Supplemental material

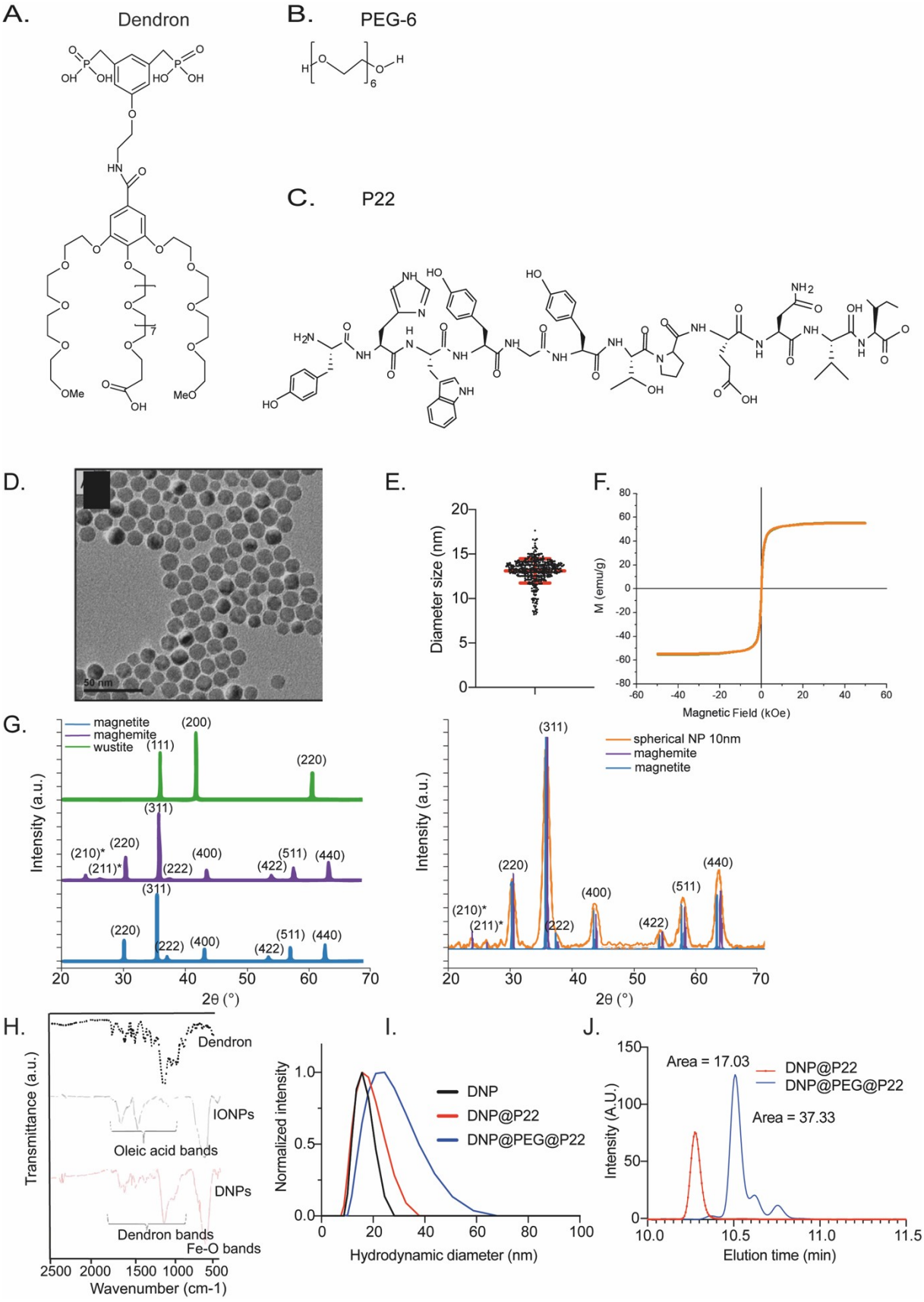

Figure S1. A. Chemical structure of the dendron molecule, on one extreme there are two phosphonates groups where the molecule is attached to the IONPs. On the other extremes

three PEG chains, the one in the middle is longer and it finishes with a -COOH group for further functionalization. **B.** Chemical structure of the PEG-6 molecule used in the study as linker between the dendron and P22 peptide. **C.** Chemical structure of the P22 peptide as used in the study and described by Hossein-Nejad-Ariani[24]. **D.** Representative TEM image of the synthesized iron oxide nanoparticles (IONPs). **E.** Size distribution of the IONPs obtained from the TEM image. **F.** Magnetization curve of DNPs **G. left** Comparison of "theoretical" XRD patterns of wüstite, magnetite and maghemite phases **right** XRD pattern of DNPs compared to the theoretical XRD patterns of maghemite and magnetite (right). **H.** IR spectra of dendron, oleic acid coated IONPs and dendronized IONPs (DNPs). **I.** Hydrodynamic size distribution of the different synthesized IONPs and DNPs. **J.** Chromatogram traces from the supernatant solutions allowing determination of the bound concentration. Elution time for P22 = 10.3 ± 0.04 min and for PEG@P22 = 10.6 ± 0.05 min.

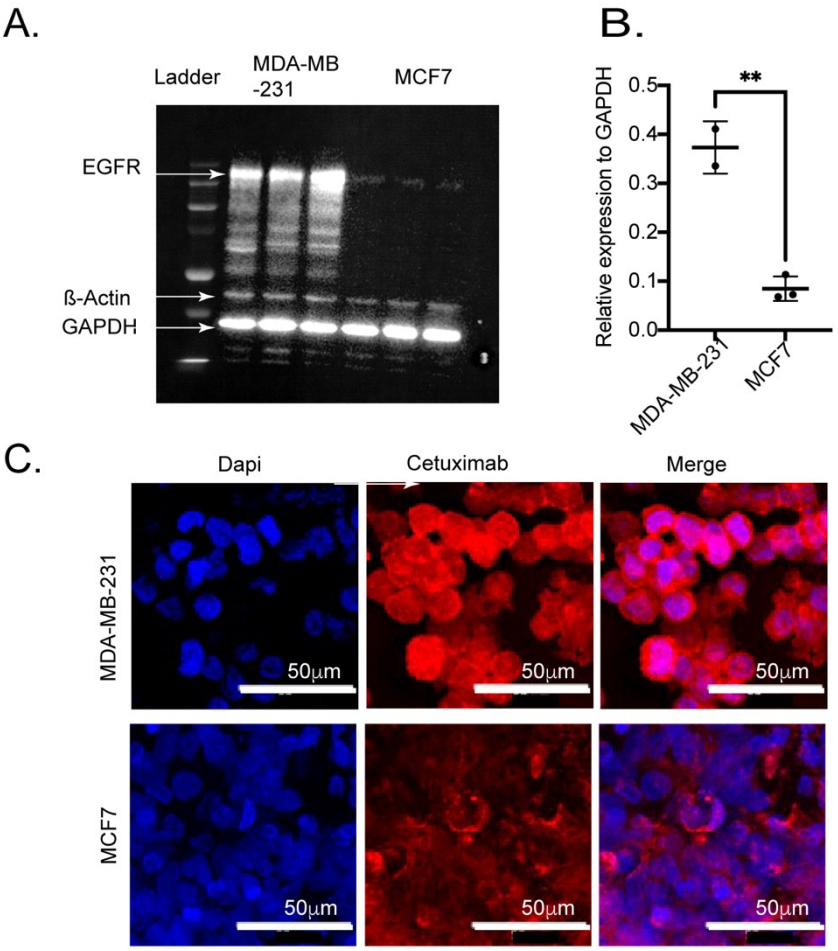

Figure S2. A.

Representative images of the Western Blot of EGFR with β-Actin and GAPDH expression performed on MDA-MB-231(EGFR+) and MCF7 (EGFR-) cell lines. **B.** Western Blot analysis with an expression level of EGFR normalized to the expression level of GAPDH in each cell line. The graphical representation of the relative expression and the statistical analysis a Mann Withney statistics and p_{value}=0,0034. **C.** Single plane confocal images on MDA-MB-231 and MCF7 cells with nuclei labeled with DAPI and Cy3 labeling cetuximab (antibody targeting EGFR).

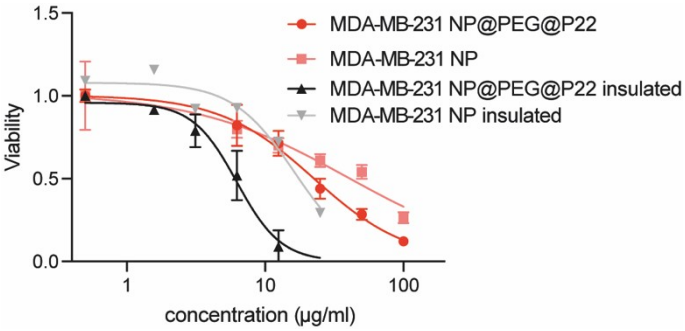

Figure S3. Viability assay on MDA-MB-231 under 100μg/mL DNP and DNP@PEG@P22 condition with and without IR irradiation.