

PEGylation of Goldbody: PEG-Aided Conformational Engineering of Peptides on Gold Nanoparticles

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Supplementary data

Table S1. Sequences and properties of the designed peptides

Peptide	Peptide sequence	pI	MW (Da)	ϵ ($M^{-1} \cdot cm^{-1}$)
Pep1	CGSTIYASYYESGHGC	5.08	1697.81	4595
Pep1m	CGSTIYASYYESGHG	5.24	1594.67	4470
Pep2	CSAWYGTLYEYDGC	3.67	1630.76	10095
Pep2m	CSAWYGTLYEYDG	3.67	1527.62	9970

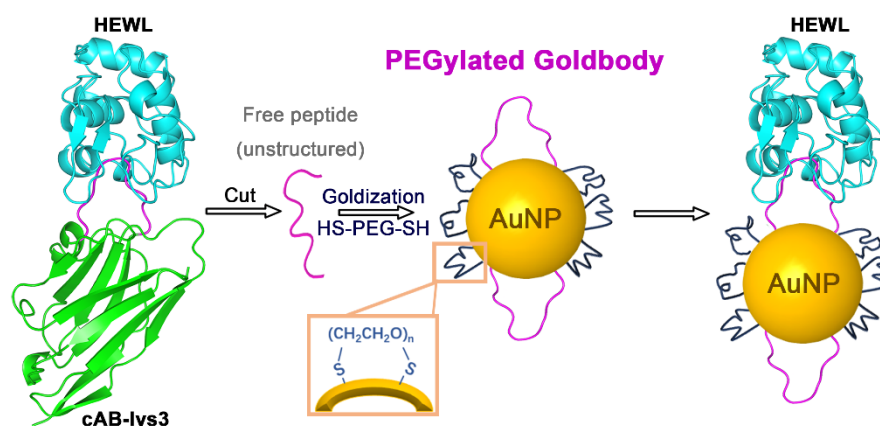


Fig. S1 Scheme of the design of the PEGylated anti-lysozyme Goldbody. PEG with two terminal –SH groups is used to effectively aid the conformational engineering of the CDR fragments (purple chain) of the natural antibody on AuNPs, and the PEGylated anti-lysozyme Goldbody can specifically bind to lysozyme (HEWL).

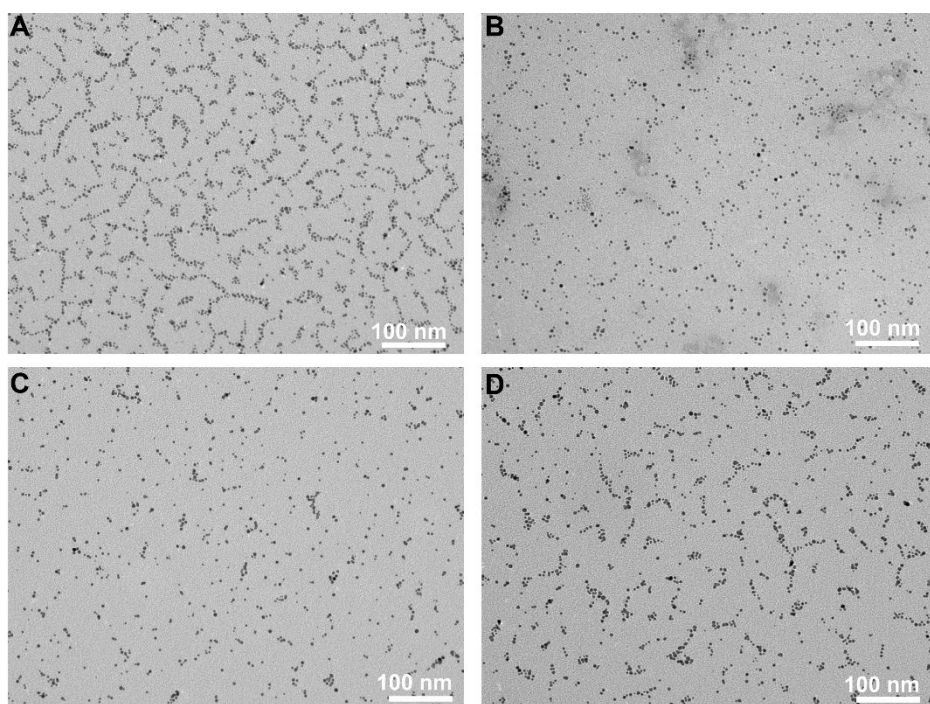


Fig. S2 TEM images of (A) AuNP-5Pep1, (B) AuNP-5Pep1-15(HS-PEG600-COOH), (C) AuNP-5Pep1-30(HS-PEG300-COOH), and (D) AuNP-5Pep1-15(HS-PEG2000-SH).

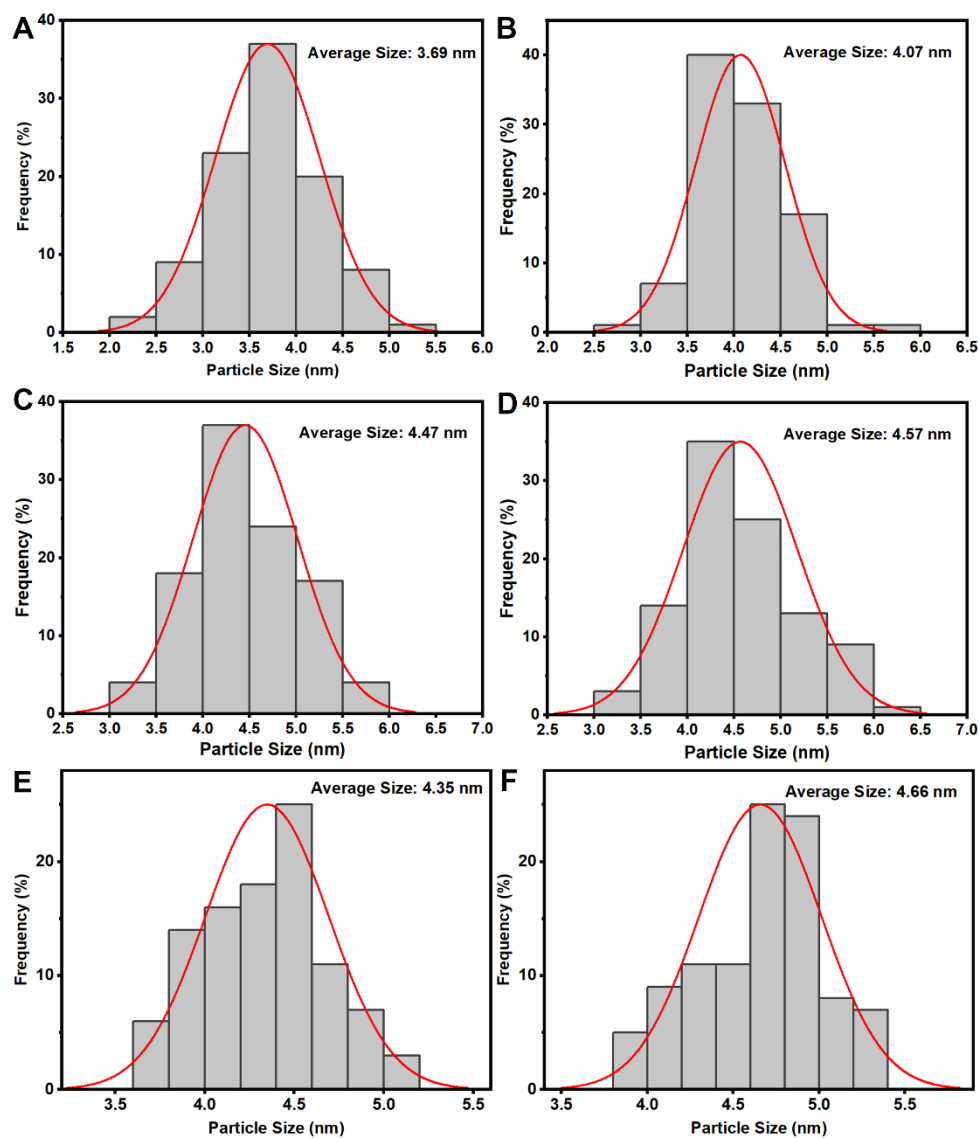


Fig. S3 Size distributions from the TEM images of (A) AuNPs (3.69 ± 0.56 nm), (B) AuNP-5Pep1 (4.07 ± 0.48 nm), (C) AuNP-5Pep1-15(HS-PEG600-COOH) (4.47 ± 0.57 nm), (D) AuNP-5Pep1-15(HS-PEG600-SH) (4.57 ± 0.61 nm), (E) AuNP-5Pep1-30(HS-PEG300-COOH) (4.35 ± 0.35 nm), and (F) AuNP-5Pep1-15(HS-PEG2000-SH) (4.66 ± 0.36 nm).

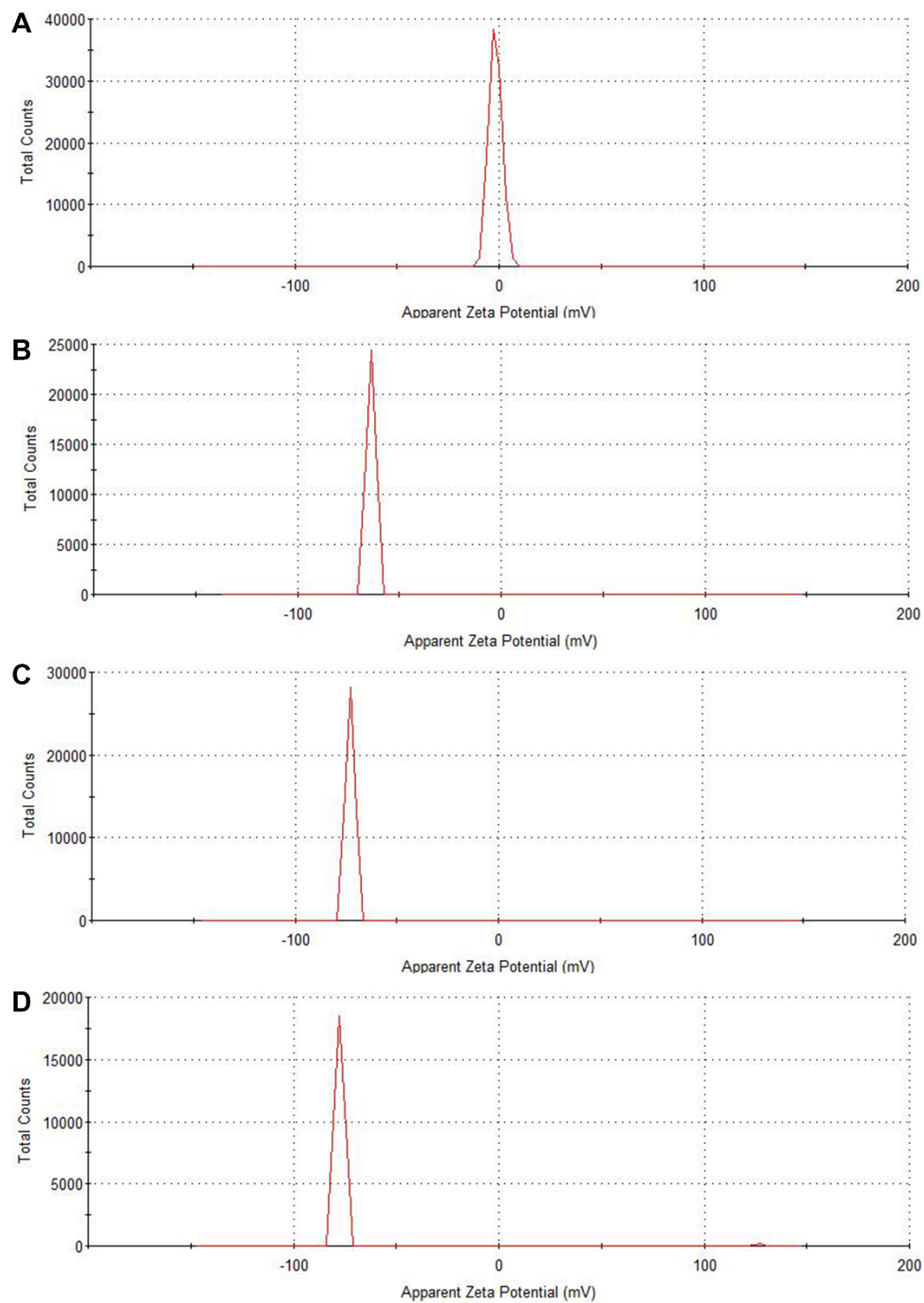


Fig. S4 Zeta potentials of (A) AuNPs, (B) AuNP-5Pep1, (C) AuNP-5Pep1-15(HS-PEG600-COOH), and (D) AuNP-5Pep1-15(HS-PEG600-SH).

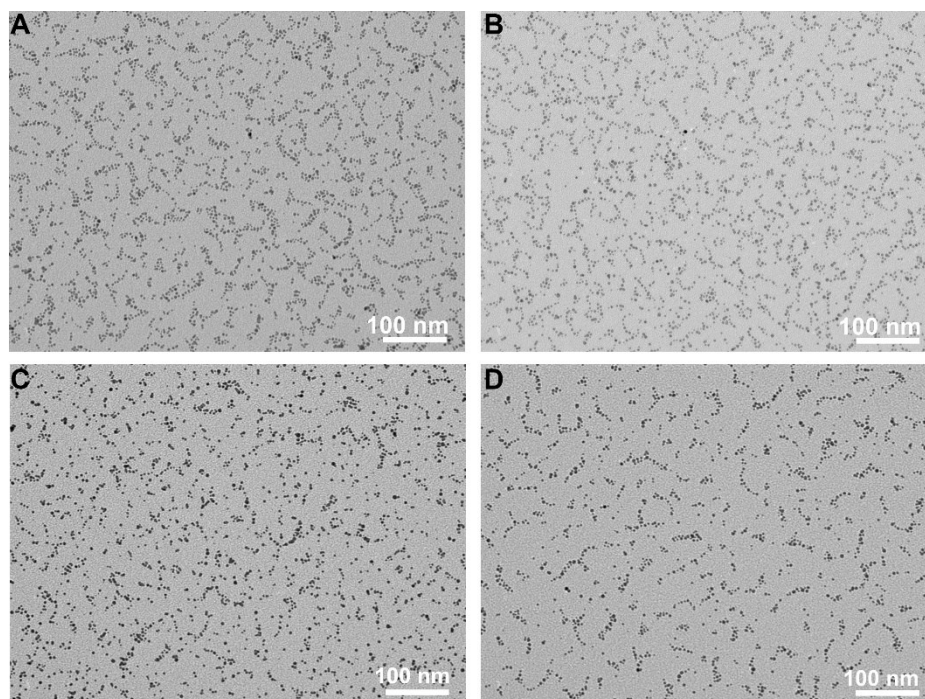


Fig. S5 TEM images of (A) AuNP-5Pep2, (B) AuNP-5Pep2-15(HS-PEG600-COOH), (C) AuNP-5Pep2-30(HS-PEG300-COOH), and (D) AuNP-5Pep2-15(HS-PEG2000-SH).

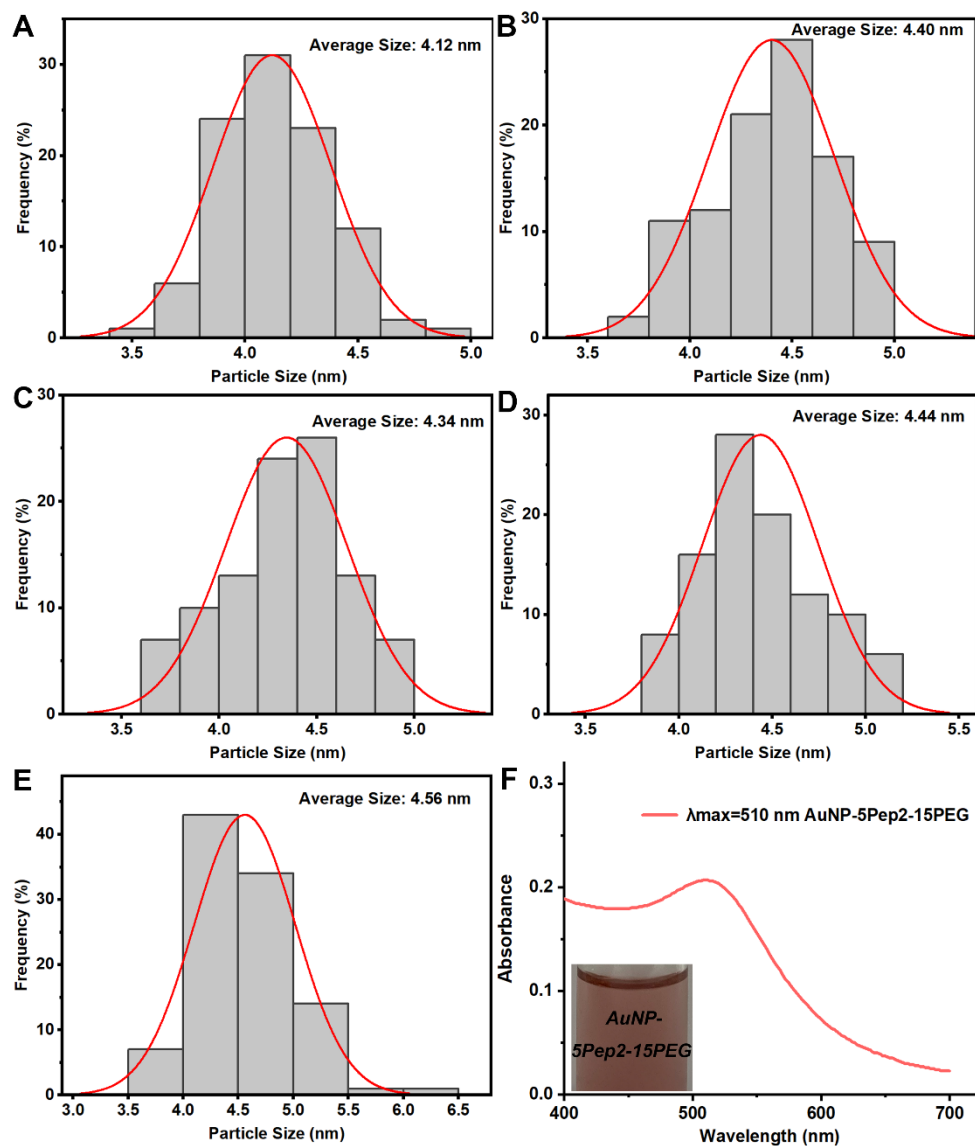


Fig. S6 Size distributions from the TEM images of (A) AuNP-5Pep2 (4.12 ± 0.26 nm), (B) AuNP-5Pep2-15(HS-PEG600-COOH) (4.40 ± 0.78 nm), (C) AuNP-5Pep2-15(HS-PEG600-SH) (4.34 ± 0.31 nm), (D) AuNP-5Pep2-30(HS-PEG300-COOH) (4.44 ± 0.31 nm), and (E) AuNP-5Pep2-15(HS-PEG2000-SH) (4.56 ± 0.46 nm). (F) UV-vis spectrum and the optical picture of the AuNP-5Pep2-15(HS-PEG600-SH) solution.

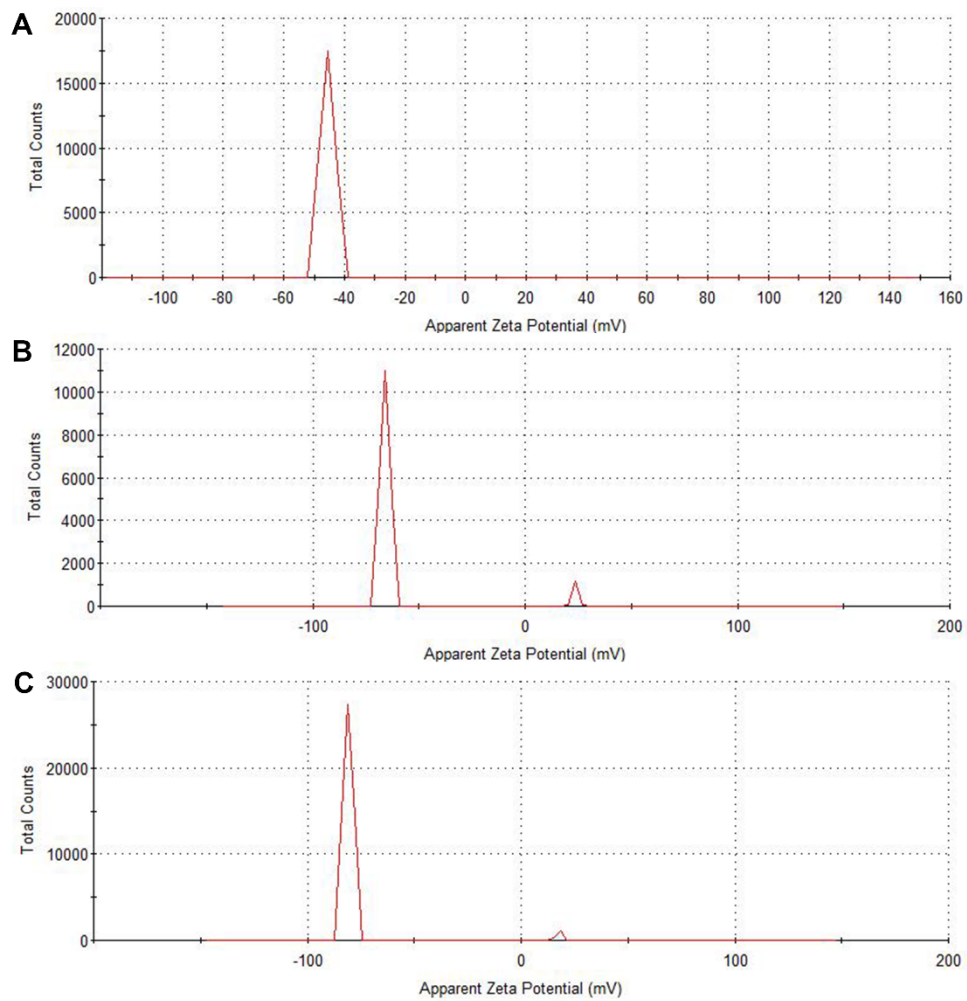


Fig. S7 Zeta-potentials of (A) AuNP-5Pep2, (B) AuNP-5Pep2-15(HS-PEG600-COOH), and (C) AuNP-5Pep2-15(HS-PEG600-SH).

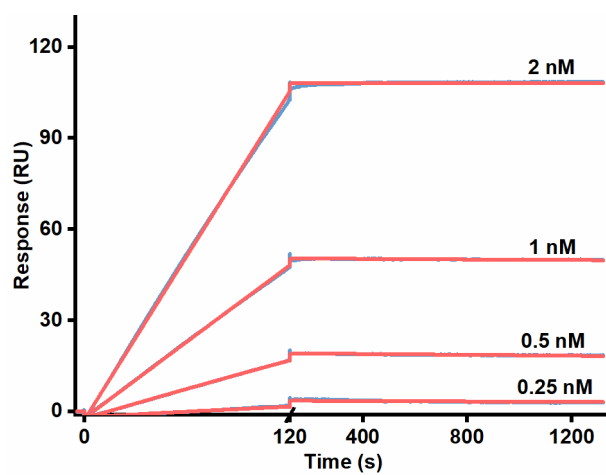


Fig. S8 SPR binding kinetics of AuNP-5Pep2-15(HS-PEG600-SH) with the immobilized EGFR. Red curves are the fitting lines.