Electronic Supplementary Information

Chiral CdSe Nanoplatelets as an Ultrasensitive Probe for Lead Ion Sensing

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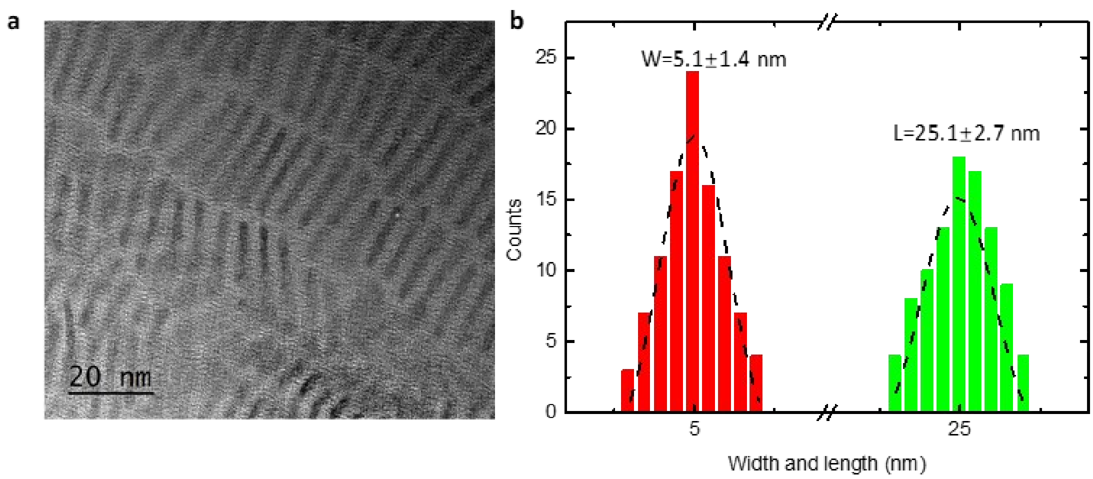

Figure S1. (a) TEM image of CdSe NPLs. The corresponding scale bar is 200 nm. (b) Histograms distribution of width and length of CdSe NPLs based on 100 individual NPLs measurements.

The histograms distribution of width and length of CdSe NPLs was fitted using Gauss distribution. The fitted equation was represented as follow:

$$y = y_0 + \frac{A}{\sqrt{2\pi}\sigma}\exp(-\frac{(x-\mu)^2}{2\sigma^2})$$

where σ is the standard deviation and μ is the mean value of the data. The size distribution ($\mu - 2\sigma < x < \mu + 2\sigma$) of the as-grown NPLs was at the range of 5.1±1.4 nm (for width) and 25.1±2.7 nm (for length).

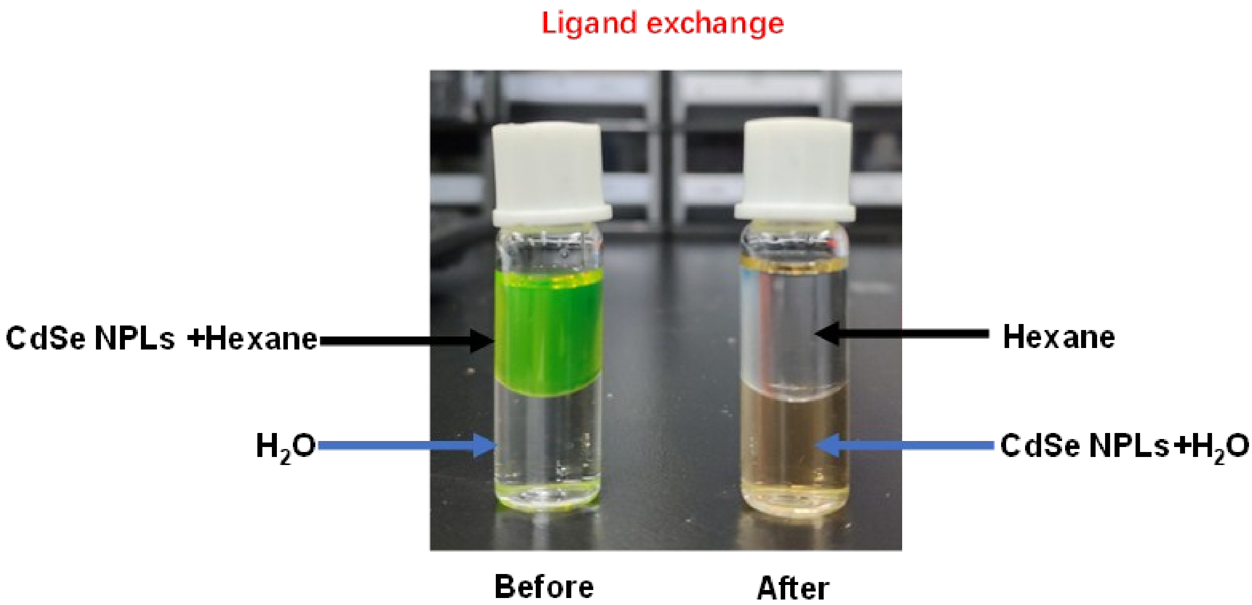

Figure S2. Photo of NPLs before and after ligand exchange.

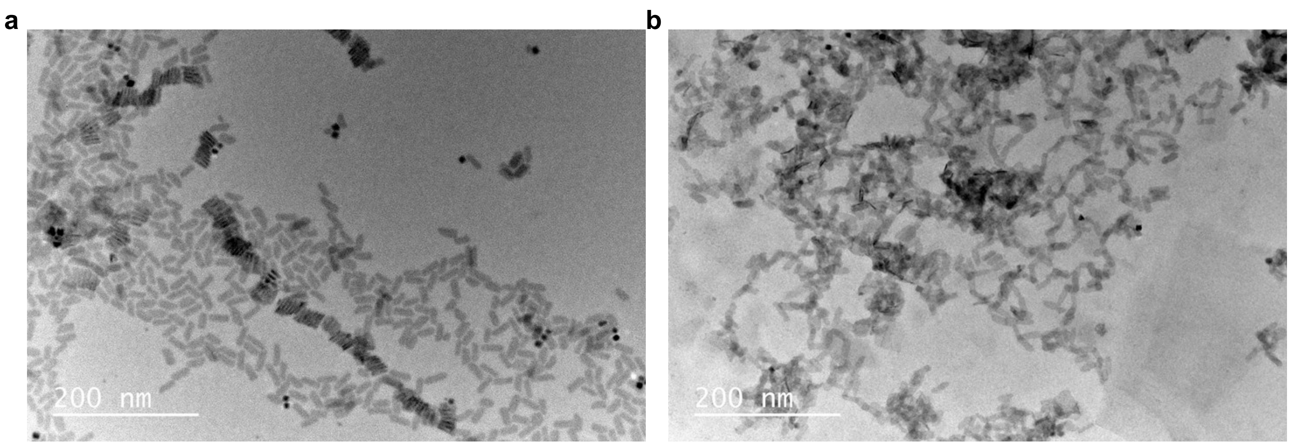

Figure S3. TEM image of CdSe NPLs in (a) hexane and (b) water.

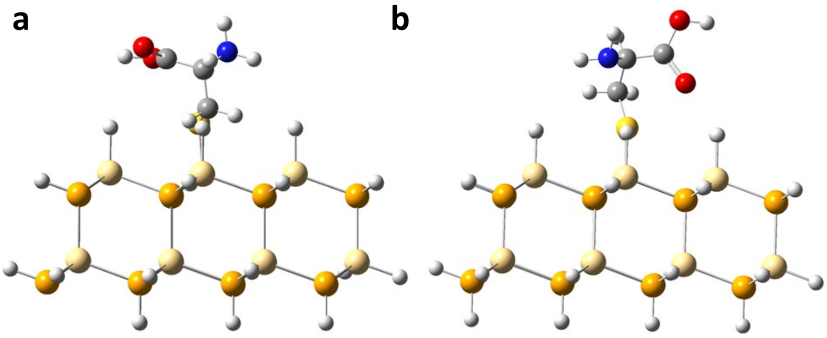

Figure S4. The ground state geometries of (a) L-cys and (b) D-cys capped CdSe nanoclusters before optimized.

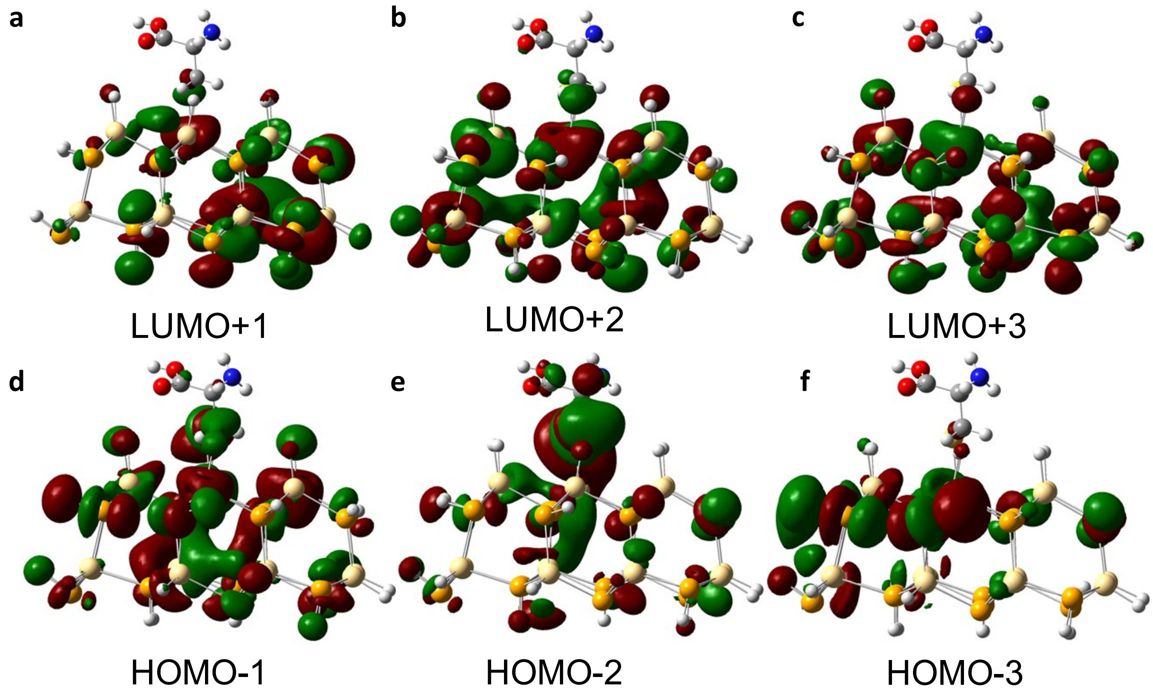

Figure S5. Electronic states of L-Cys capped CdSe NPLs (a) LUMO+1 (b) LUMO+2 (c) LUMO+3 (d) HOMO+1 (e) HOMO+2 and (f) HOMO+3.

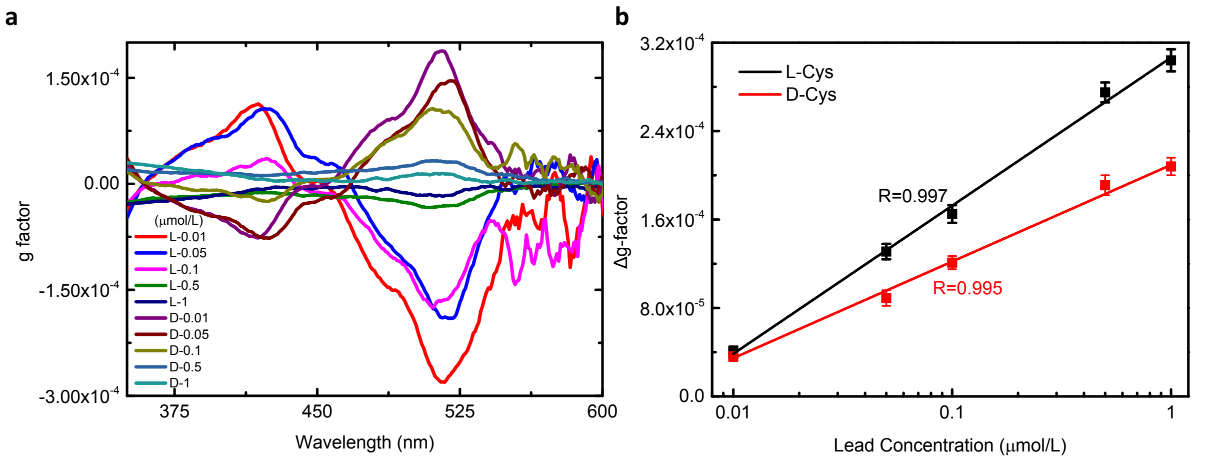

Figure S6. (a) G-factor for lead ions detection ranging from 0.01 to 1 μM, both for L- and D-cys capped NPLs. (d) Linear relationship between g-factor at 520 nm and various lead ions concentrations.

Table S1 Slope of fitted curve shown in Figure 5

	Control	Pb^{2+}	Ca^{2+}	Mg^{2+}	Fe^{3+}	Cu^{2+}	Zn^{2+}	Fe^{2+}
Slope	-1.08	-13.42	-1.18	-2.50	-5.03	-4.02	-3.29	-2.82