Figure S1. (a) L1 ligands linked two infinite [Pr_3Na(COO)_{12}]_n chains along (0,0,1) direction.

Figure S2. View of the 3D frameworks of compound 1 along bc plane (the left) and ac plane (the right).
Figure S3. L2 ligands linked three infinite \([\text{Sm}_2\text{(COO)}_6]_n\) chains along different directions and the \(\text{Sm}_2\text{(COO)}_6\).

Figure S4. View of the 3D frameworks of compound 4 along ab plane.
Figure S5. View of the 3D frameworks of 4 along ac plane.

Figure S6. View of the 3D frameworks of 4 along ac plane.
Figure S7. The coordination environments of the six-connected Ln$^{III}$ ions in compounds 1 and 4.
Figure S8. The IR spectra of (a) 1, (b) 2, (c) 3 and (d) 4.
Figure S9. PXRD patterns of (a) 1, (b) 2, (c) 3 and (d) 4. Black: calculated from the X-ray single-crystal data; blue: observed for the as-synthesized solids.
Figure S10. TGA curves of (a) 1, (b) 2, (c) 3 and (d) 4. Black: calculated from the X-ray single-crystal data; blue: observed for the as-synthesized solids.