

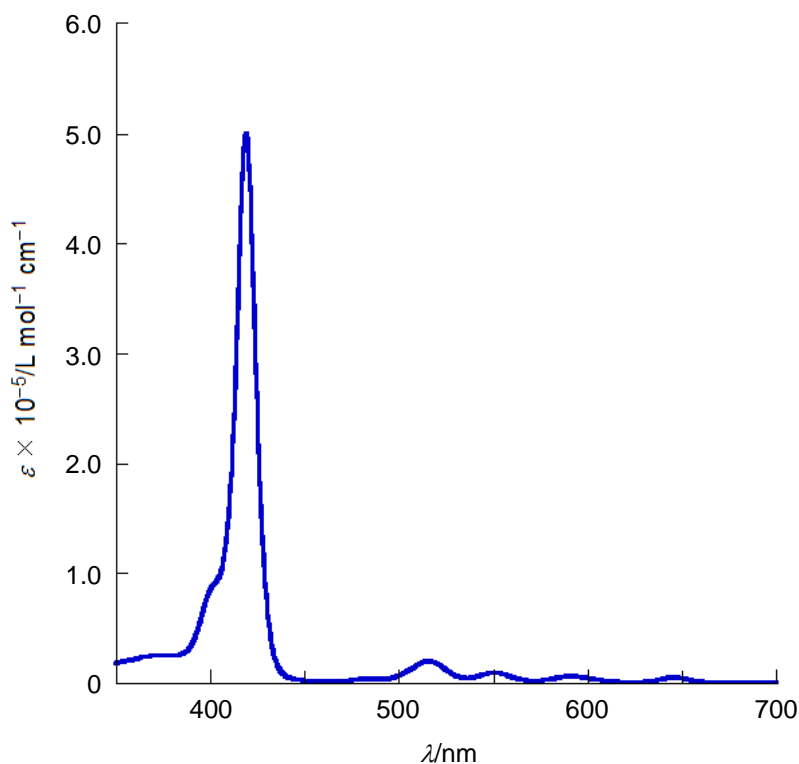
## Supplementary Information

### **Synthesis and properties of 5,10,15,20-tetrakis[4-(alkoxysilyl)phenyl]porphyrins: an application of selective deprotection of benzaldehyde diethyl acetals in the presence of alkoxysilyl groups**

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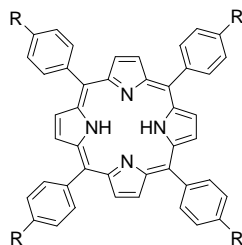
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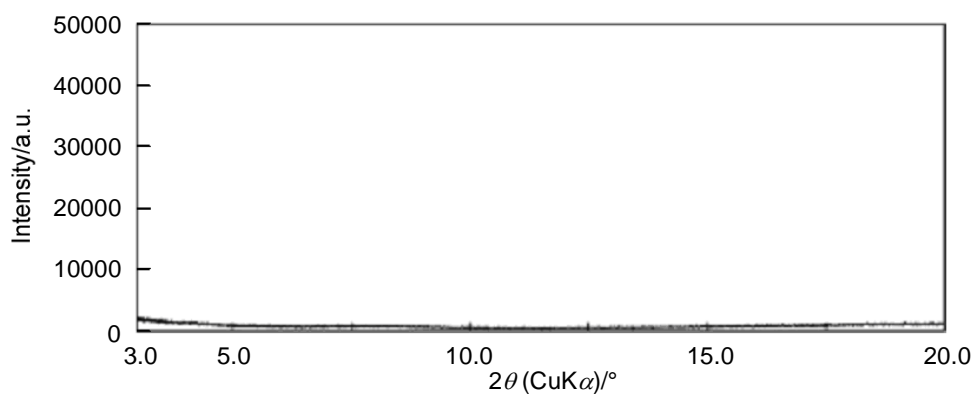
**Fig. S1** UV-vis spectrum of **3a** in dichloromethane at room temperature.

**Table S1** UV-vis absorption bands of **3a** and related porphyrins

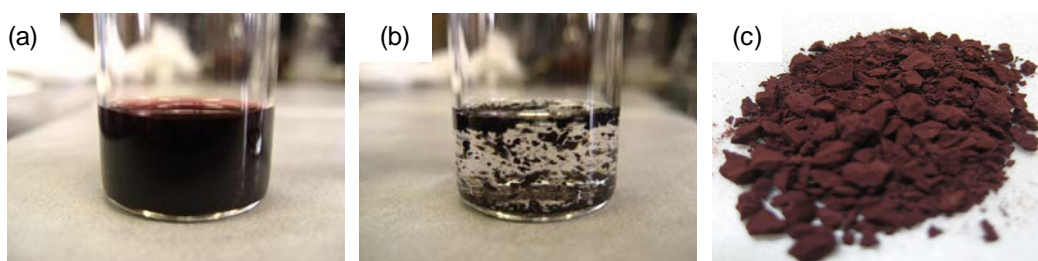


Porphyrin	$\lambda_{\max}/\text{nm}$ ( $\epsilon/\text{L mol}^{-1} \text{cm}^{-1}$ )					Solvent, ref.
	Soret band	Q band				
R = Si(OEt) <sub>3</sub> ( <b>3a</b> )	419 ( $5.0 \times 10^5$ )	516 ( $2.0 \times 10^4$ )	551 ( $1.0 \times 10^4$ )	591 ( $6.9 \times 10^3$ )	646 ( $5.6 \times 10^3$ )	CH <sub>2</sub> Cl <sub>2</sub> , a
R = SiMe <sub>3</sub>	421 ( $4.8 \times 10^5$ )	518 ( $2.0 \times 10^4$ )	552 ( $1.1 \times 10^4$ )	593 ( $6.2 \times 10^3$ )	647 ( $6.1 \times 10^3$ )	CHCl <sub>3</sub> , b
R = SiMe <sub>2</sub> SiMe <sub>3</sub>	422 ( $5.1 \times 10^5$ )	518 ( $2.0 \times 10^4$ )	553 ( $1.2 \times 10^4$ )	593 ( $6.4 \times 10^3$ )	647 ( $5.9 \times 10^3$ )	CHCl <sub>3</sub> , c
R = H	418 ( $4.1 \times 10^5$ )	514 ( $1.8 \times 10^4$ )	548 ( $7.3 \times 10^3$ )	590 ( $4.8 \times 10^3$ )	646 ( $4.3 \times 10^3$ )	CH <sub>2</sub> Cl <sub>2</sub> , d

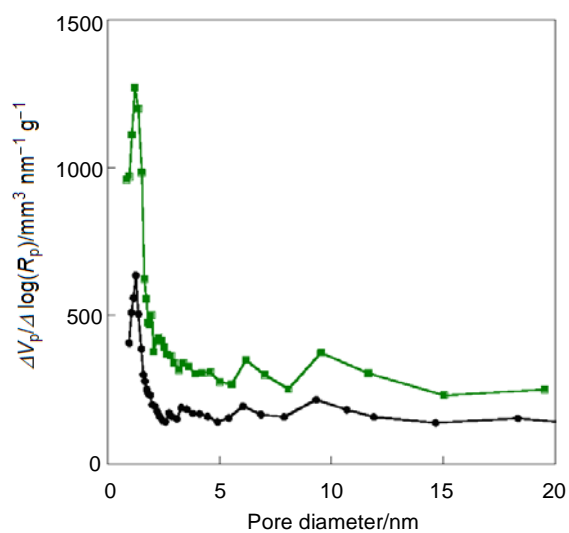
a) This work. b) Prepared according to the reported procedure. See: B.-H. Ye and Y. Naruta, *Tetrahedron*, 2003, **59**, 3593. c) Ref. 15b in the main text. d) Prepared according to the procedure in ref. 14a in the main text.



**Fig. S2** XRD pattern of PSH at room temperature.



**Fig. S3** Photographs of (a) a red-purple solution of **3a** in THF, (b) insoluble PSH and a colorless solution after hydrolysis–condensation of **3a** and (c) PSH powder after washing and drying.



**Fig. S4** Pore size distributions of (a) PSH: filled black circle and (b) PSHc: filled green square.

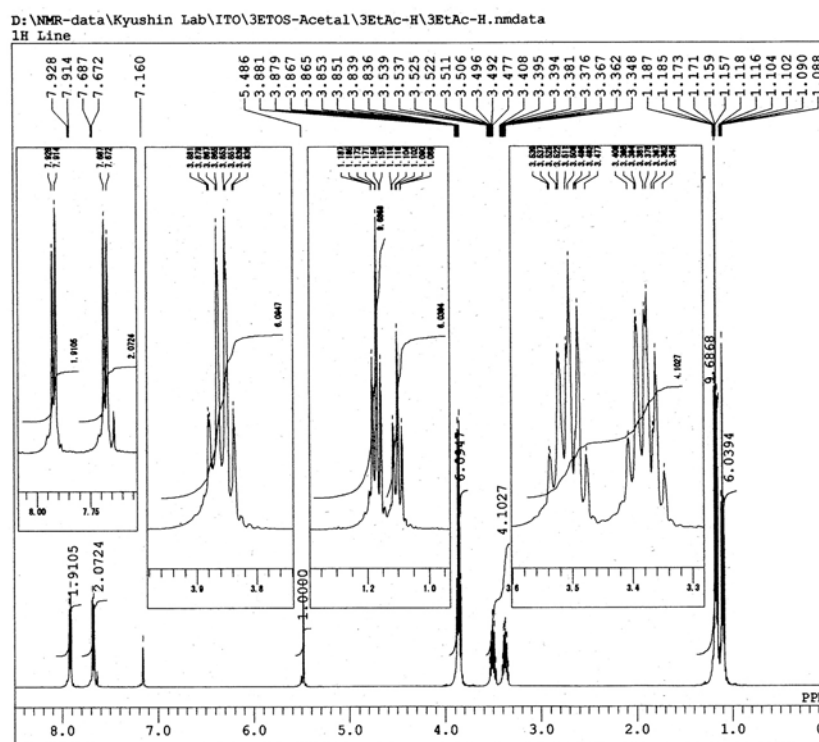


Fig. S5  $^1\text{H}$  NMR spectrum of **1a** in  $\text{C}_6\text{D}_6$  at room temperature.

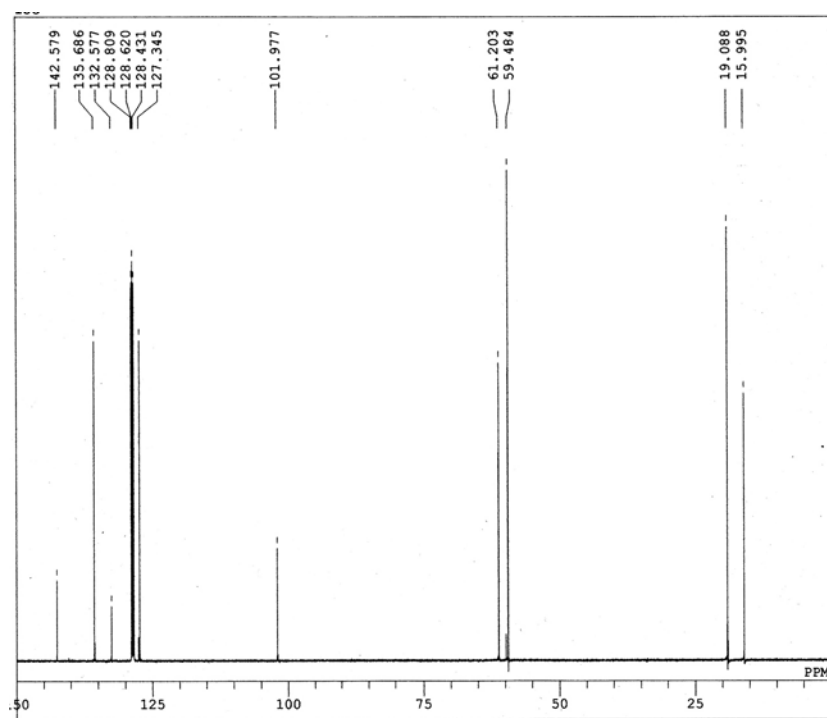


Fig. S6  $^{13}\text{C}$  NMR spectrum of **1a** in  $\text{C}_6\text{D}_6$  at room temperature.

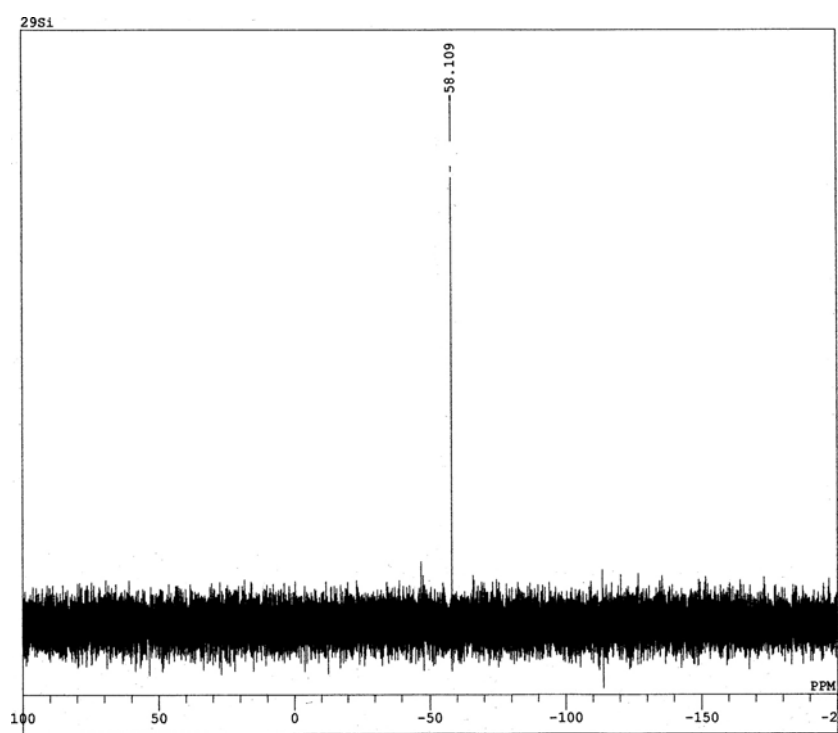


Fig. S7  $^{29}\text{Si}$  NMR spectrum of **1a** in  $\text{C}_6\text{D}_6$  at room temperature.

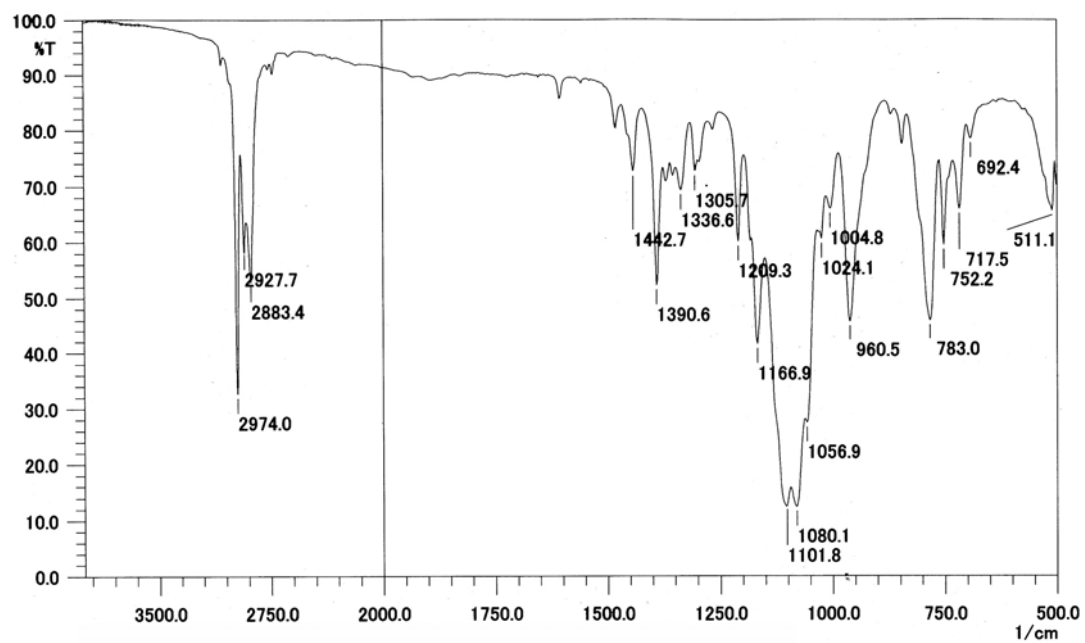
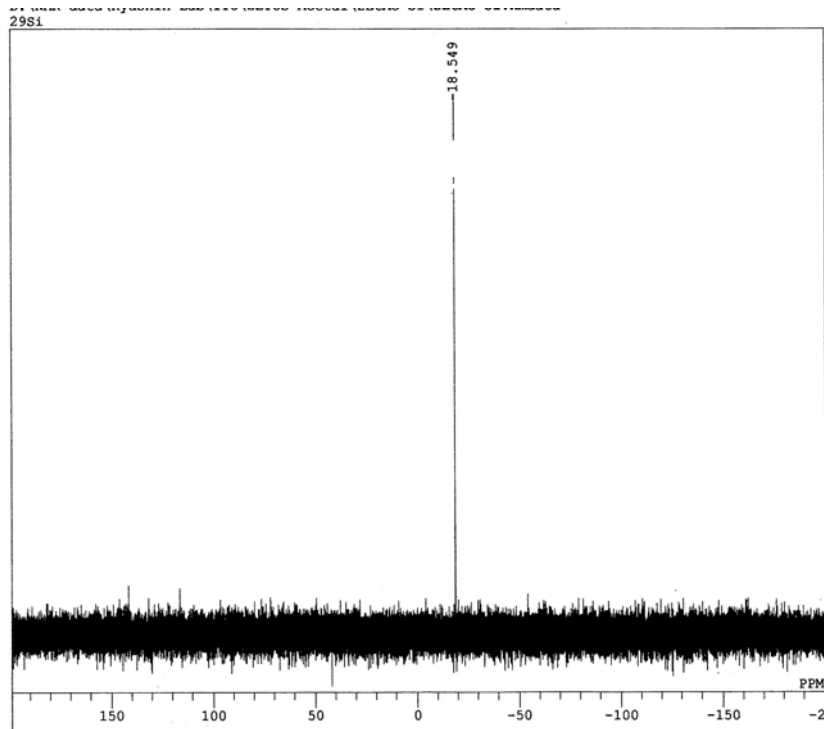
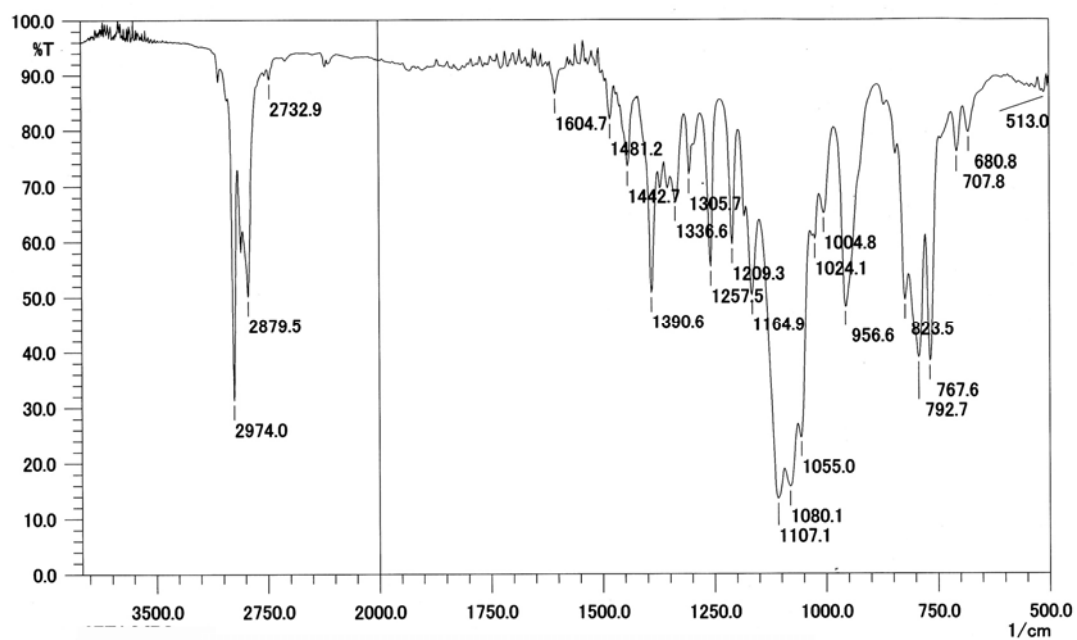


Fig. S8 IR spectrum of **1a** (NaCl).





**Fig. S11**  $^{29}\text{Si}$  NMR spectrum of **1b** in  $\text{C}_6\text{D}_6$  at room temperature.



**Fig. S12** IR spectrum of **1b** (NaCl).

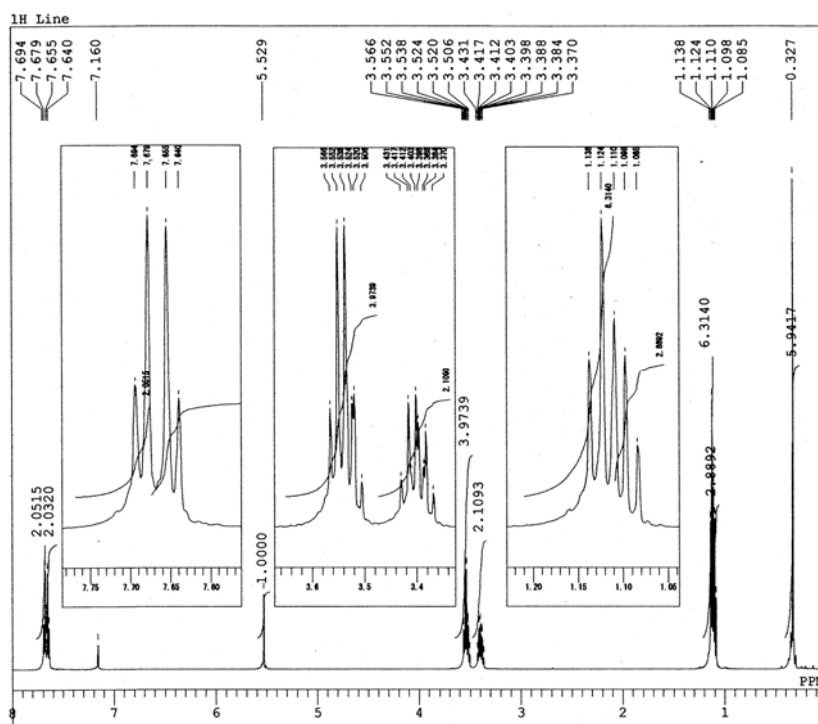


Fig. S13  $^1\text{H}$  NMR spectrum of **1c** in  $\text{C}_6\text{D}_6$  at room temperature.

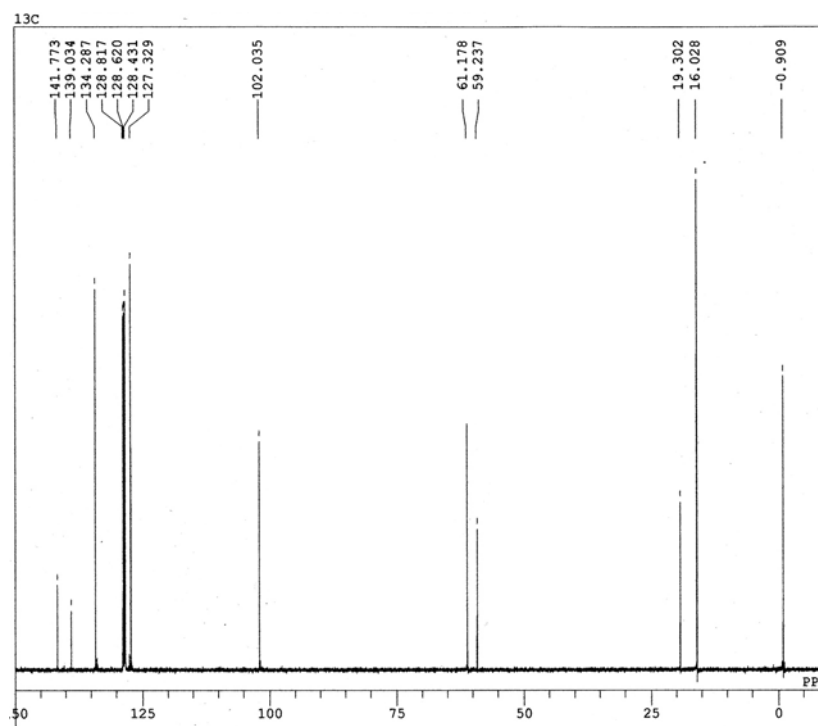


Fig. S14  $^{13}\text{C}$  NMR spectrum of **1c** in  $\text{C}_6\text{D}_6$  at room temperature.



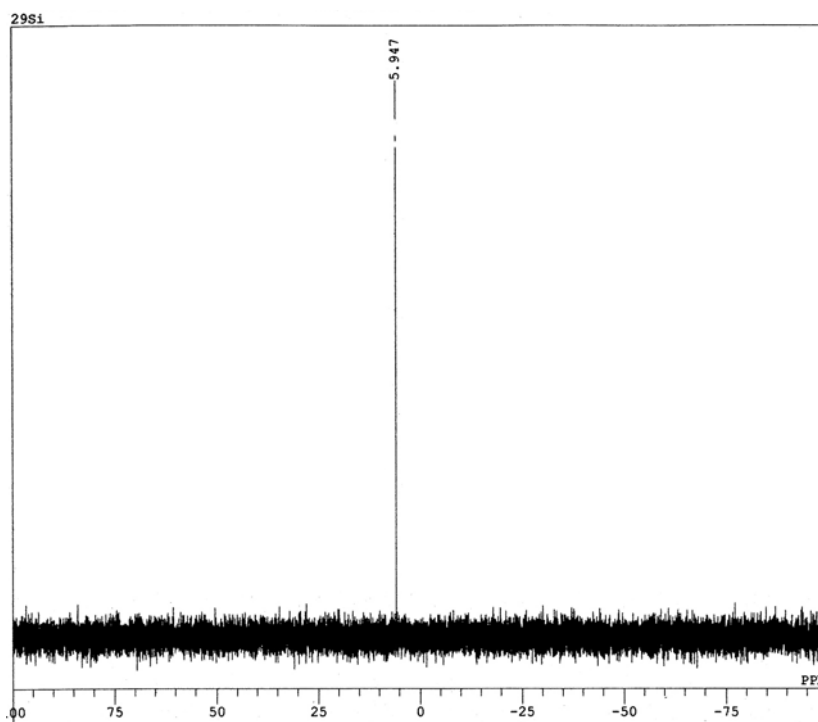


Fig. S15  $^{29}\text{Si}$  NMR spectrum of **1c** in  $\text{C}_6\text{D}_6$  at room temperature.

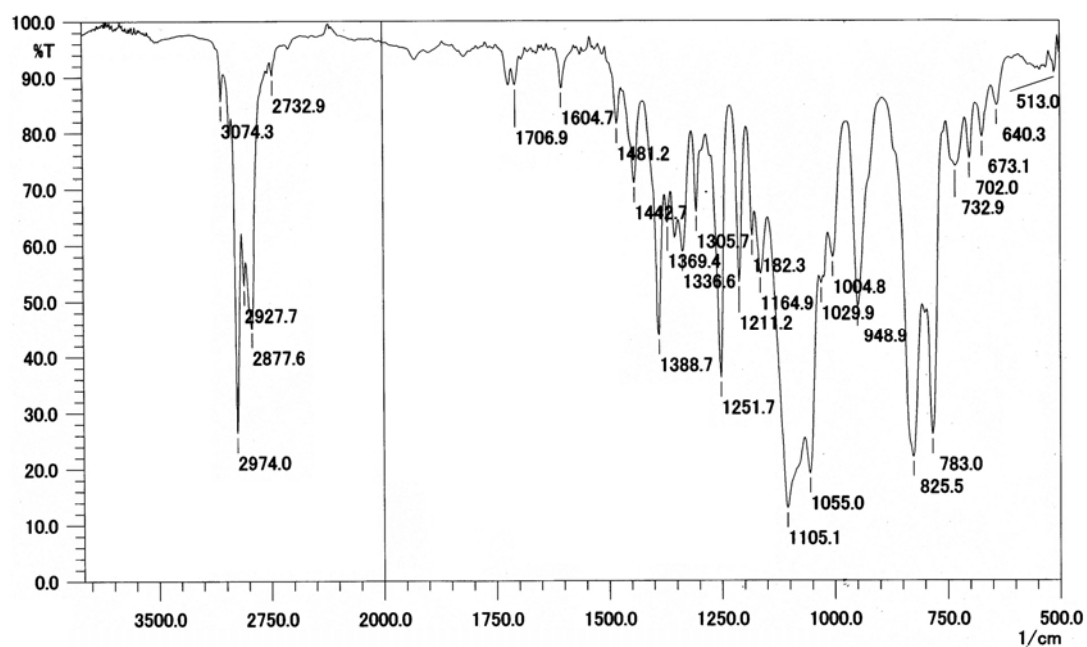


Fig. S16 IR spectrum of **1c** (NaCl).

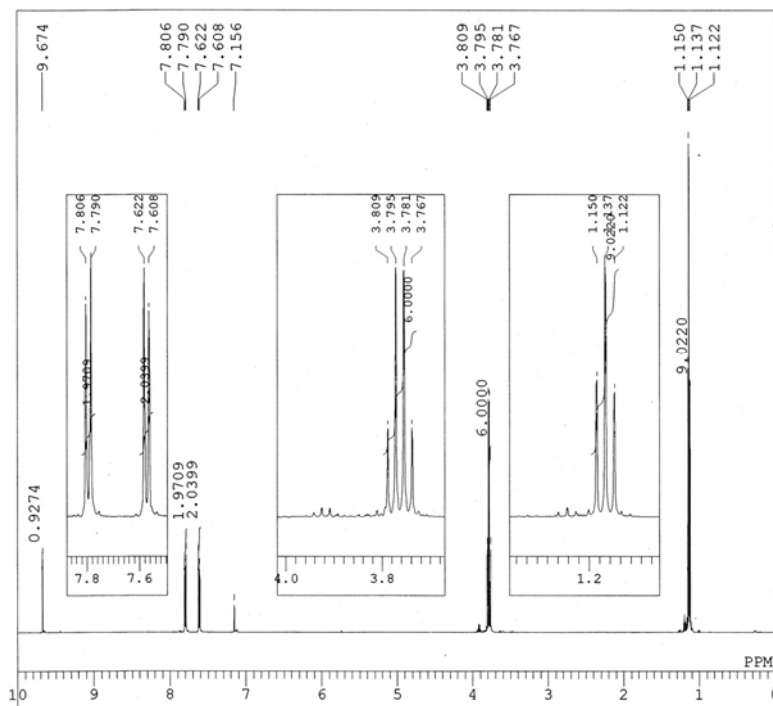


Fig. S17  $^1\text{H}$  NMR spectrum of **2a** in  $\text{C}_6\text{D}_6$  at room temperature.

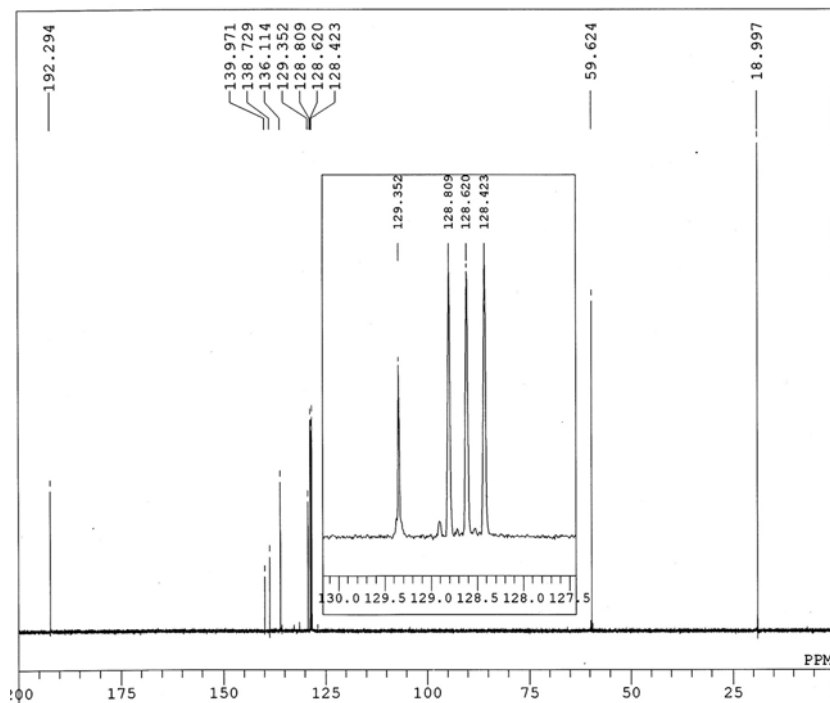


Fig. S18  $^{13}\text{C}$  NMR spectrum of **2a** in  $\text{C}_6\text{D}_6$  at room temperature.

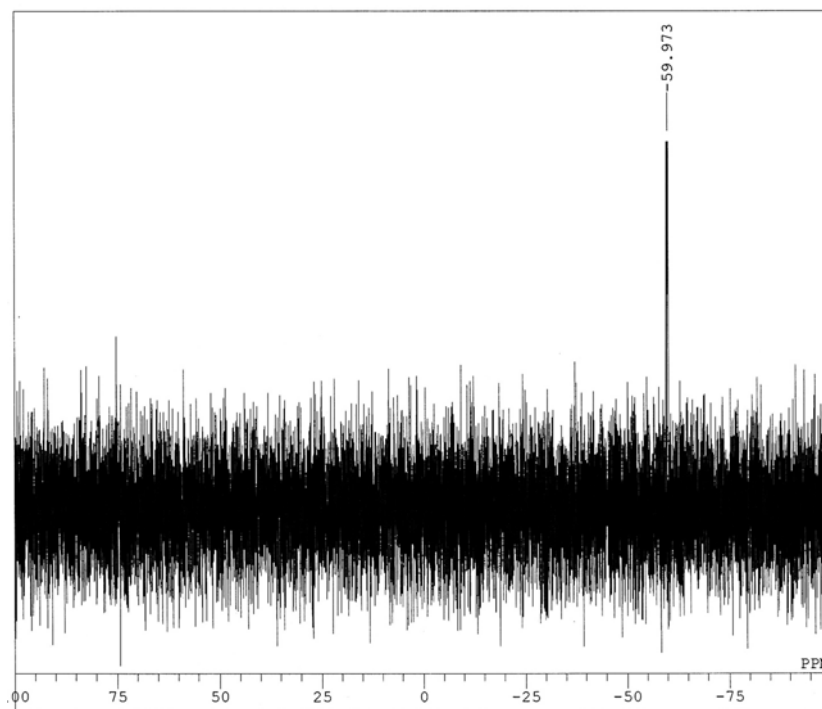


Fig. S19  $^{29}\text{Si}$  NMR spectrum of **2a** in  $\text{C}_6\text{D}_6$  at room temperature.

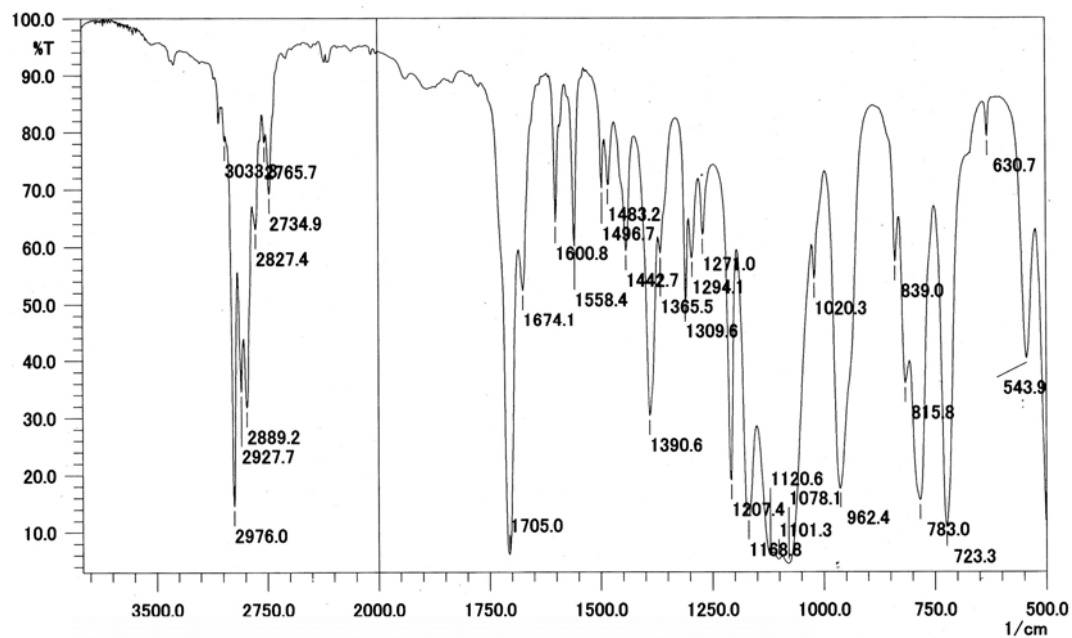


Fig. S20 IR spectrum of **2a** (NaCl).

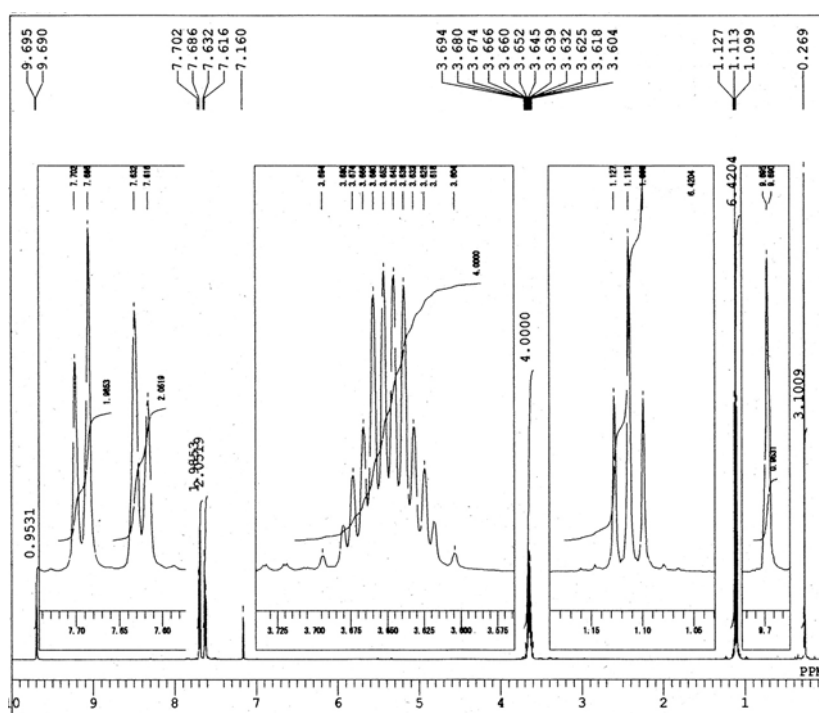


Fig. S21  $^1\text{H}$  NMR spectrum of **2b** in  $\text{C}_6\text{D}_6$  at room temperature.

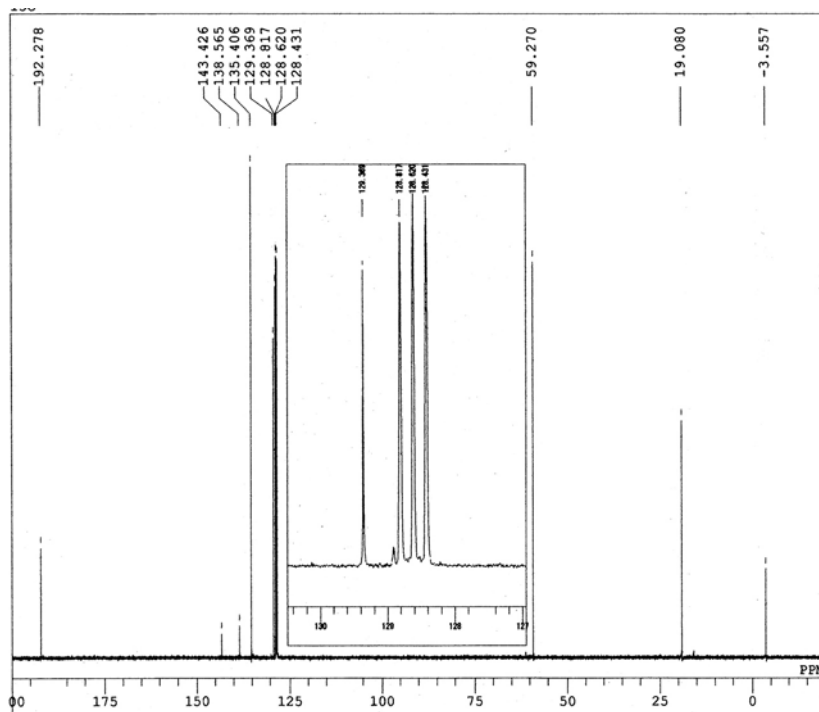


Fig. S22  $^{13}\text{C}$  NMR spectrum of **2b** in  $\text{C}_6\text{D}_6$  at room temperature.

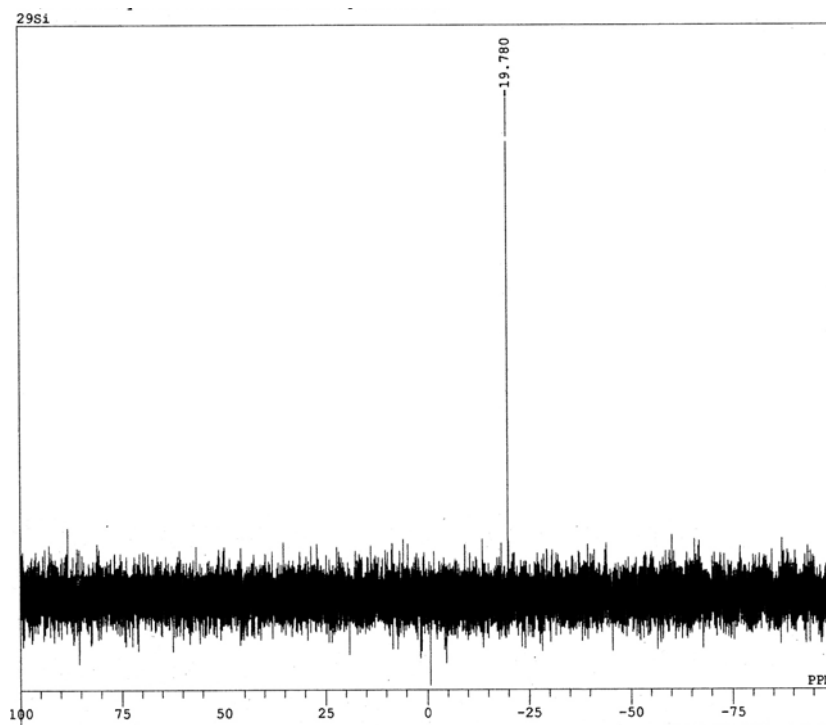


Fig. S23  $^{29}\text{Si}$  NMR spectrum of **2b** in  $\text{C}_6\text{D}_6$  at room temperature.

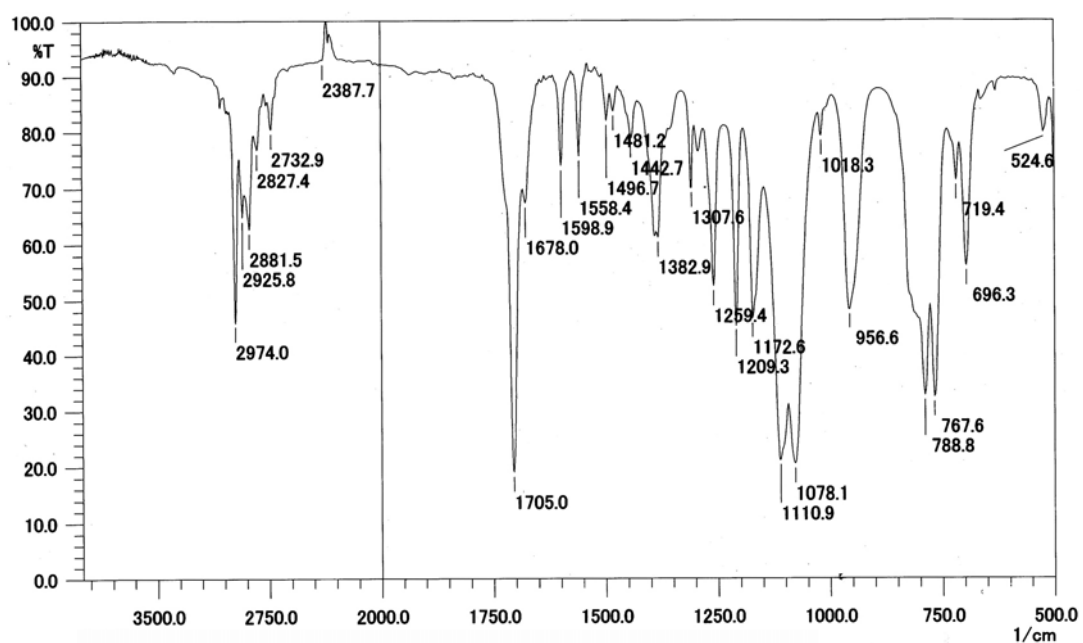


Fig. S24 IR spectrum of **2b** (NaCl).

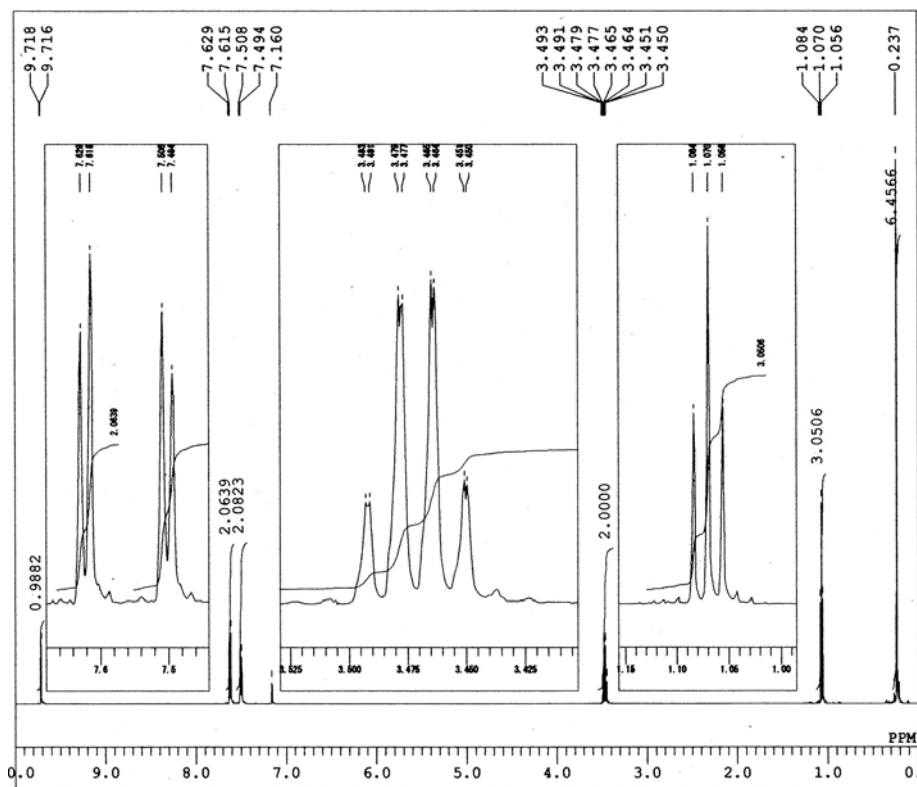


Fig. S25  $^1\text{H}$  NMR spectrum of **2c** in  $\text{C}_6\text{D}_6$  at room temperature.

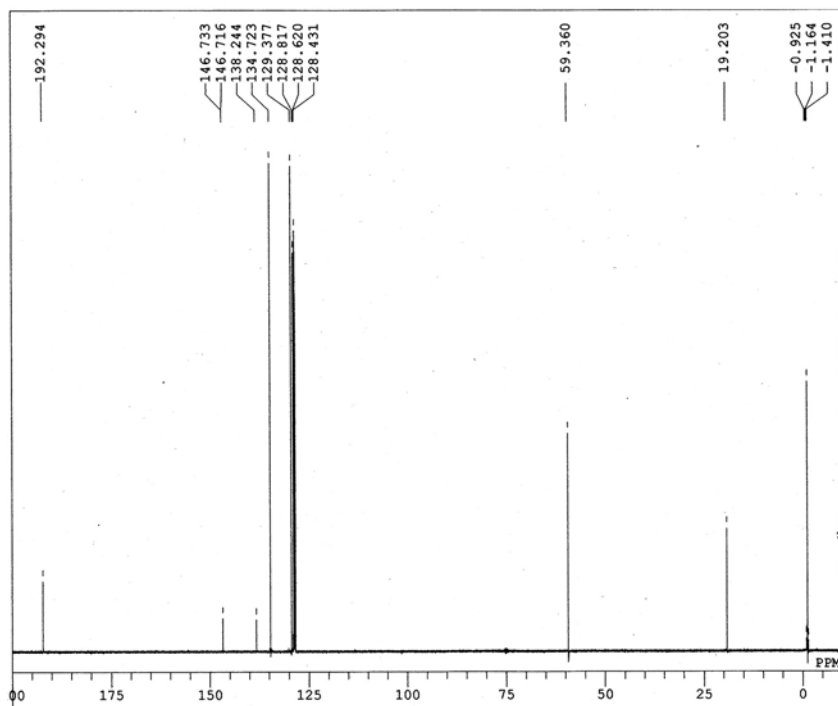


Fig. S26  $^{13}\text{C}$  NMR spectrum of **2c** in  $\text{C}_6\text{D}_6$  at room temperature.

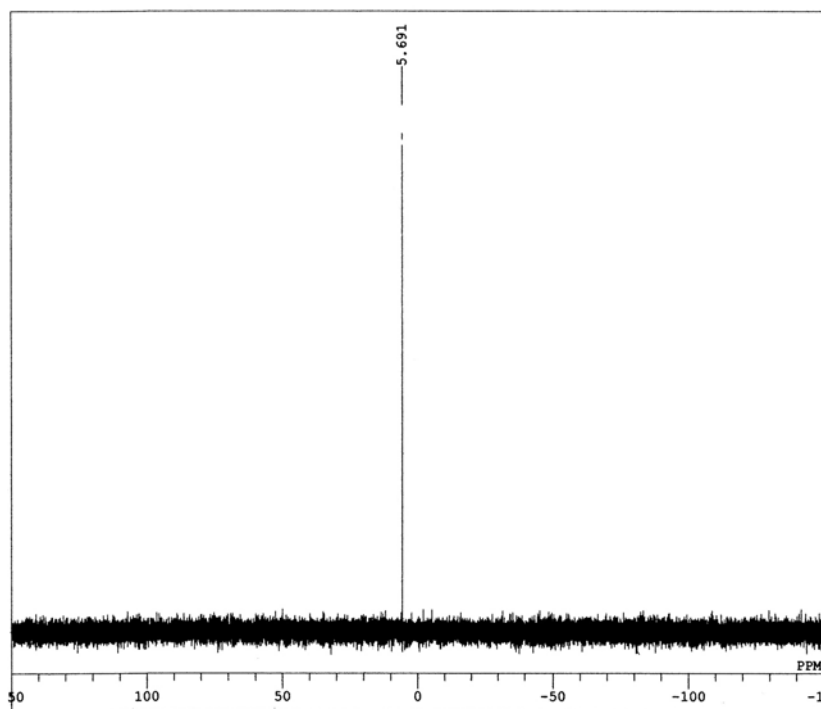


Fig. S27  $^{29}\text{Si}$  NMR spectrum of **2c** in  $\text{C}_6\text{D}_6$  at room temperature.

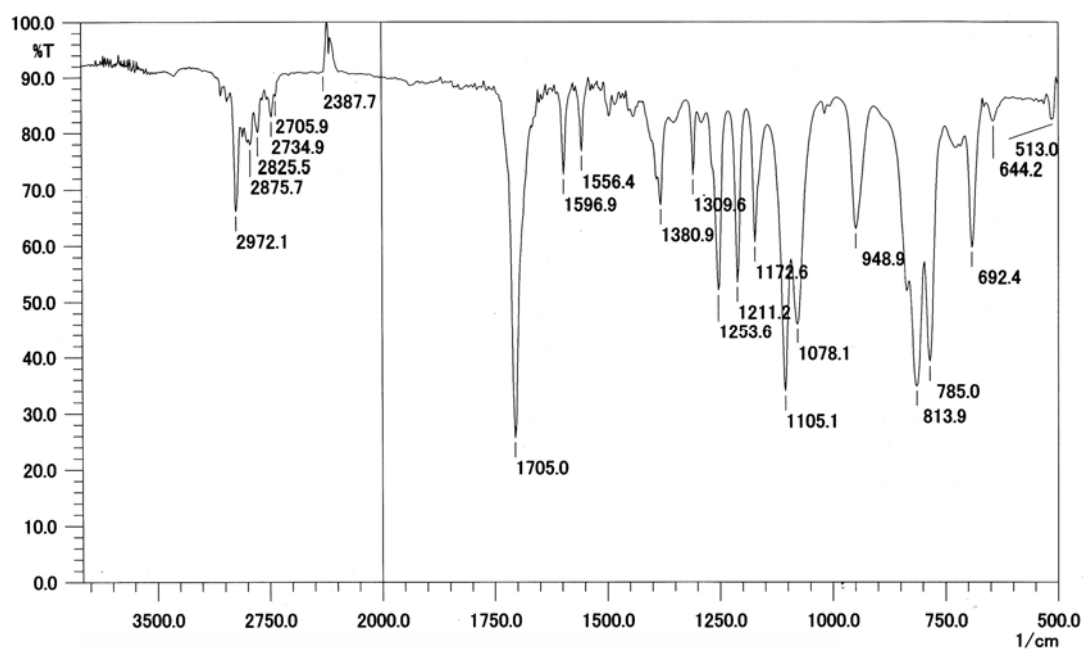
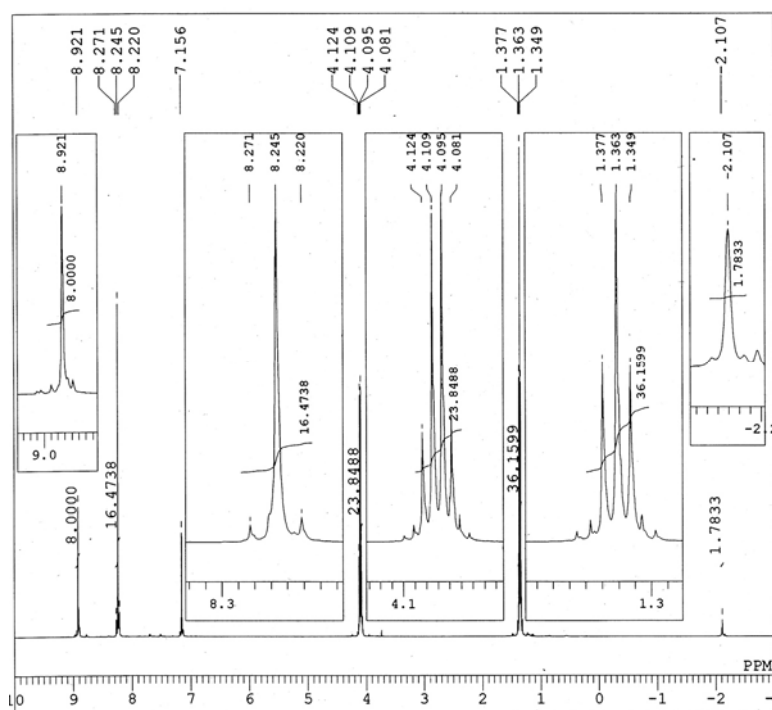
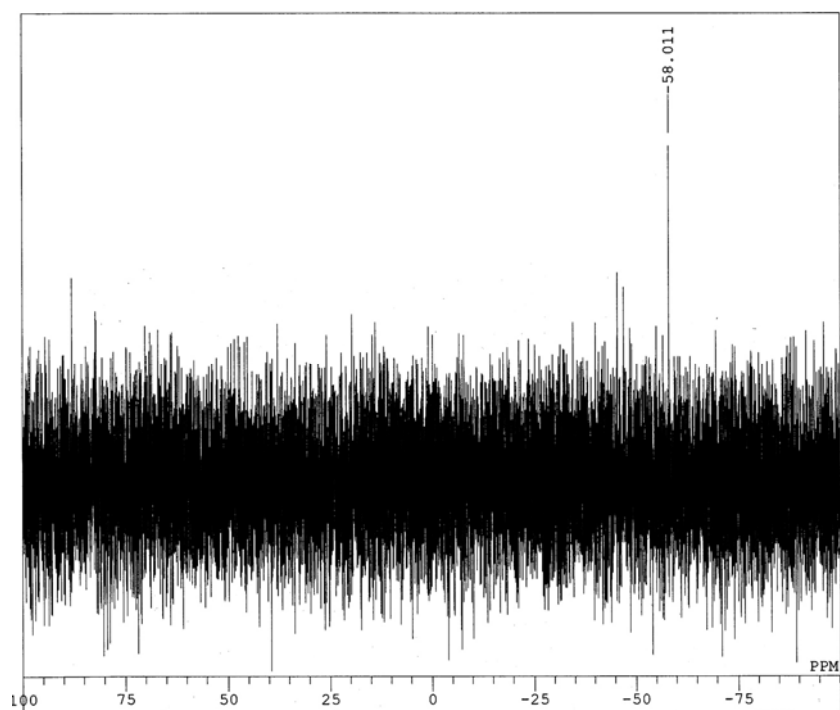


Fig. S28 IR spectrum of **2c** (NaCl).



**Fig. S29**  $^1\text{H}$  NMR spectrum of **3a** in  $\text{C}_6\text{D}_6$  at room temperature.



**Fig. S30**  $^{29}\text{Si}$  NMR spectrum of **3a** in  $\text{C}_6\text{D}_6$  at room temperature.



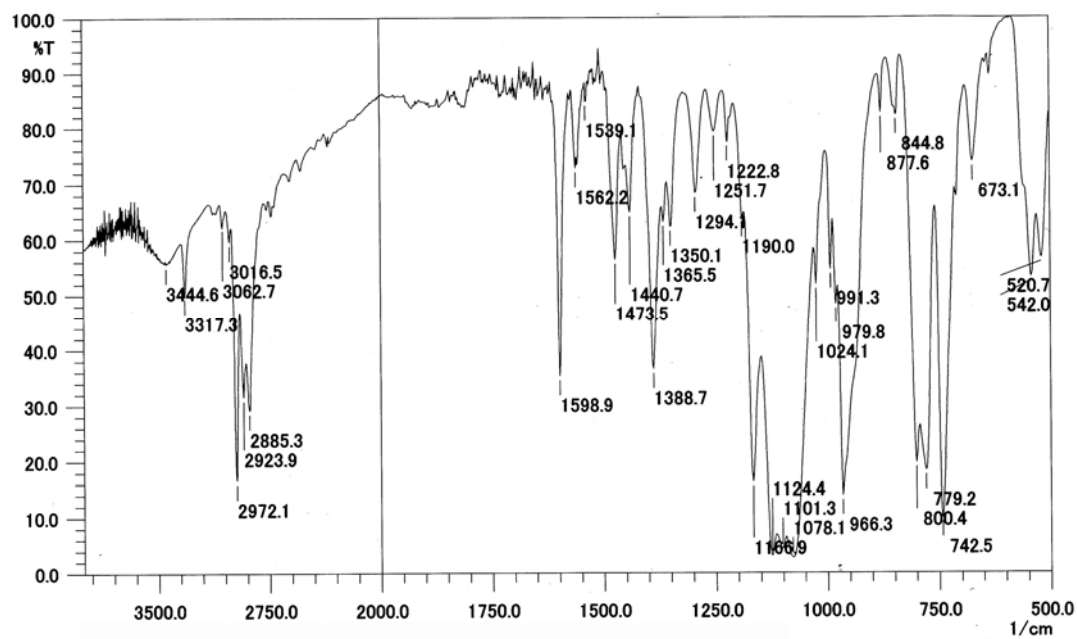


Fig. S31 IR spectrum of 3a (KBr).

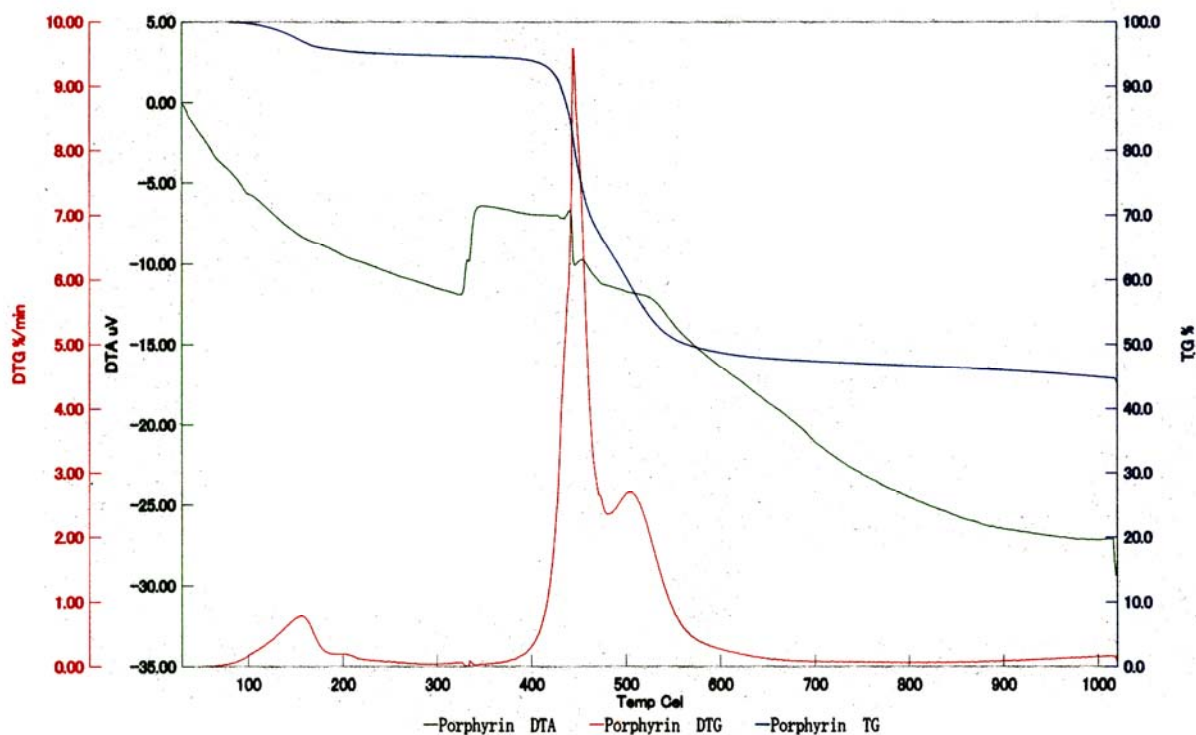


Fig. S32 TG-DTA curve of 3a measured in a nitrogen atmosphere.

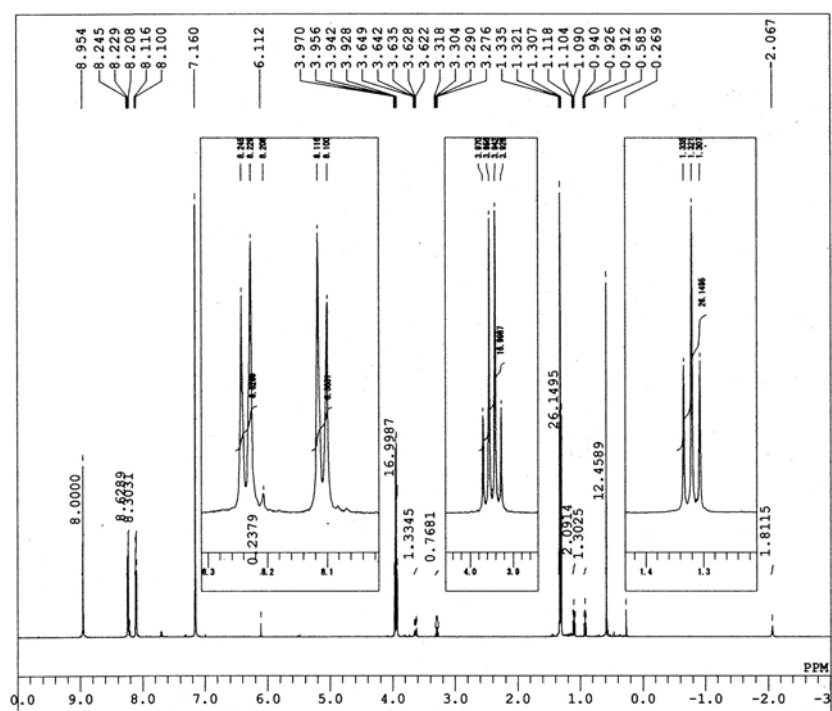


Fig. S33  $^1\text{H}$  NMR spectrum of **3b** in  $\text{C}_6\text{D}_6$  at room temperature.

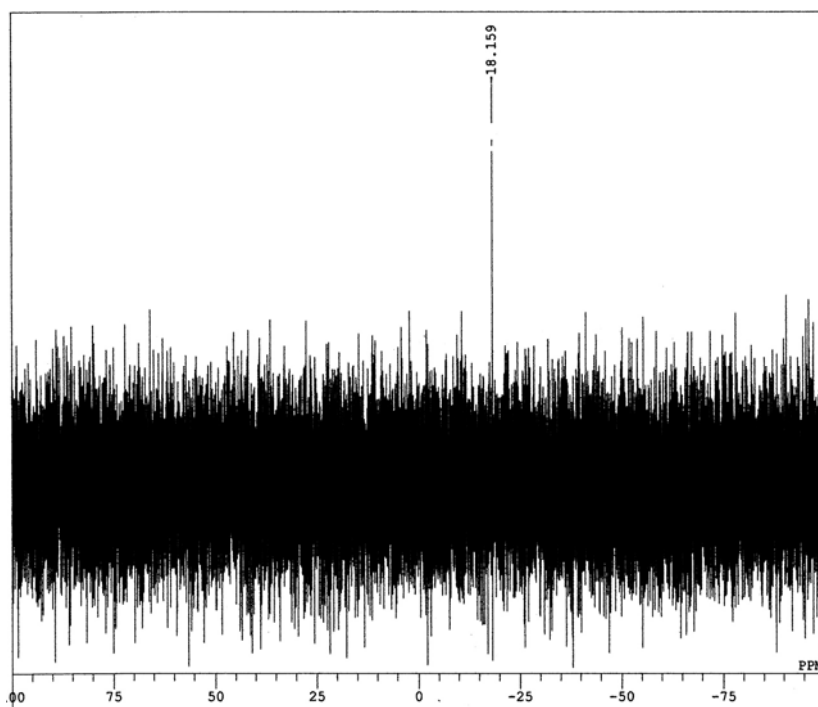


Fig. S34  $^{29}\text{Si}$  NMR spectrum of **3b** in  $\text{C}_6\text{D}_6$  at room temperature.

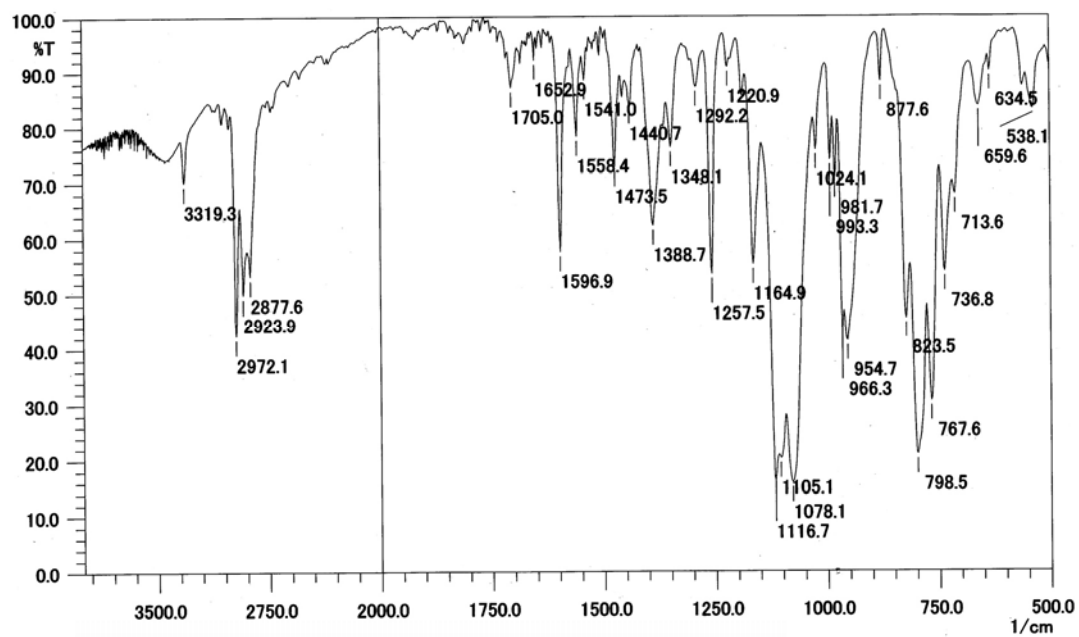


Fig. S35 IR spectrum of 3b (KBr).

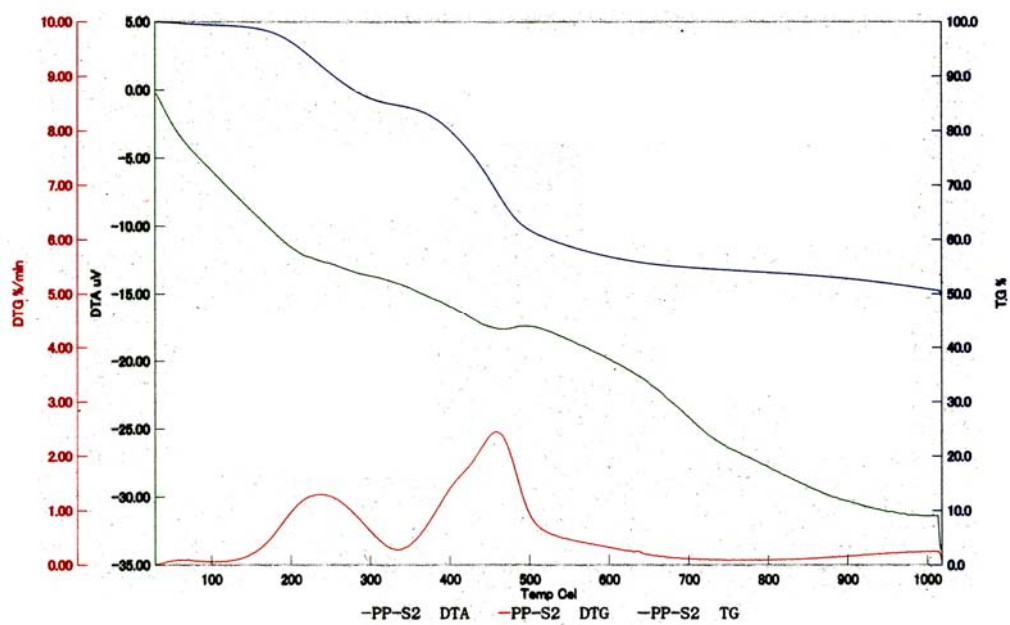
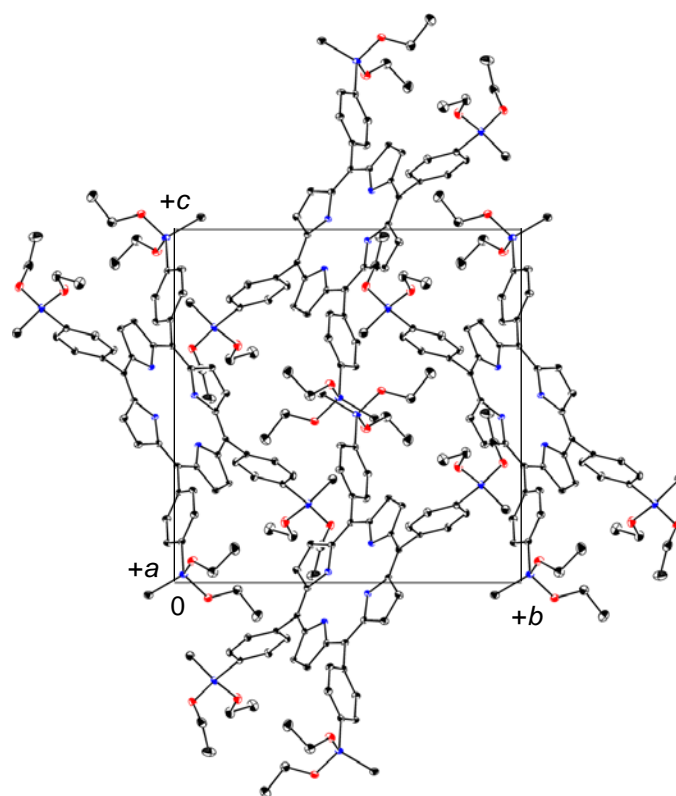
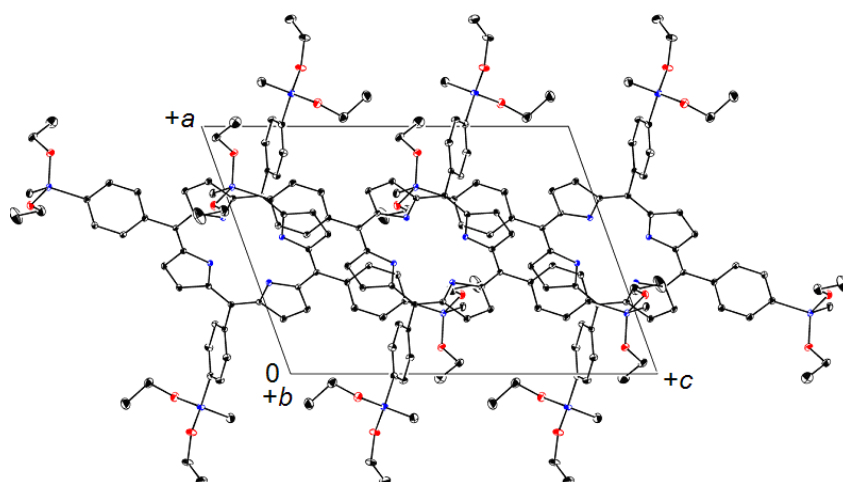


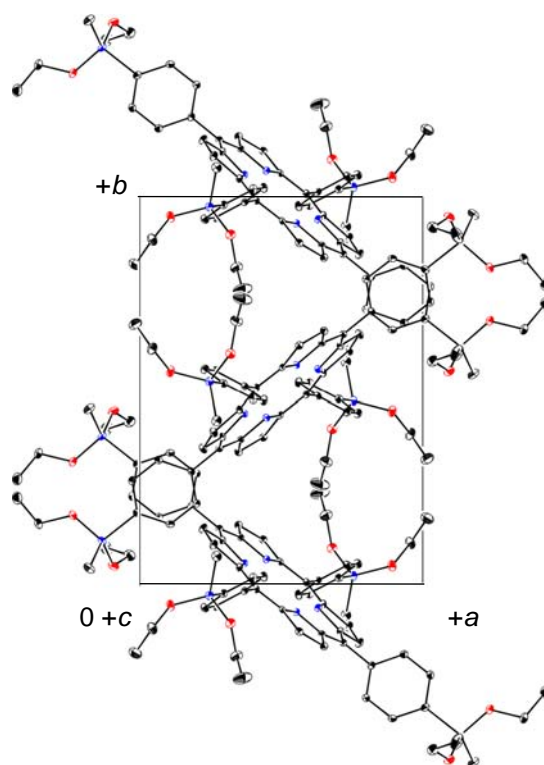
Fig. S36 TG-DTA curve of PSH measured in a nitrogen atmosphere.



**Fig. S37** Packing of **3b** viewed along the *a* axis. Hydrogen atoms are omitted for clarity.



**Fig. S38** Packing of **3b** viewed along the *b* axis. Hydrogen atoms are omitted for clarity.



**Fig. S39** Packing of **3b** viewed along the *c* axis. Hydrogen atoms are omitted for clarity.