Supplementary material (ESI) for RSC Advances
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# Electronic Supporting Information

## *for*

## Histidine-mediated synthesis of chiral fluorescence gold nanoclusters: insight into the origin of nanoscale chirality

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## Figures

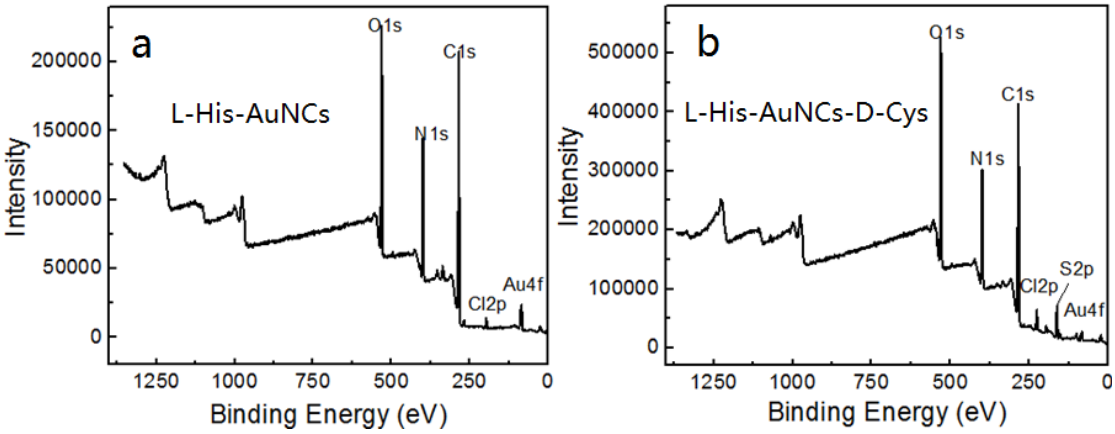


**Figure S1** XPS wide-scan survey of the fresh obtained L-His-AuNCs (a) and the corresponding ligand exchange product with D-Cys (b), respectively.

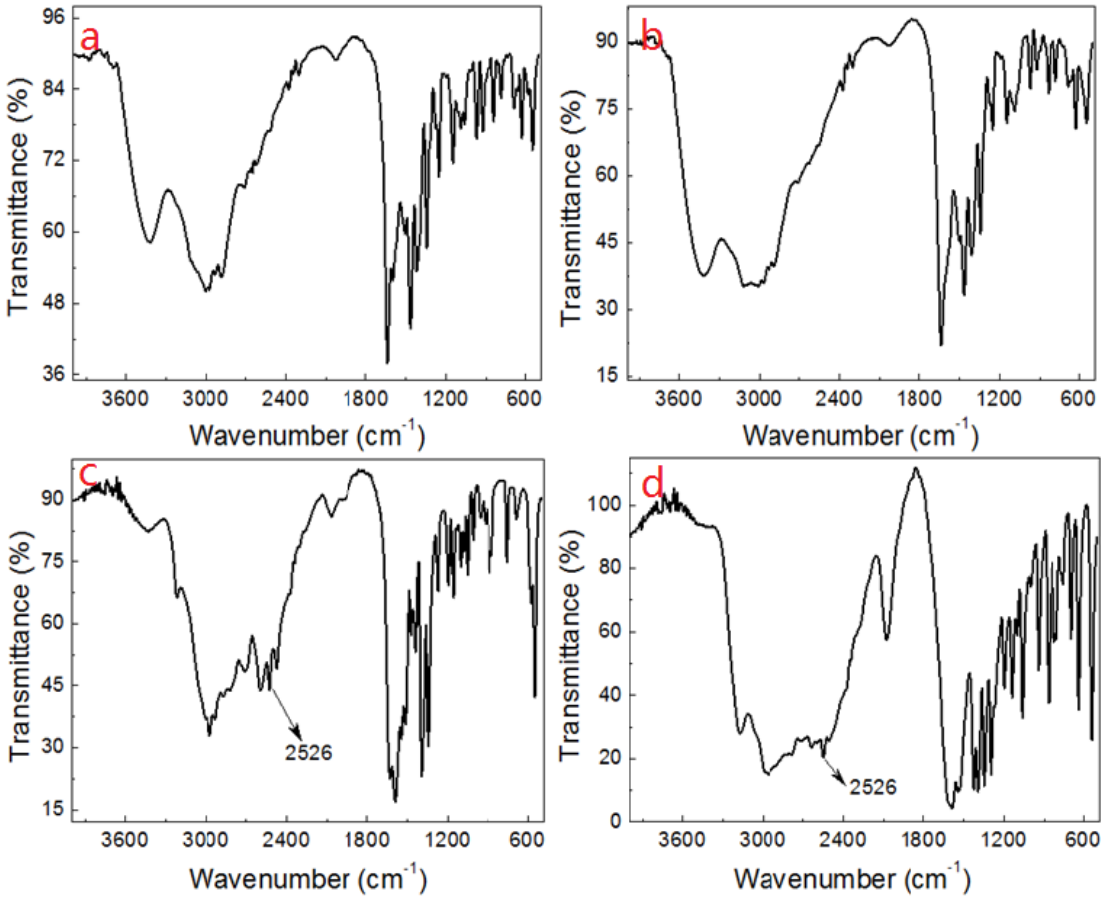


**Figure S2** FT-IR spectra of the L-His-AuNCs + D-Pen (a), L-His-AuNCs + D-Cys (b), and pure D-Pen (c), D-Cys (d). The peak at 2526 $cm^{-1}$, which correspond to S-H stretching vibration mode, disappears in the gold clusters when the chiral thiol ligands bind on the surface of them through strong metal-thiol bonds.

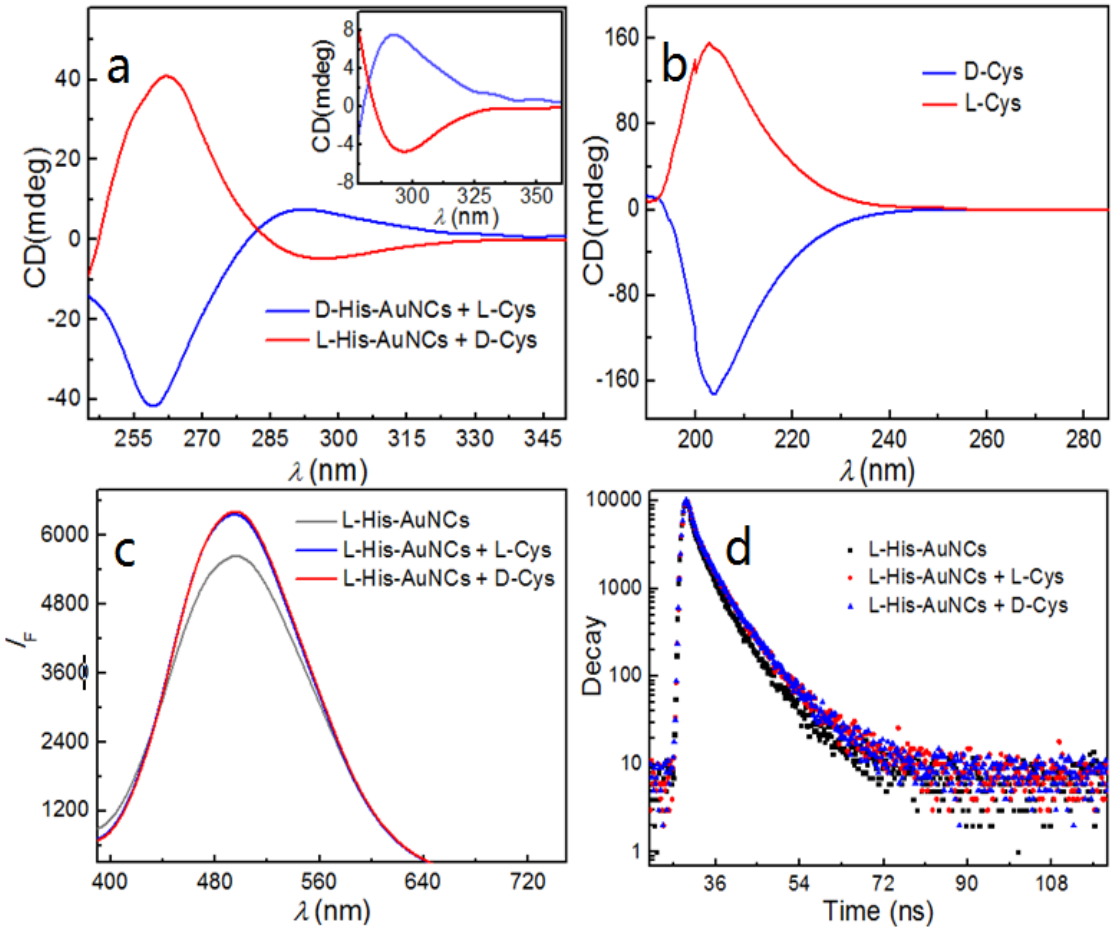


**Figure S3** (a) CD spectra of the D- and L-His-AuNCs after surface passivation with the enantiomers of Cys. Inset is the magnified spectra in the wavelength region of 280-360 nm. (b) CD spectra of pure D-Cys and L-Cys. (c) The emission spectra of L-His-AuNCs and the ligand exchange products with the D/L-Cys. (d) Time-resolved fluorescence decays of L-His-AuNCs and the ligand exchange products with the D/L-Cys.

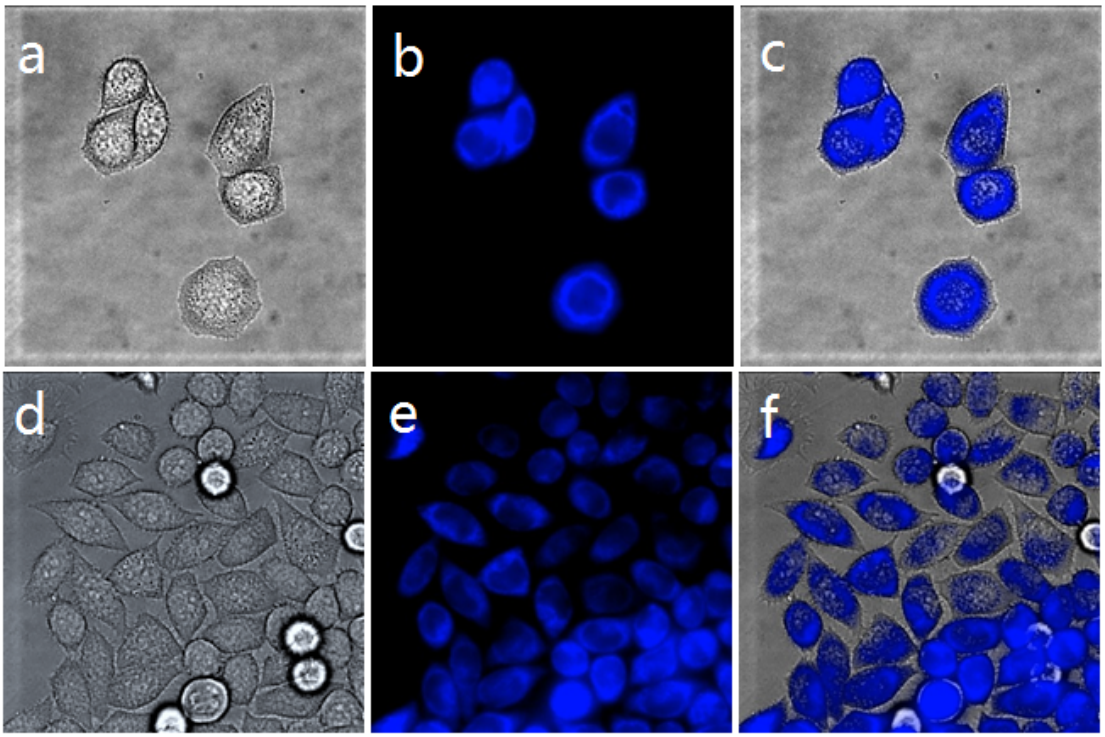


**Figure S4** Confocal microscopy images of Hep2 cells treated with the ligand exchange products of D-His-AuNCs (a-c) and L-His-AuNCs (d-f) with L-Pen and D-Pen, respectively. Left, Differential interference contrast (DIC) images (a, d); middle, PL images (b, e); right, merged images (c, f). Scale bars: 20 μm.

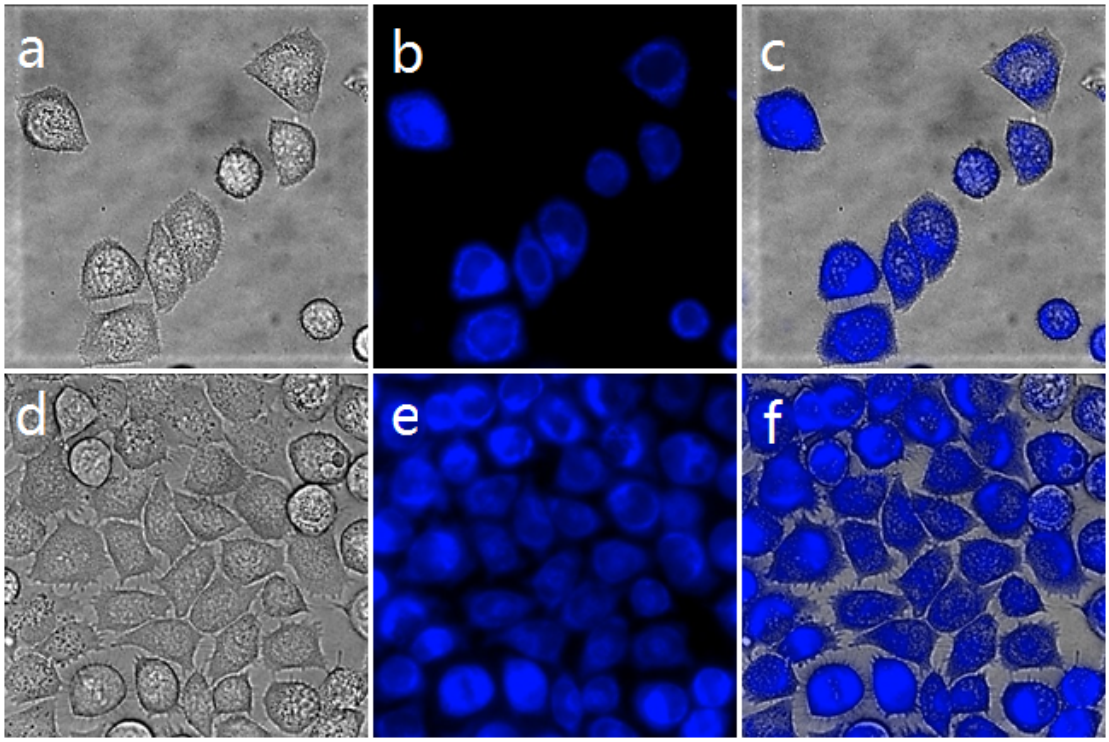


**Figure S5** Confocal microscopy images of Hep2 cells treated with the ligand exchange products of L-His-AuNCs (a-c) and D-His-AuNCs (d-f) with D-Cys and L-Cys, respectively. Left, Differential interference contrast (DIC) images (a, d); middle, PL images (b, e); right, merged images (c, f). Scale bars: 20 μm.