Supporting Information (SI) for:

Histone-Mimetic Gold Nanoparticles as Versatile Scaffolds for Gene Transfer and Chromatin Analysis

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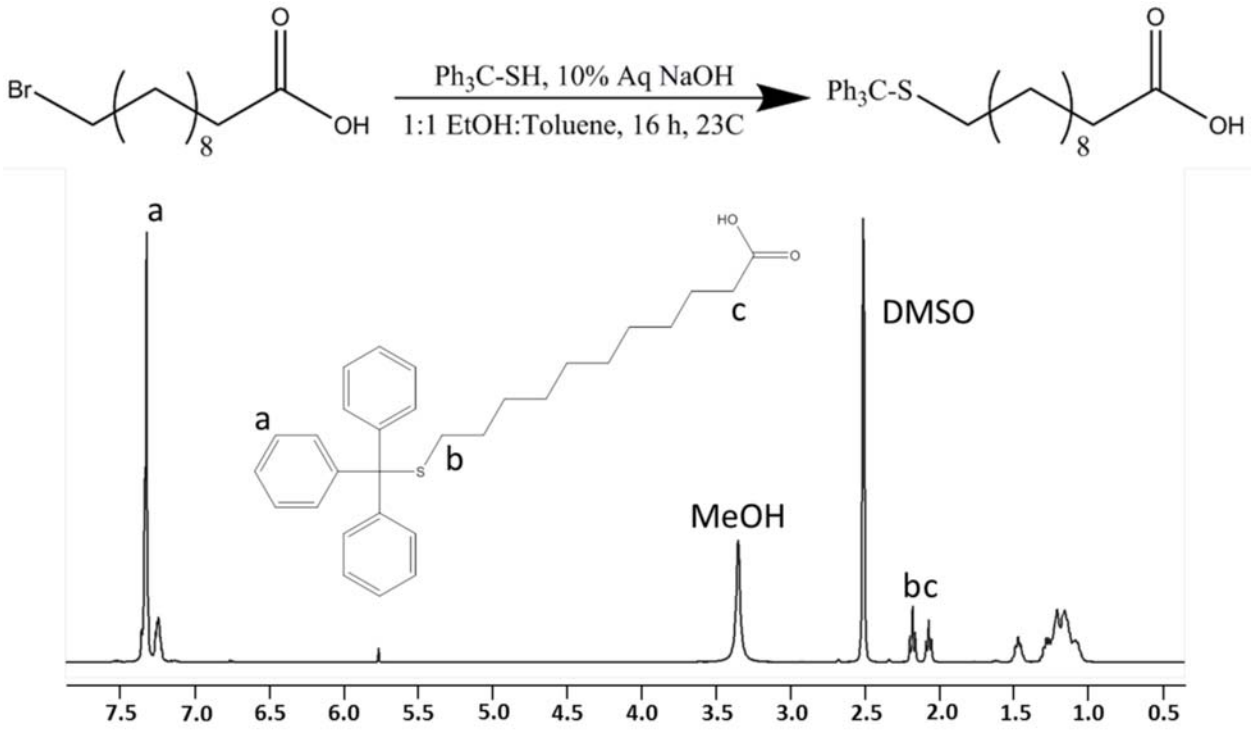

Figure S1. ^{1}H NMR spectrum of triphenylmethyl-protected 11-mercaptoundecanoic acid.

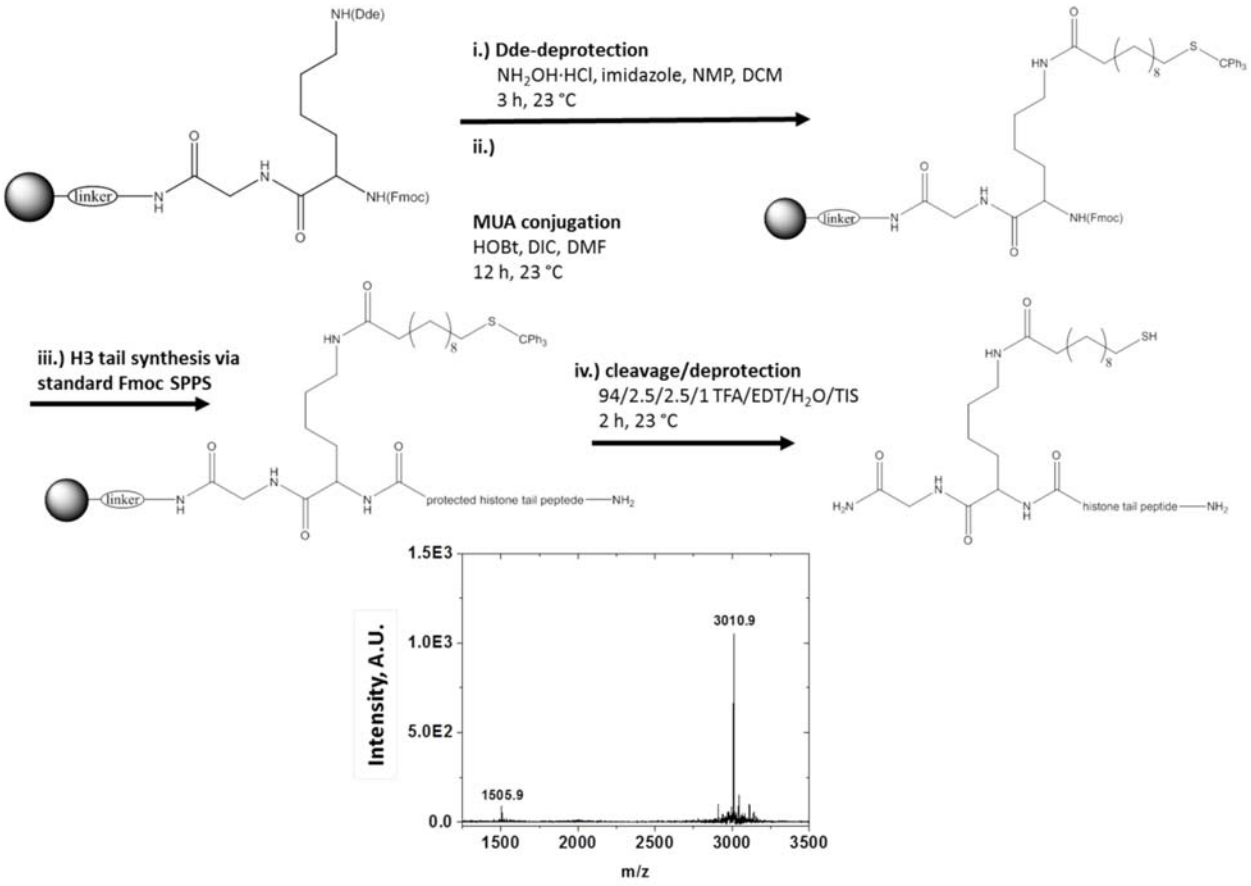

Figure S2. Synthetic procedure and MALDI-TOF MS characterization of the H3-MUA peptide ligand.

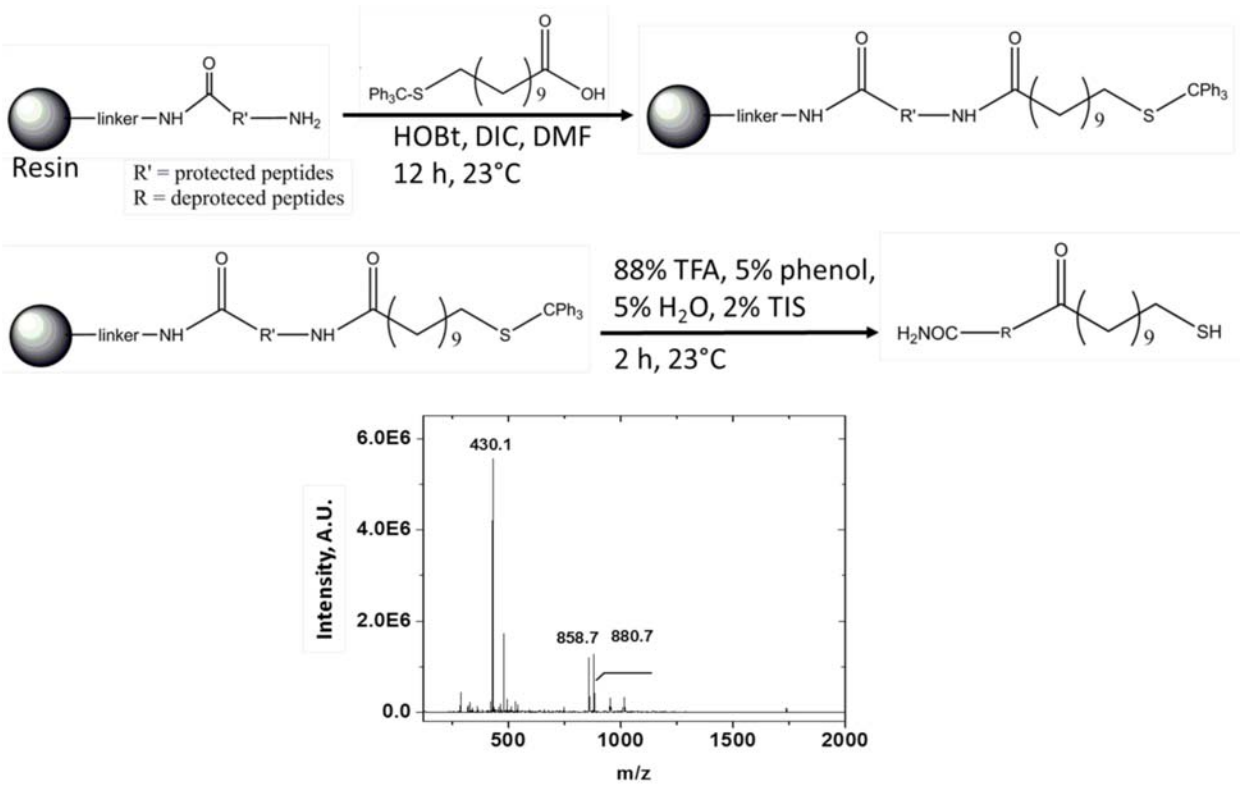

Figure S3. Synthetic procedure and ESI-MS characterization of the K5-MUA peptide ligand.

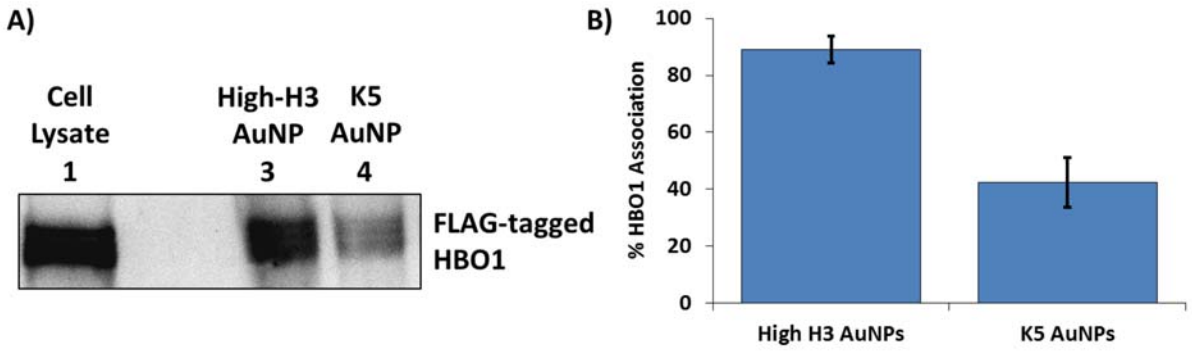

Figure S4: HBO1 pull-down assay. (A) Representative Western blot image against FLAG tag following pull-down of high-H3 and K5 AuNPs after incubation with HBO1-enhanced cell lysates. Lane 1 is a sample of lysate proteins that were not incubated with AuNPs. Lanes 3 and 4 contain samples of lysate proteins that associated with the indicated AuNPs during the pull-down. (B) Densitometry analysis of Western blot band intensities using ImageJ, representing the amount of HBO1 association relative to the amount of HBO1 in the cell lysate control (lane 1). Results are shown as the mean ± standard deviation of data collected from three independent experiments.

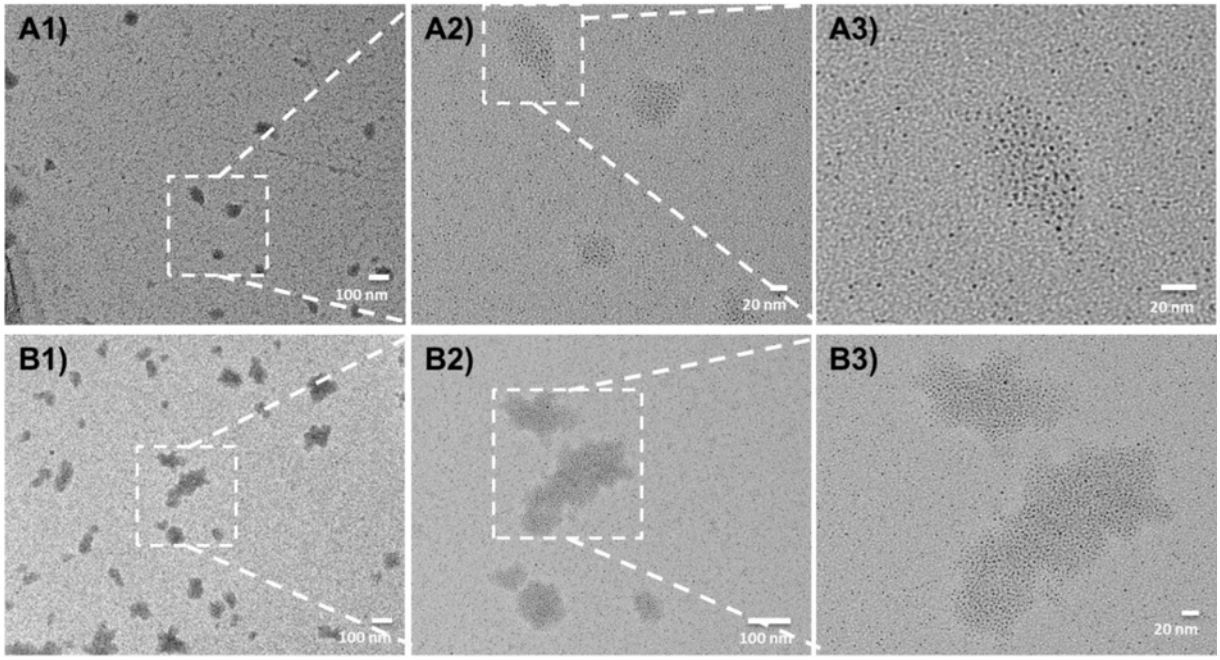

Figure S5: Representative TEM images of K5 AuNP-pDNA complexes at an overall N:P of 2 (A1-A3) or 1.5 (B1-B3).

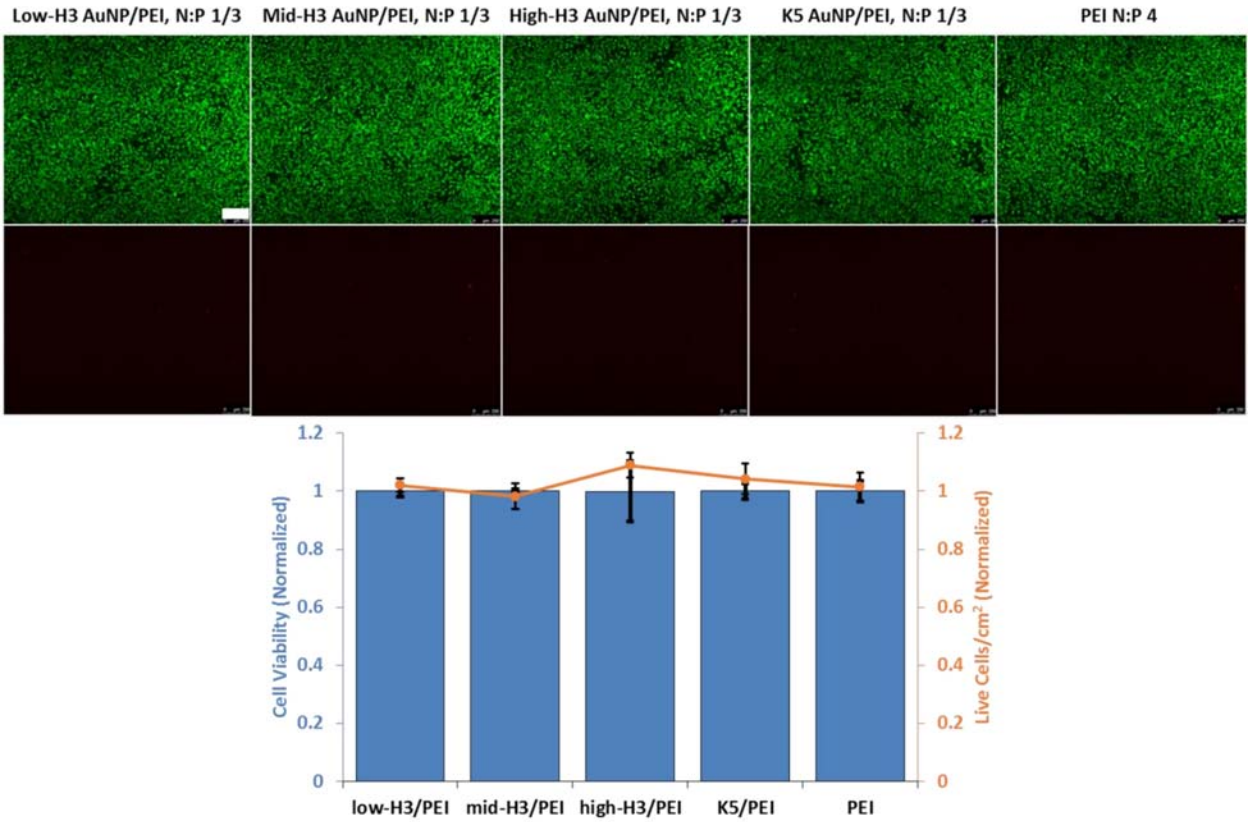

Figure S6. CHO-K1 cellular viability and live cell surface coverage analyses 24 h post-transfection. (A) Representative fluorescence microscopy images of live cells stained with Calcein AM (green) and dead cells stained with propidium iodide (red) following transfection with the indicated hybrid AuNP complexes or PEI polyplexes. Complexes were formed at an overall N:P ratio of 4, with an N:P = 1 contribution from the AuNPs and a N:P = 3 contribution from the PEI. (B) Quantification of cellular viability (blue bars, left axis) and live cell surface coverage (orange line, right axis) from the fluorescence microscopy images in (A) calculated by ImageJ analysis. Cellular viability and the number of live cells/cm^2 were normalized to untransfected controls. All results are shown as the mean ± standard deviation of data collected from at least five images of three independent experiments. Scale bar = 250 μm.

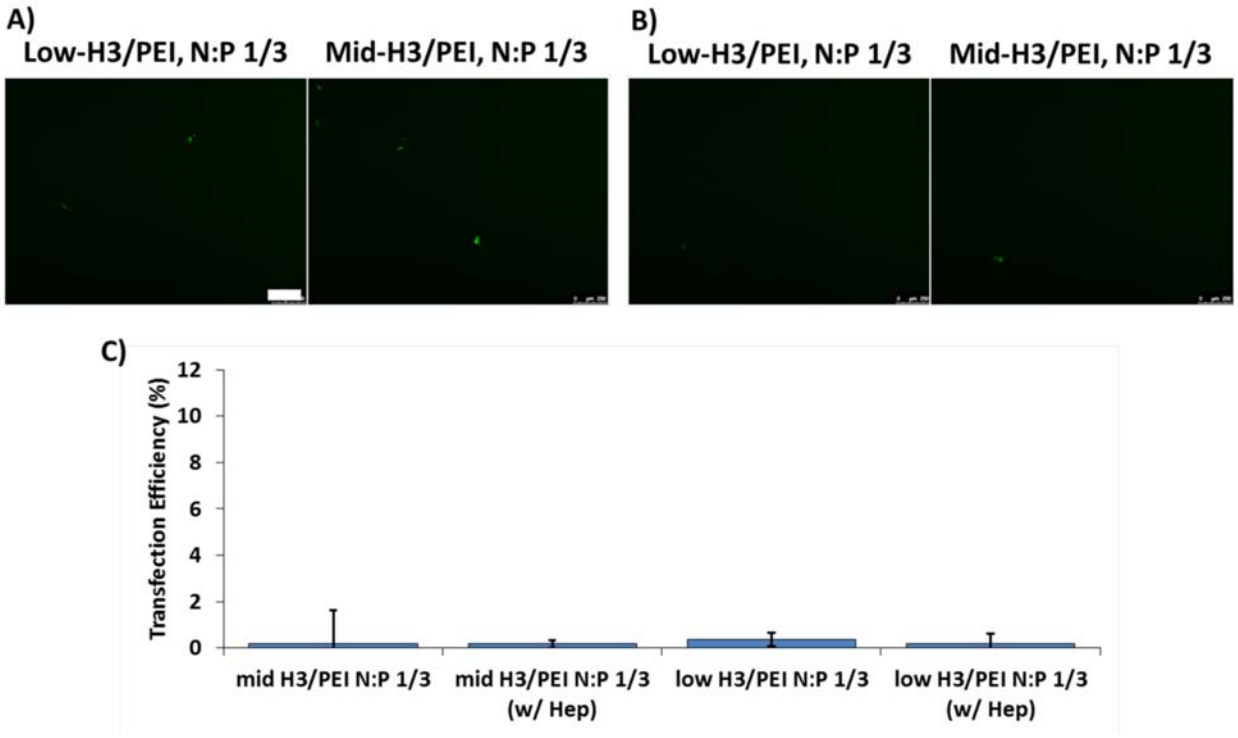

Figure S7: CHO-K1 transfection efficiency of low- and mid-H3 AuNP/PEI hybrid complexes. Representative fluorescence microscopy images of GFP expression 24 h post-transfection with the indicated complexes either (A) without or (B) with heparin (0.0025 mg/mL). Quantification of transfection efficiency (C) using flow cytometry. All results are shown as the mean ± standard deviation of data collected from three independent experiments. Scale bar = 250 μm.

Sample	Ligand Composition	C/H/N/S (wt %)
C5 AuNP	C5	8.93/1.19/0.01/4.41
K5 AuNP	K5	27.72/3.76/7.03/3.4
Low-H3 AuNP	K5 & H3	30.18/4.48/8.47/2.32
Mid-H3 AuNP	K5 & H3	31.94/4.58/9.38/2.26
High-H3 AuNP	H3	34.52/5.16/10.81/2.07

Table S1. CHNS elemental analysis of AuNPs. Weight percentages of the indicated elements are reported relative to the entire sample weight. The balance (unreported percentage) of each material analyzed was gold (Au).