

Supporting Information

Magnetic observation of above room-temperature spin transition in vesicular nano-sphere

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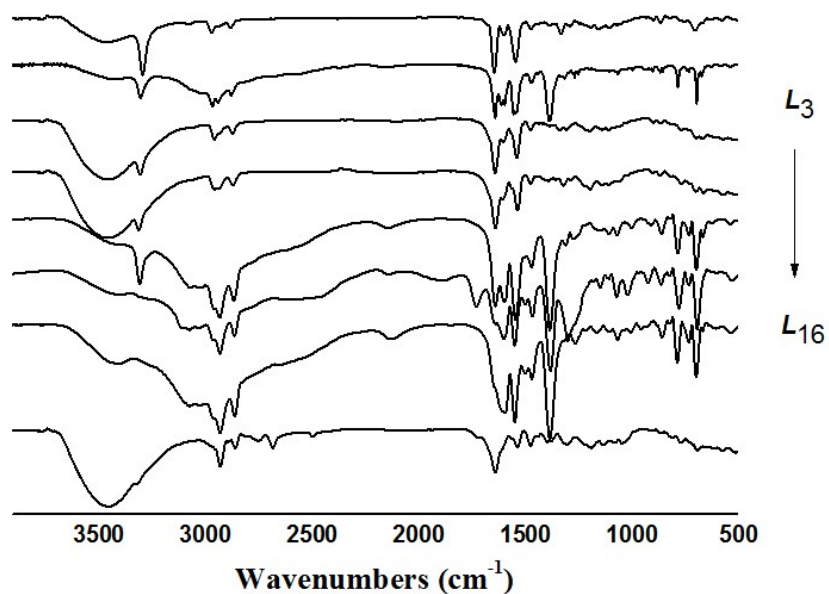


Figure. S1 IR spectra of the alkylated bipy related ligands L_3 - L_9 and L_{16} .

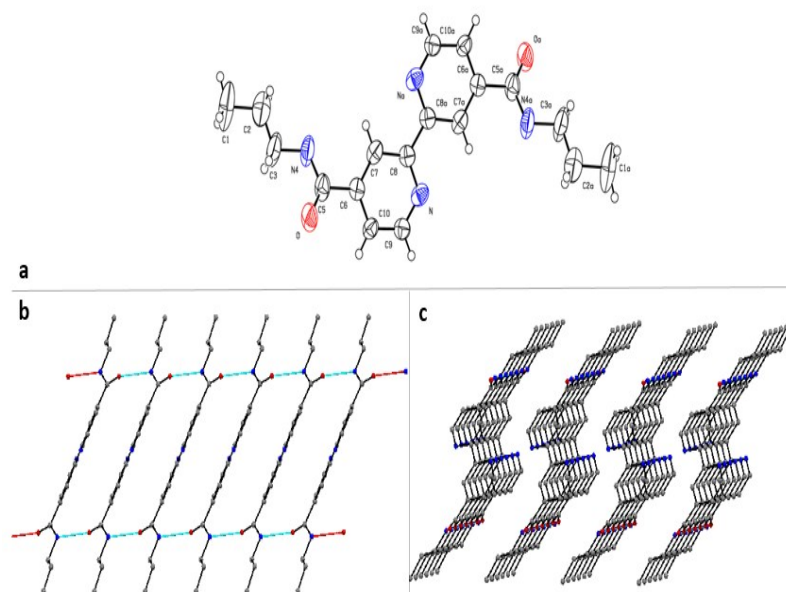


Figure. S2 Crystal structure of ligand L_3 with thermal ellipsoids drawn at the 30% probability level (a), the molecules are connected by N-H...O hydrogen bond contacts into 1D chain (b), and the 1D chains packed parallel into 3D motif.

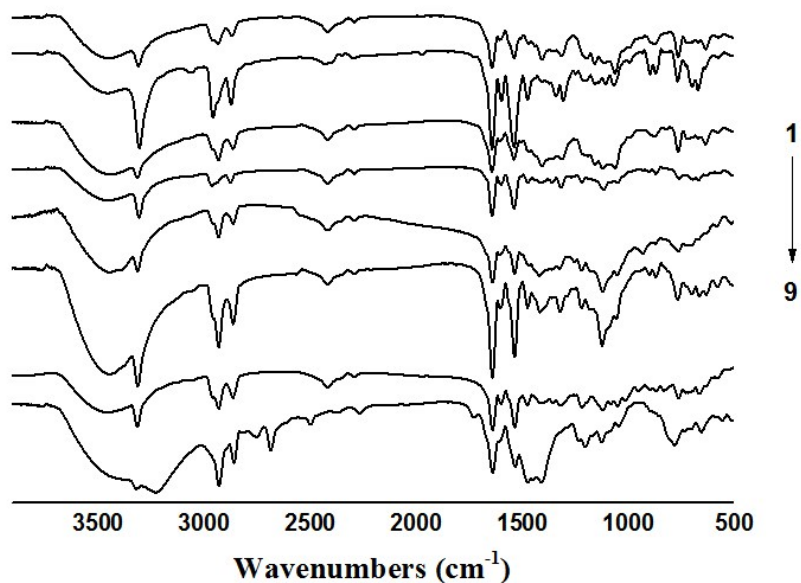


Figure. S3 IR spectra of the coordination Fe (II) compounds **1-7** and **9**.

Table S1. The crystal data and structure refinement for ligands L_3

| Compound | L_3 |
|--------------------------------------|----------------------|
| Formula | $C_{18}H_{22}N_4O_2$ |
| Formula weight | 326.40 |
| Crystal system | Triclinic |
| Space group | $P-1$ |
| $a/\text{\AA}$ | 5.016(1) |
| $b/\text{\AA}$ | 5.4660(11) |
| $c/\text{\AA}$ | 16.124(3) |
| $\alpha/^\circ$ | 93.12(3) |
| $\beta/^\circ$ | 96.16(3) |
| $\gamma/^\circ$ | 93.03(3) |
| $V, \text{\AA}^3$ | 438.11(15) |
| Z | 1 |
| $D_{\text{calc}} (\text{Mg m}^{-3})$ | 1.237 |
| T/K | 293(2) |
| $\mu (\text{mm}^{-1})$ | 0.083 |
| Cryst dimensions | 0.3×0.2×0.1 |
| No. of reflns collected | 1394 |
| No. of unique reflns | 583 |
| No. of params | 108 |
| Goodness-of-fit on F^2 | 1.006 |
| R_1, wR_2 ($ I > 2\sigma(I)$) | 0.0546, 0.0903 |
| $R1, wR2$ (all data) | 0.1221, 0.1056 |
| CCDC No | 1437555 |

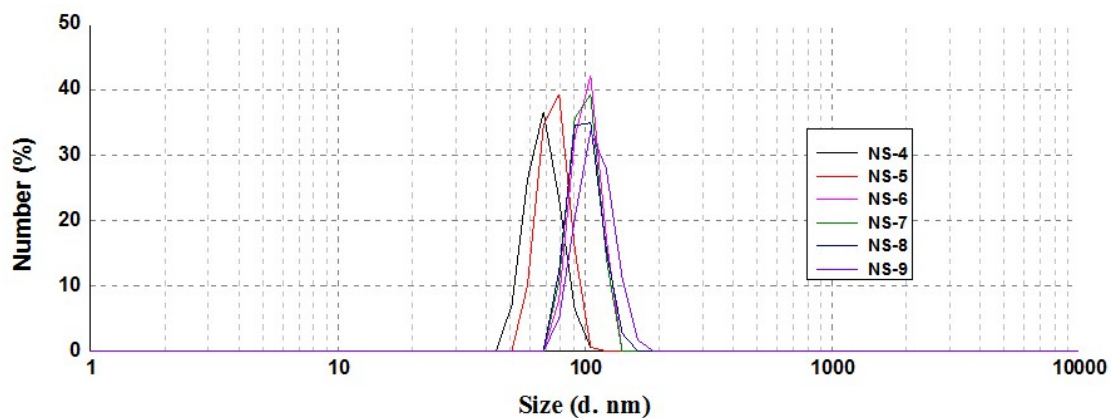


Figure S4. DLS measurements of vesicular nano-sphere **NS-4 – NS-9**.

Table S2. Size distribution of vesicular nano-sphere **NS-4 – NS-9** measured by DLS.

| | NS-4 | NS-5 | NS-6 | NS-7 | NS-8 | NS-9 |
|--------|-------|-------|-------|-------|-------|-------|
| D (nm) | 72.2 | 80.5 | 98.7 | 99.2 | 100.2 | 101.5 |
| PDI | 0.291 | 0.233 | 0.197 | 0.266 | 0.202 | 0.215 |

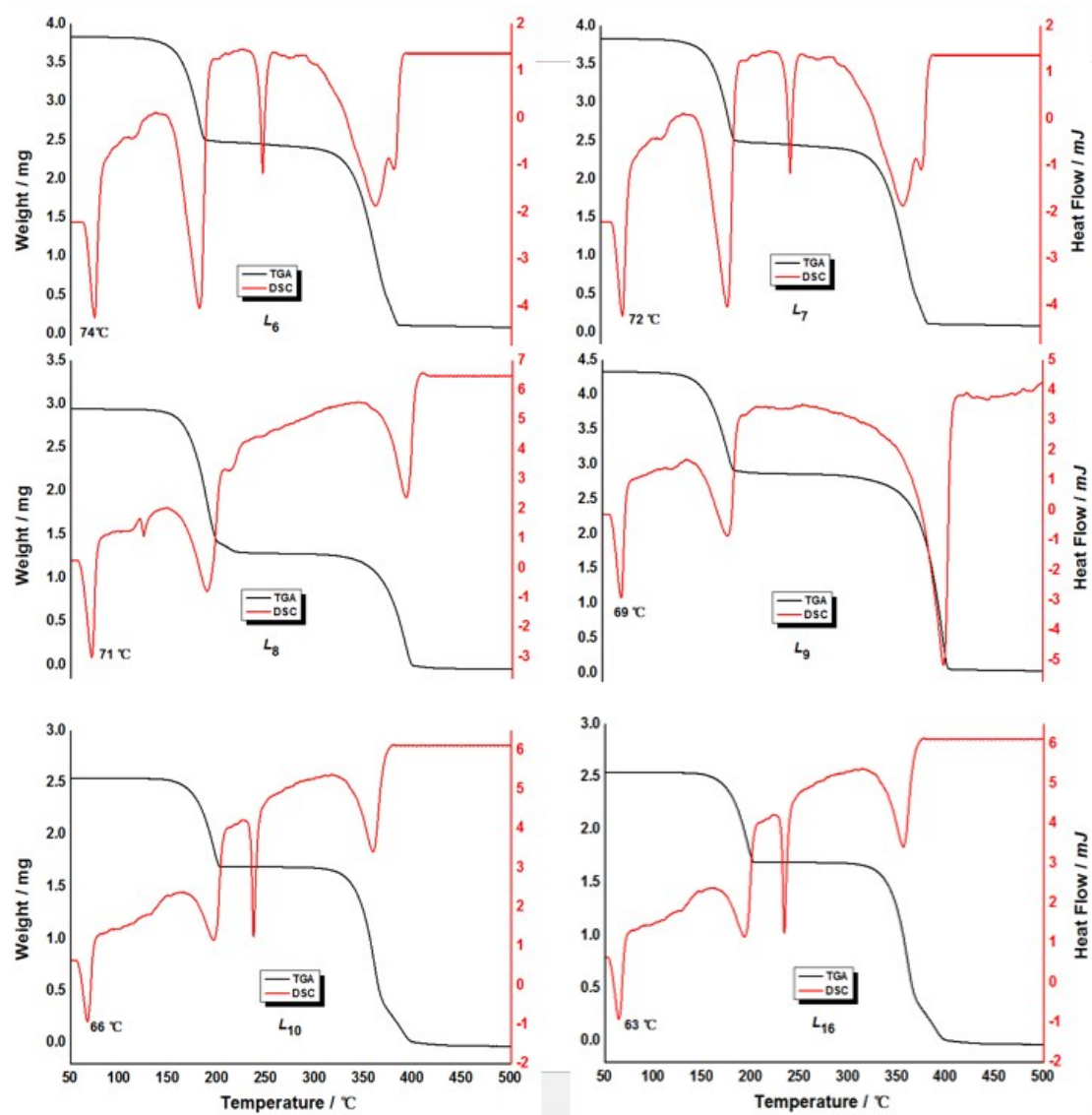


Figure S5. TGA and DSC profiles of ligands L_6 - L_{16} .

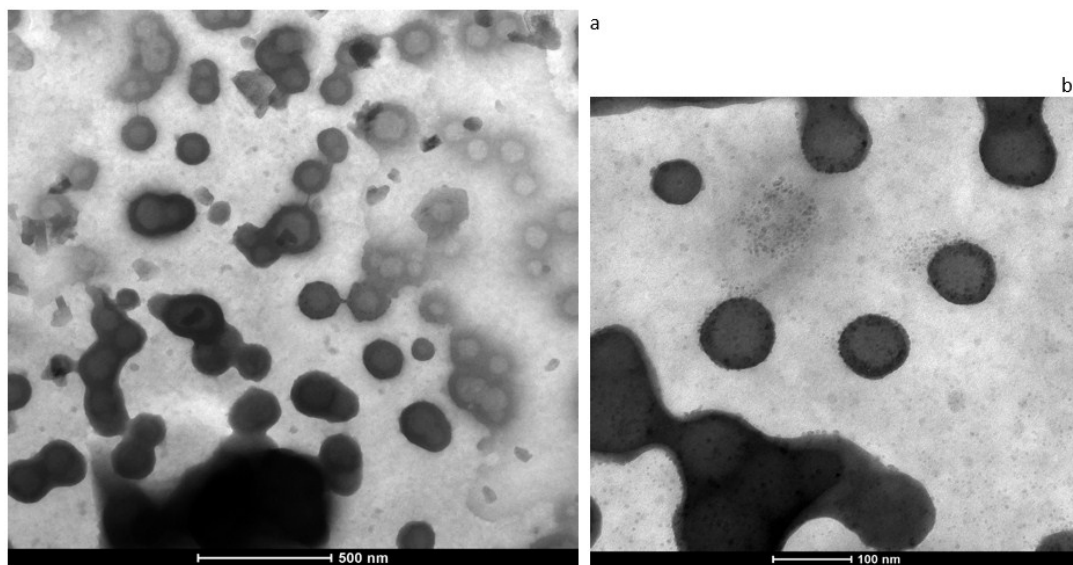


Figure S6. TEM images of the re-obtained species at 500 (a) and 100 nm (b) scale.