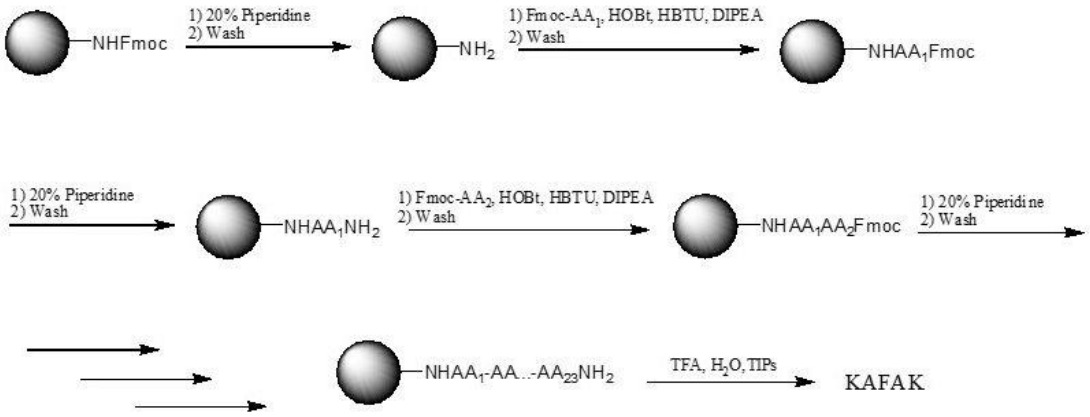
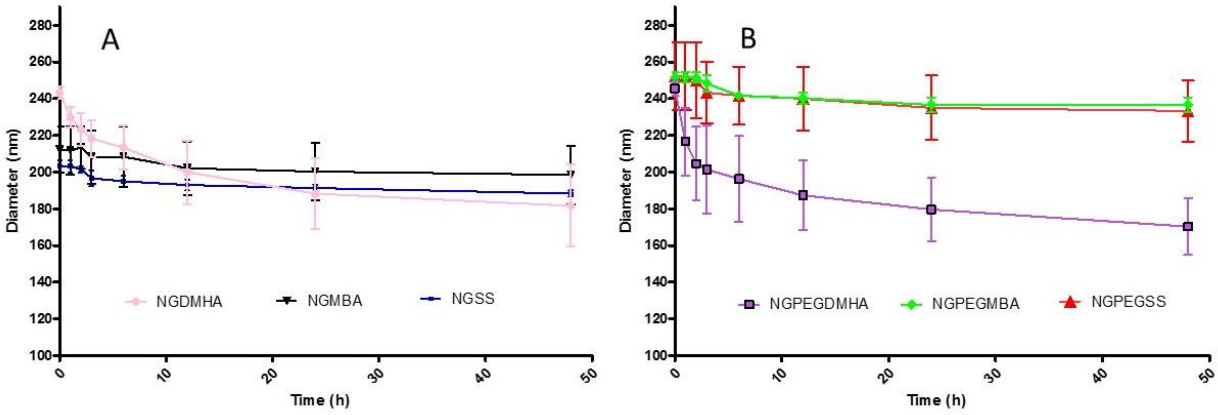
Supporting information

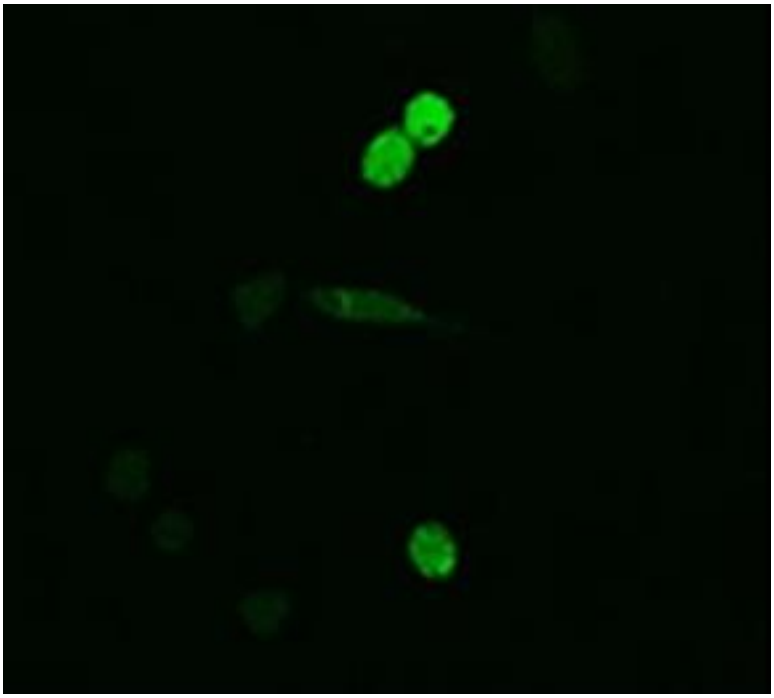


AA = Amino acids
HOBt = Hydroxybenzotriazole
HBTU = O-Benzotriazole-N,N,N',N'-tetramethyl-uronium-hexafluoro-phosphate
TFA = Trifluoroacetic acid
TIPs = Triisopropylsilane
Fmoc = Fluorenylmethyloxycarbonyl

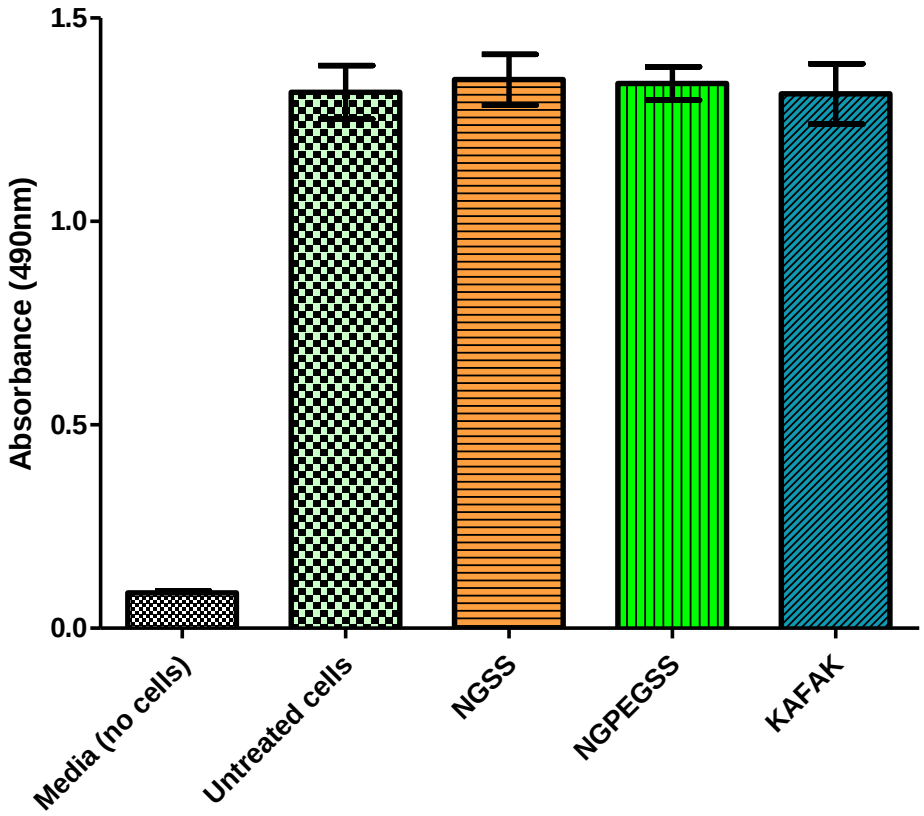
Supporting Scheme 1: Synthetic scheme of KAFAK peptide using Fmoc solid phase methodology



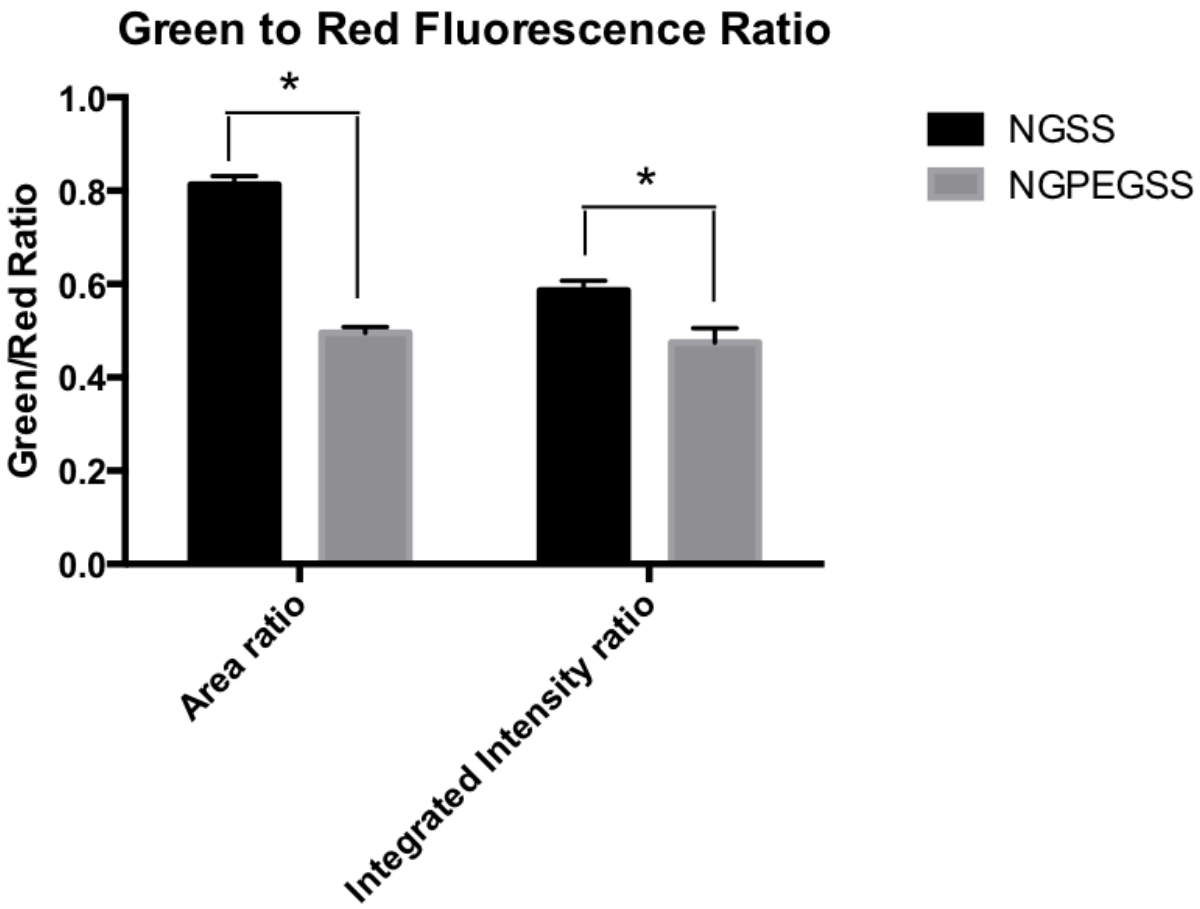
Supplement Figure S1. Degradation over time in different environments of poly(NIPAM−AMPS) nanoparticles in pH 9.0 A) non-PEGylated nanoparticles B) PEGylated nanoparticles



Supplement Figure S2. Confocal fluorescence microscopy of RAW 264.7 cells incubated at 37 °C with fluorescein



Supplement Figure S3. CellTiter absorbance of untreated RAW 264.7 cells and cells treated with NGSS, NGPEGSS, and KAFAK over a 24 h period at 37 °C



Supplement Figure S4. Semi-quantitative fluorescence analysis of green nanoparticles and red lysotracker-labeled endolysosomes co-localization. Bars represent average values ± sample standard deviations for 3 images for each condition. The area is the number of pixels above a threshold background value in the green and red fluorescent channels. Integrated intensity values are summations of pixel intensities above the defined threshold for each channel. * indicates statistical significance with $p < 0.01$, showing that there is a significant difference in the green to red fluorescent pixel area ratio and integrated intensity ratio, which suggests that the amount of co-localization of FITC nanoparticles and red lysotracker-labeled endolysosomes is lower for PEGylated compared to non-PEGylated nanoparticles.