**Supplementary Figure Legends**

**Supplementary Figure S1.** A) The average particle size of PEI-AuNCs was examined under different pH conditions (neutral and acidic) over seven days, and B) continuously measured at six time points within the initial 24 h

**Supplementary Figure S2.** The CCK-8 assay was performed to assess the cell viability of RWPE-1 cells.