Electronic Supplementary Information (ESI)

Anisotropic two-dimensional sheets assembled from rod-shaped metal complexes

Mina Han* and Tomohiro Hirade

Department of Chemistry and Department of Electronic Chemistry
Tokyo Institute of Technology
4259 Nagatsuta, Midori-ku, Yokohama 226-8502, Japan
E-mail: han.m.ab@m.titech.ac.jp

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Instrumentation

The TEM (transmission electron microscope) was performed at 100 kV using HITACHI H-7650. The sample was prepared by placing a drop of PdCl$_2$Az$_2$ suspension onto a silicon oxide coated gold grid, and drying in a nitrogen atmosphere at room temperature. Optical microscopy (OM) and polarized optical microscopy (POM) images were obtained using an Olympus BX51 microscope, after putting a drop of suspension on a clean glass substrate. We employed topping mode atomic force microscopy (AFM: Veeco Instruments Inc., AFM probes: NCH silicon pointprobe® tip, NanoWorld, Switzerland) to characterize the topographic morphology of the samples on a mica substrate. Absorption spectra were obtained using a Shimadzu UV-3150 UV-VIS-NIR scanning spectrophotometer and a JASCO MSV-350 UV-vis microspectrophotometer. X-ray diffraction (XRD) patterns of planar sheets were measured in reflection mode with CuKα radiation on a Bruker D8 diffractometer.

**Fig. S1** UV-vis absorption spectrum of suspensions in $2 \times 10^{-5}$ M THF/H$_2$O (1/4, v/v).
**Fig. S2** AFM images and height profiles of parallelogram-shaped sheets prepared from (a) $2 \times 10^{-5}$ M THF/H$_2$O (1/4, v/v) ($6 \times 6$ $\mu$m$^2$) and (b) $1 \times 10^{-4}$ M THF/H$_2$O (1/1, v/v) ($10 \times 10$ $\mu$m$^2$).

**Fig. S3** TEM image of $8 \times 10^{-5}$ M DMF/H$_2$O (5/1, v/v).
**Fig. S4** POM image of microsheets prepared from $1.1 \times 10^{-3}$ M THF/H$_2$O.

**Fig. S5** POM and OM images of microsheets prepared from $1.1 \times 10^{-3}$ M THF/H$_2$O.
Fig. S6  XRD patterns of (a) the simulated pattern of the single crystal, (b) taken at 75°, and (c) taken at 0°.

Fig. S7  NMR spectra of PdCl$_2$Az$_2$. (a) purified palladium complex and (b) redissolved in CD$_2$Cl$_2$ after the formation of complex sheets in 5.3 × 10$^{-3}$ M THF/H$_2$O (2/1, v/v).