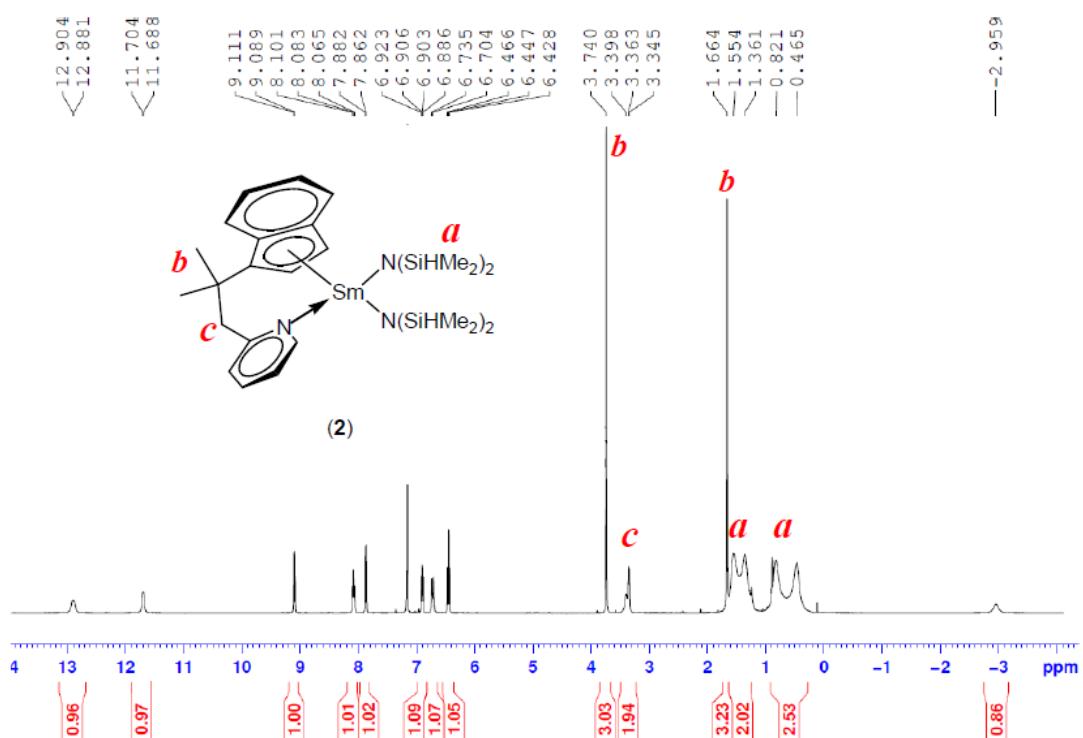


Fig S5. <sup>1</sup>H NMR spectrum of **2**

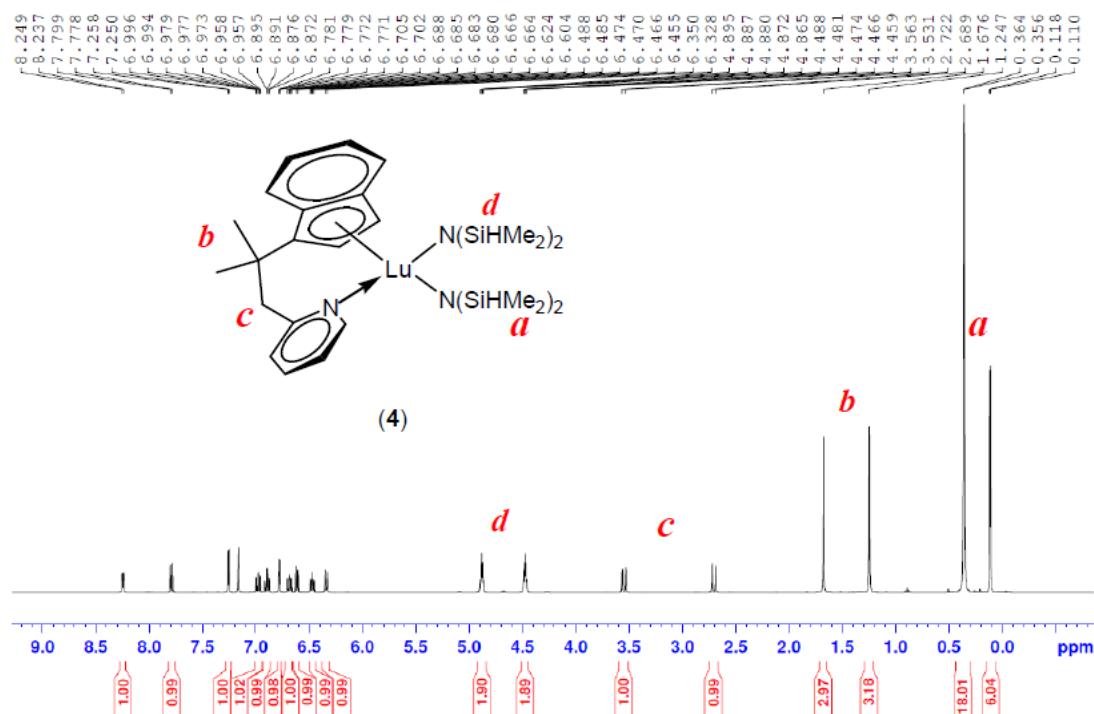


Fig S6. <sup>1</sup>H NMR spectrum of **4**

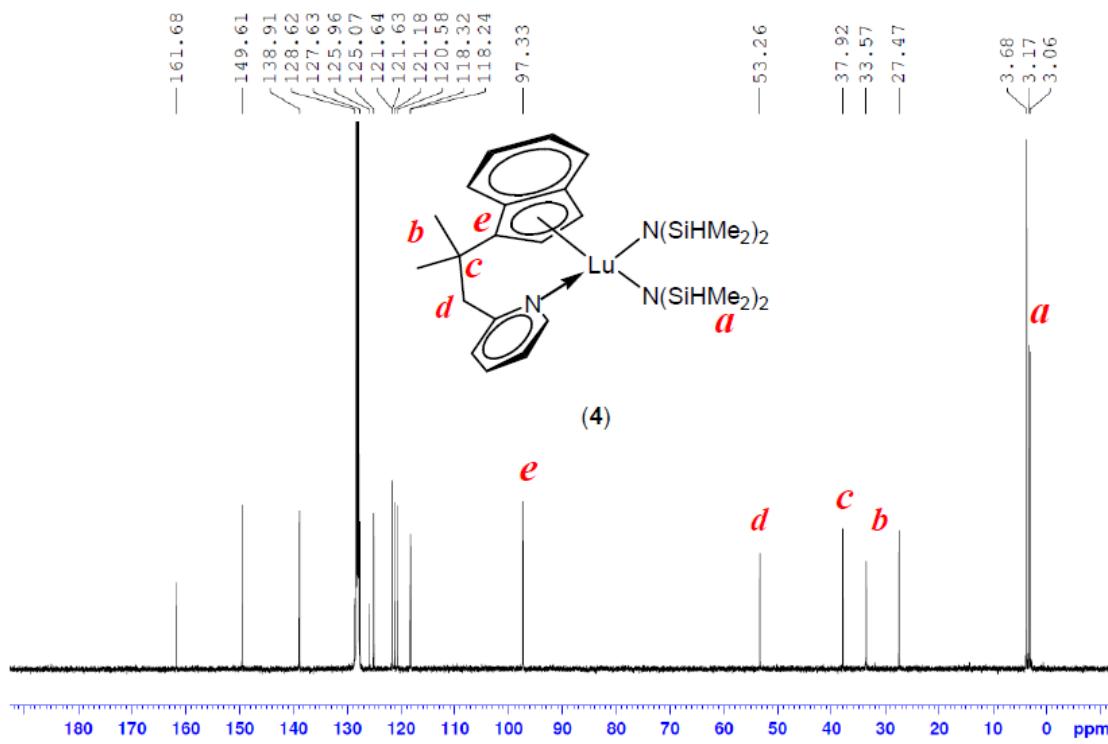


Fig S7. <sup>13</sup>C NMR spectra of **4**

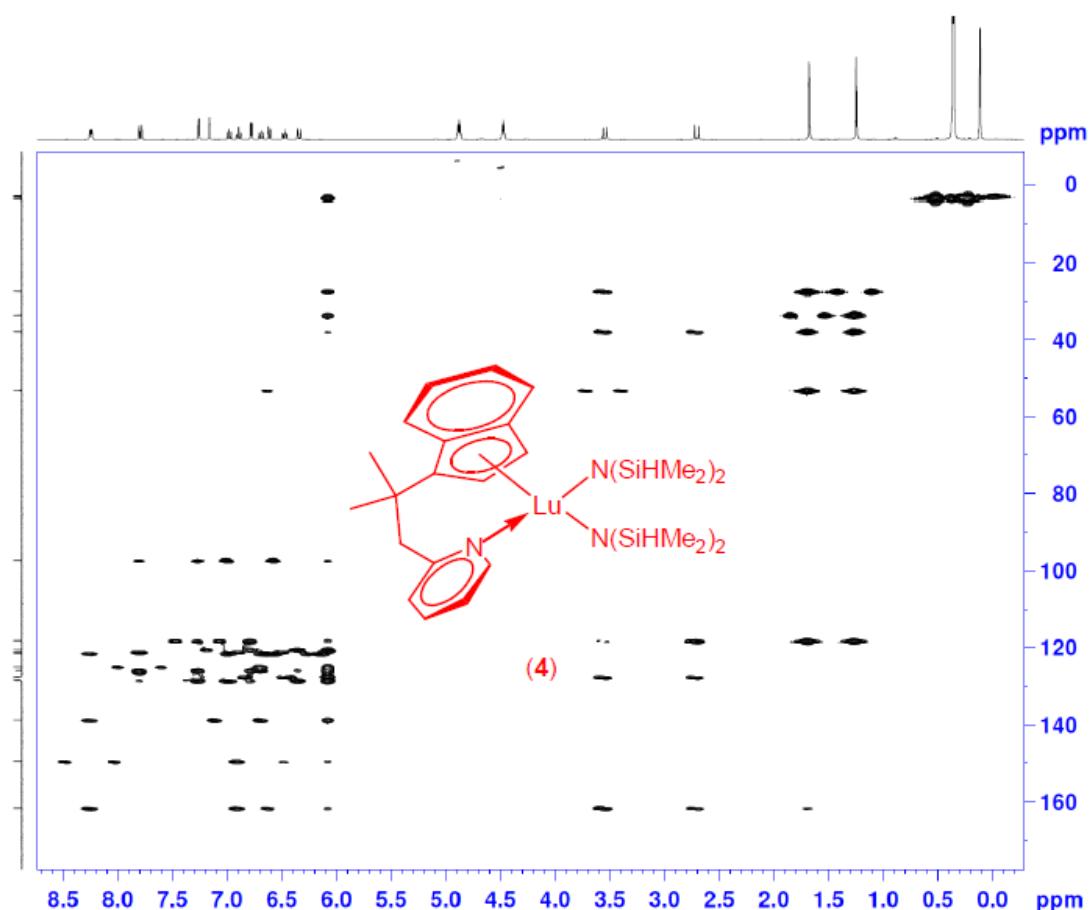


Fig S8.  $^1\text{H}$ - $^{13}\text{C}$  HMBC spectrum of **4**

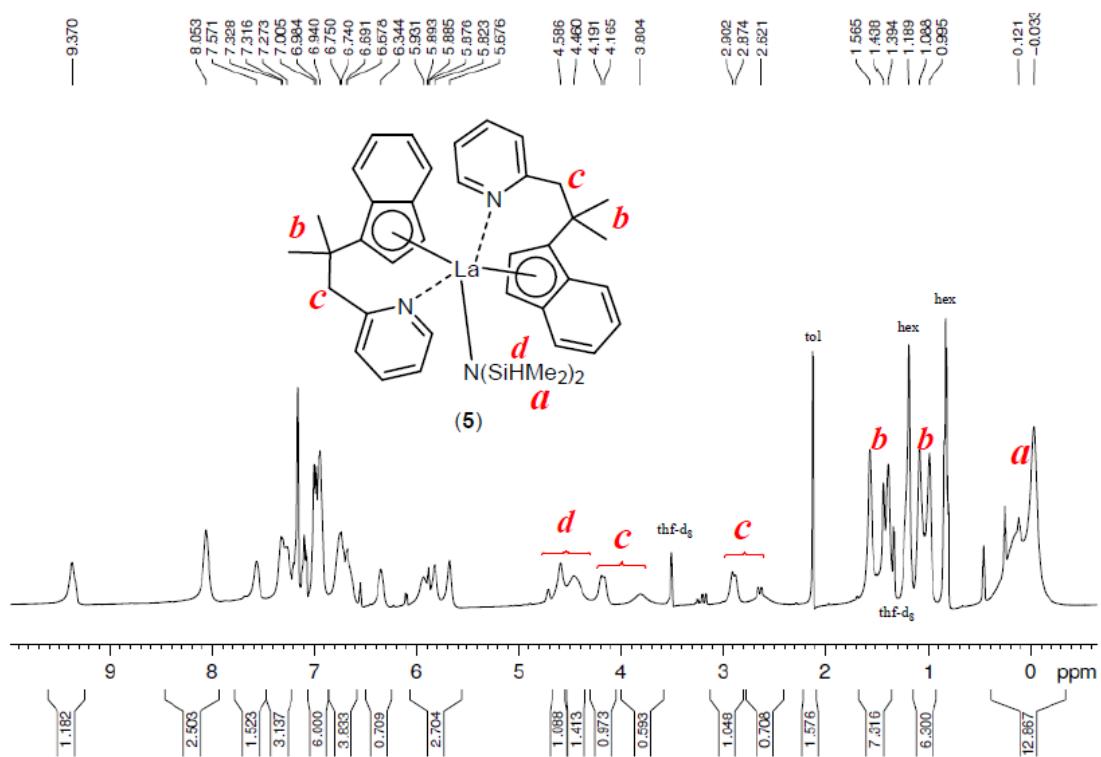


Fig S9. <sup>1</sup>H NMR spectrum of **5**

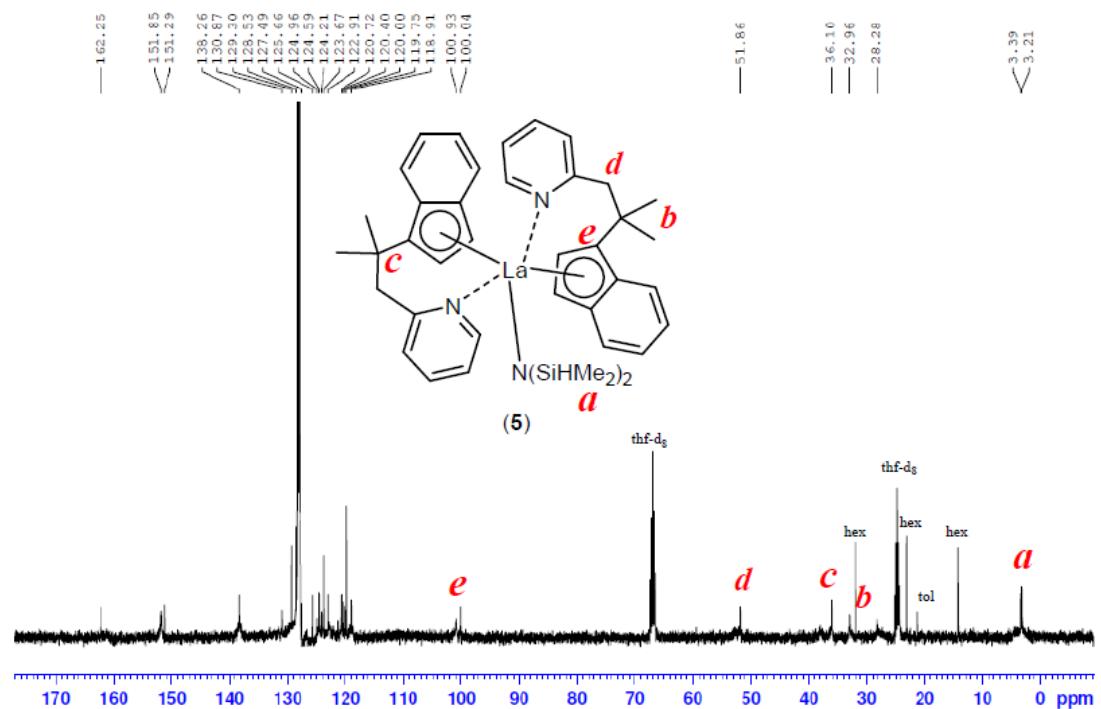


Fig S10. <sup>13</sup>C NMR spectra of **5**