Electronic Supplementary Material (ESI) for Biomaterials Science.

Histidine-based coordinative polymers for efficient intracellular protein delivery via enhanced protein binding, cellular uptake, and endosomal escape

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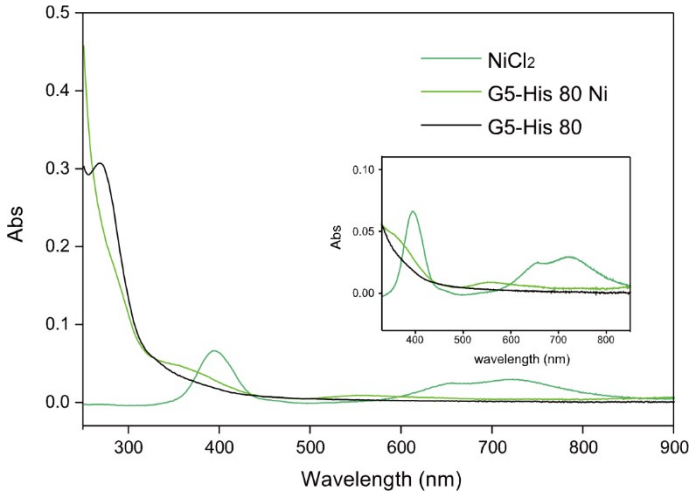

Fig. S1 UV-Vis spectra of $NiCl_2$, G5-His 80 Ni, and G5-His 80 in aqueous solution.

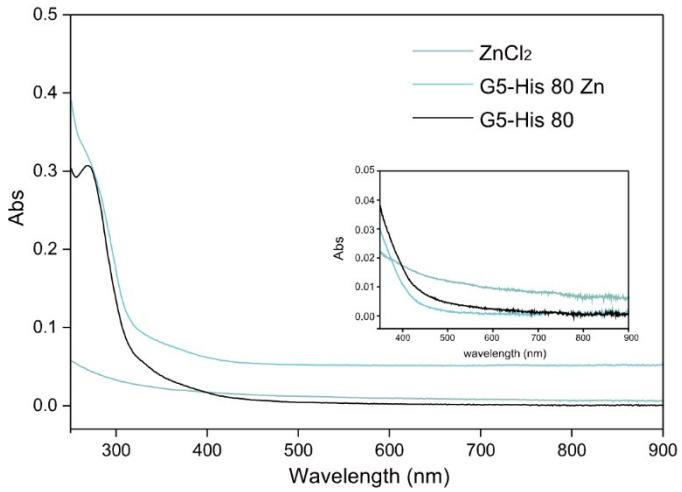

Fig. S2 UV-Vis spectra of $ZnCl_2$, G5-His 80 Zn, and G5-His 80 in aqueous solution.

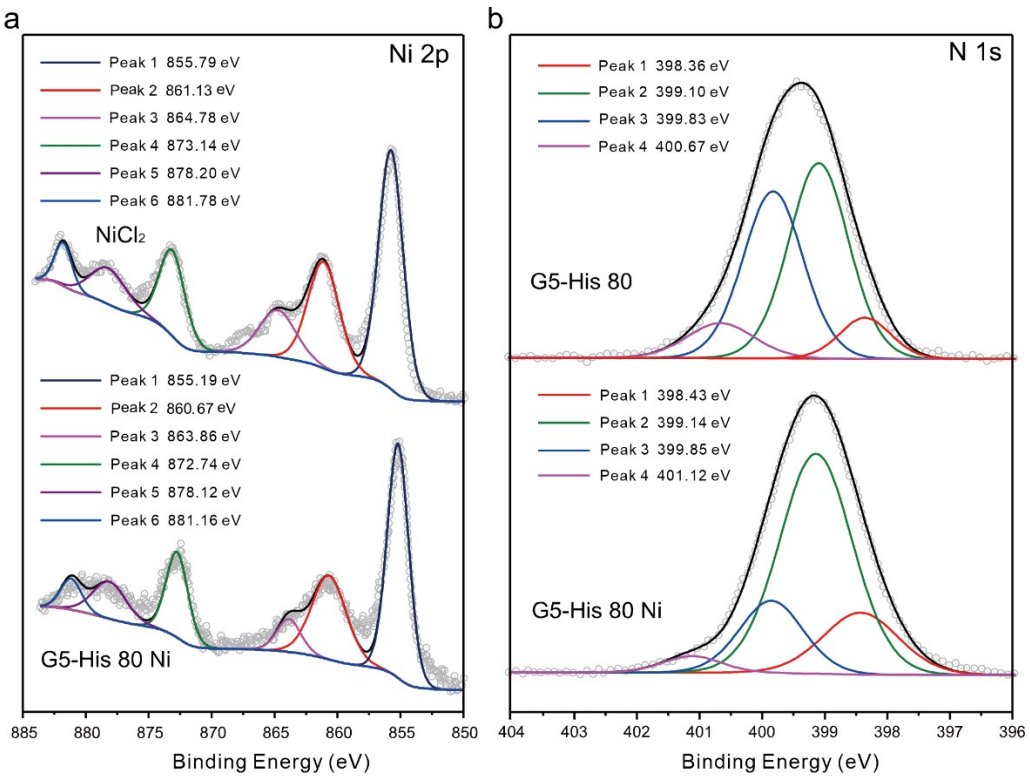

Fig. S3 (a) Magnified XPS Ni 2p spectra of $NiCl_2$ and G5-His 80 Ni. (b) Magnified XPS N 1s spectra of G5-His 80 and G5-His 80 Ni.

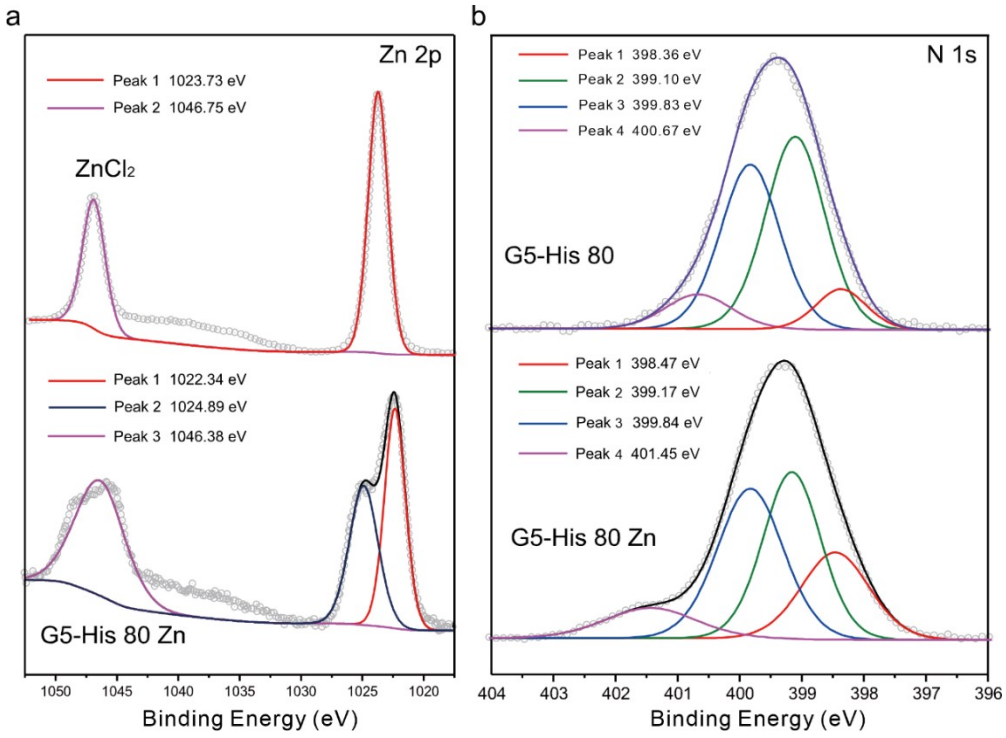

Fig. S4 (a) Magnified XPS Zn 2p spectra of $ZnCl_2$ and G5-His 80 Zn. (b) Magnified XPS N 1s spectra of G5-His 80 and G5-His 80 Zn.

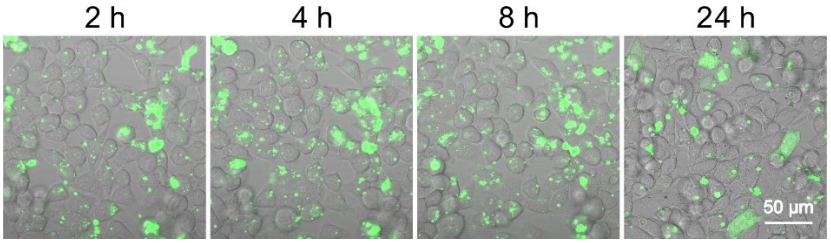

Fig. S5 Fluorescence images of HeLa cells treated with G5-His 80 Ni/EGFP for 2 h, 4 h, 8 h, and 24 h. The concentrations of G5-His 80 Ni and EGFP were 40 μg/mL and 25 μg/mL, respectively.

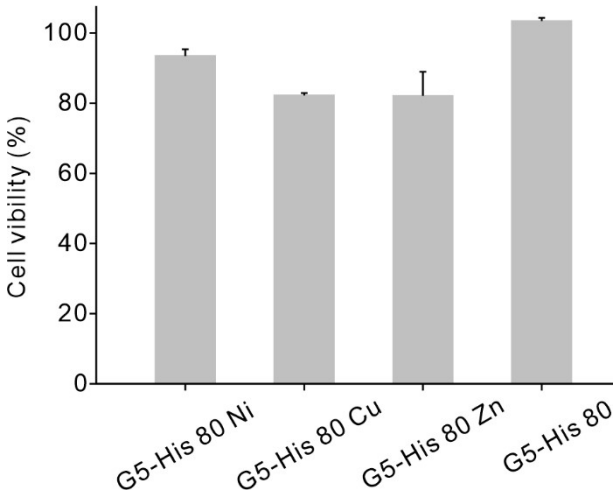

Fig. S6 Viability of HeLa cells treated with the polymers for 24 h. The concentration of the polymers was 40 μg/mL.

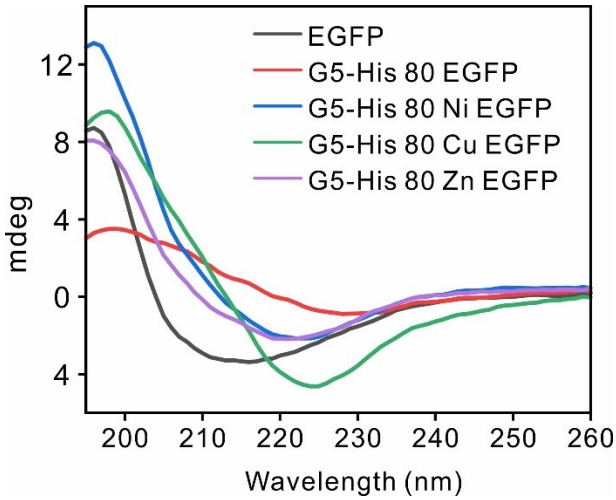

Fig. S7 Circular dichroism spectra of EGFP and polymer/EGFP complexes. The weight ratio of the polymers to EGFP was 1.6:1.

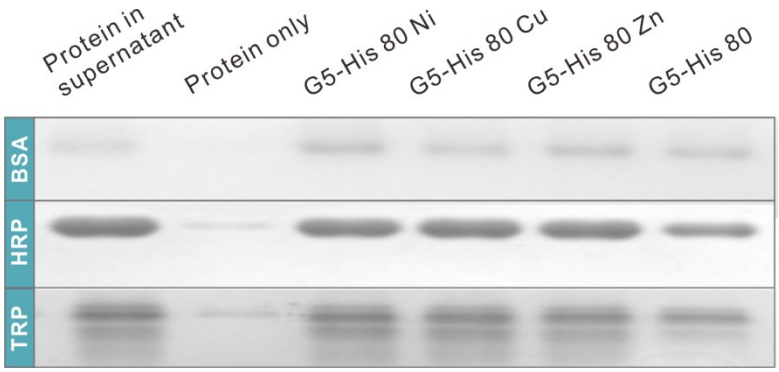

Fig. S8 Sodium dodecyl sulfate-polyacrylamide gel electrophoresis analysis of the polymer/bovine serum albumin (BSA), polymer/Horseradish peroxidase (HRP), and polymer/Trypsin (Trp) complexes. The weight ratio of the polymers to protein was 1.6:1.

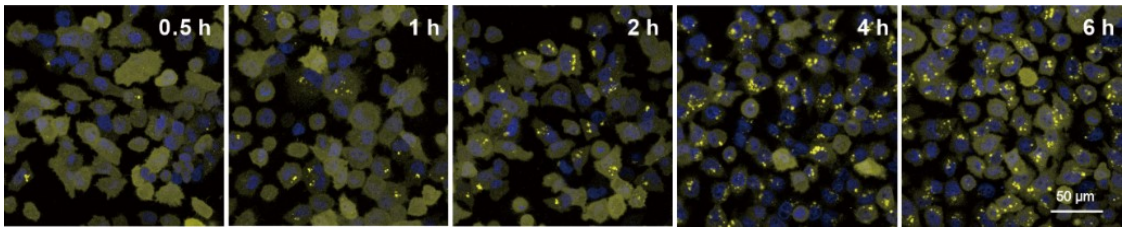

Fig. S9 Fluorescence images of Gal8-YFP HeLa cells treated with the G5-His 80 Cu/BSA complexes for 0.5 h, 1 h, 2 h, 4 h, and 6 h, respectively.

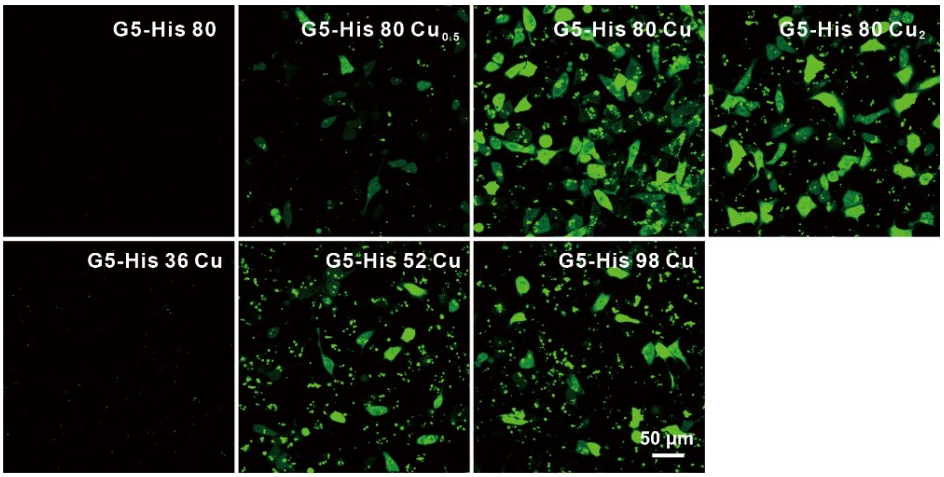

Fig. S10 Fluorescence images of HeLa cells treated with the G5-His 80/EGFP, G5-His 80 $Cu_{0.5}$/EGFP, G5-His 80 Cu/EGFP, G5-His 80 Cu_2/EGFP, G5-His 36 Cu/EGFP, G5-His 52 Cu/EGFP, and G5-His 98 Cu/EGFP complexes for 6 h, respectively. The concentrations of G5-His 36 Cu, G5-His 52 Cu, G5-His 80, G5-His 80 Cu, G5-His 80 $Cu_{0.5}$ was 40 μg/mL. The concentration of G5-His 80 Cu_2, G5-His 98 Cu, and EGFP were 20 μg/mL, 30 μg/mL, and 25 μg/mL, respectively.

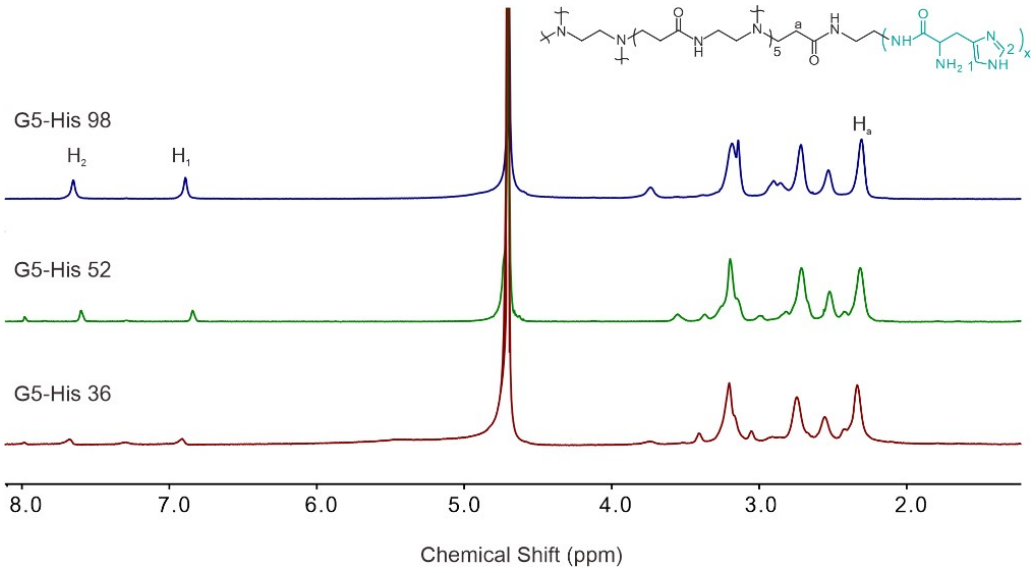

Fig. S11 ^1H NMR spectra of G5-His 98, G5-His 52, and G5-His 36 in D_2O.