SUPPORTING INFORMATION

Synthesis and Chiroptical Study of D-/L-Penicillamine-Capped Silver Nanoclusters

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Stability of Fractioned Silver Nanoclusters

Figure S1 shows the UV-visible absorption spectra of compound $\mathbf{2}_L$ as a function of time. The spectra were recorded immediately after extraction (blue curve) and after 24 hours of the extraction (black curve). In compound $\mathbf{2}_L$, although we can observe a well-defined peak at ~480 nm, it decreases with the passage of time, implying that the compound **2** is relatively unstable in solution.

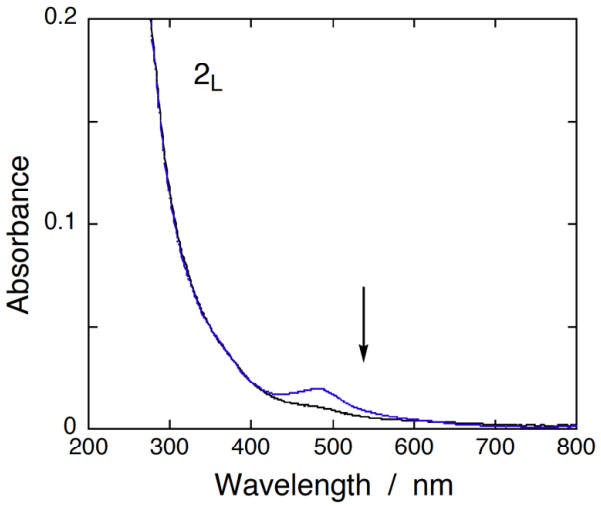

Figure S1. UV–visible absorption spectra of compound $\mathbf{2}_L$ as a function of time. Blue and black traces were recorded immediately after extraction and after 24 hours of the extraction, respectively.

Ordinary Absorption and CD Spectra of L-/D-Penicillamine in Aqueous Solution

Figure S2 shows the ordinary absorption (left) and CD spectra (right) of L- and D-penicillamine in aqueous solution. These thiols contribute to the CD signals only in the UV region and show a clear mirror image relationship.

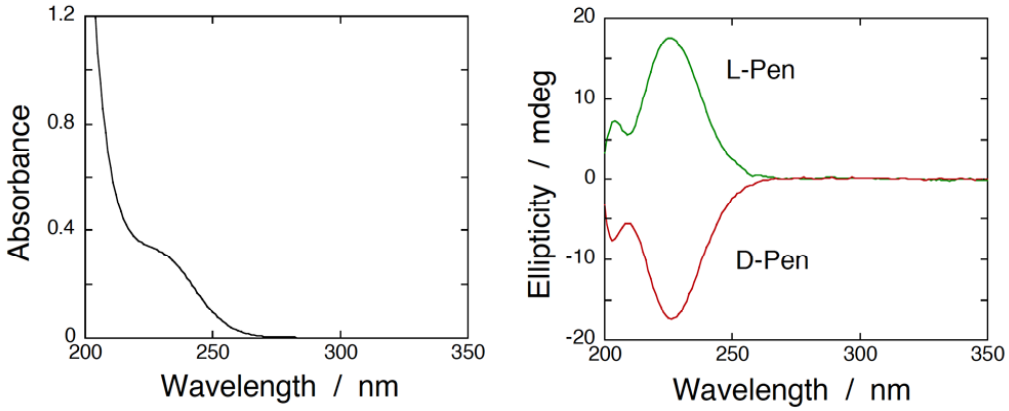

Figure S2. Absorption (left) and CD (right) spectra of pure L-Pen and D-Pen in aqueous solution. No CD signals were obtained for *rac*-Pen.

Spectroscopic Characterizations of Compounds 4 and 6

Figures S3-a and S3-b show the absorption and CD (anisotropy factor) spectra of the fractioned compounds **4** and **6**, respectively. Figure S4 shows the size distributions of compounds **4**–**6** obtained by SAXS. Both compounds (**4** and **6**) exhibit featureless absorption spectra. The chiroptical response observed in $\mathbf{4}_L/\mathbf{4}_D$ showed a mirror-image relationship. The compound **6** exhibited very weak CD signals. Consequently, the fractions **4** and **6** follow the spectroscopic trends of the other components.

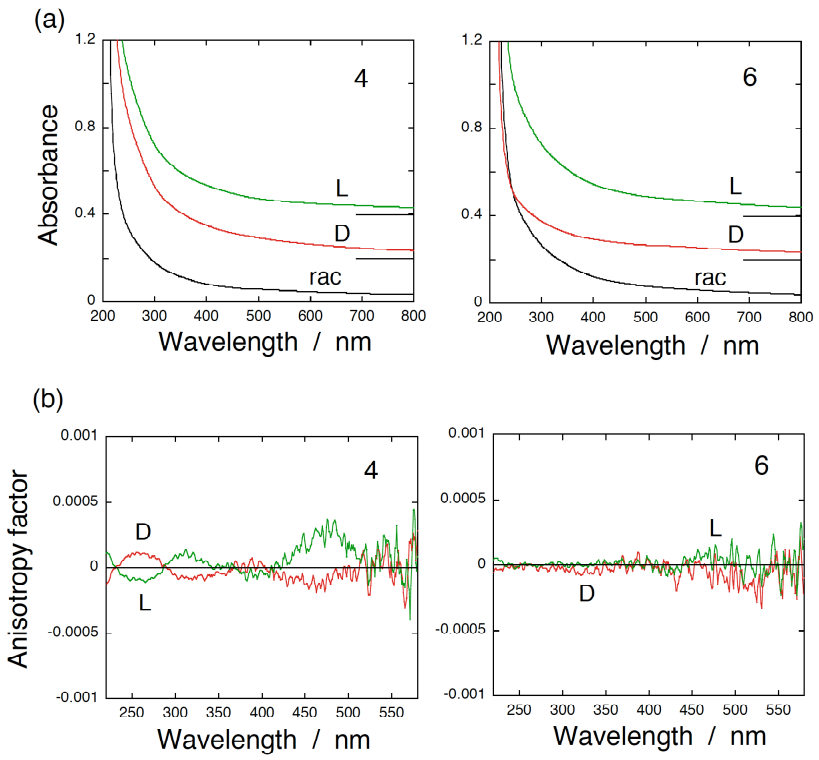

Figure S3. (a) Absorption spectra and (b) anisotropy factors of the fractioned cluster compounds **4** and **6**.

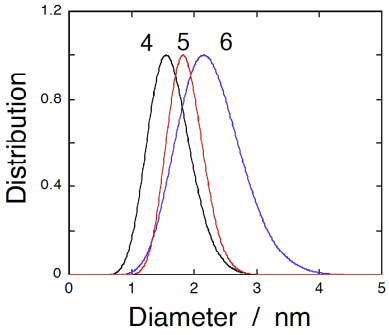

Figure S4. Size distributions of compounds **4**–**6** obtained by SAXS.