Supplementary information

Cytosolic delivery of gadolinium via photoporation enables improved *in vivo* magnetic resonance imaging of cancer cells

Aranit Harizaj[1], Benedicte Descamps[2], Christophe Mangodt[3], Stephan Stremersch[1], Arianna Stoppa[1], Lieve Balcaen[4], Toon Brans[1], Hilde de Rooster[5], Nausikaa Devriendt[5], Juan C. Fraire[1], Eduardo Bolea-Fernandez[4], Olivier De Wever[6], Wouter Willaert[7], Frank Vanhaecke[4], Christian V. Stevens[3], Stefaan C. De Smedt[1], Bart Roman[3], Christian Vanhove[2], Ine Lentacker[1], Kevin Braeckmans[1,*]

1. Laboratory of General Biochemistry and Physical Pharmacy, Faculty of Pharmaceutical Science, Ghent University, Ottergemsesteenweg 460, 9000 Ghent, Belgium
2. Infinity lab, Faculty of Engineering and Architecture, Ghent University, C. Heymanslaan 10, 9000 Ghent, Belgium
3. Bioresources and Bioorganic Chemistry, Faculty of Bioscience engineering, Ghent University, Coupure Links 653, 9000 Ghent, Belgium
4. Atomic & Mass Spectrometry- A&MS research unit, Faculty of Science, Ghent University, Krijgslaan 281, S12, 9000 Ghent, Belgium

5. Small Animal Department, Faculty of Veterinary Medicine, Ghent University, Salisburylaan 133, 9820 Merelbeke, Belgium

6. Laboratory Experimental Cancer Research, Faculty of Medicine and Health Science, Ghent University, Corneel Heymanslaan 10, 9000 Ghent, Belgium

7. Laboratory for Experimental Surgery, Faculty of Medicine and Health Science, Ghent University, Corneel Heymanslaan 10, 9000 Ghent, Belgium

***Corresponding author: Kevin.Braeckmans@UGent.be**

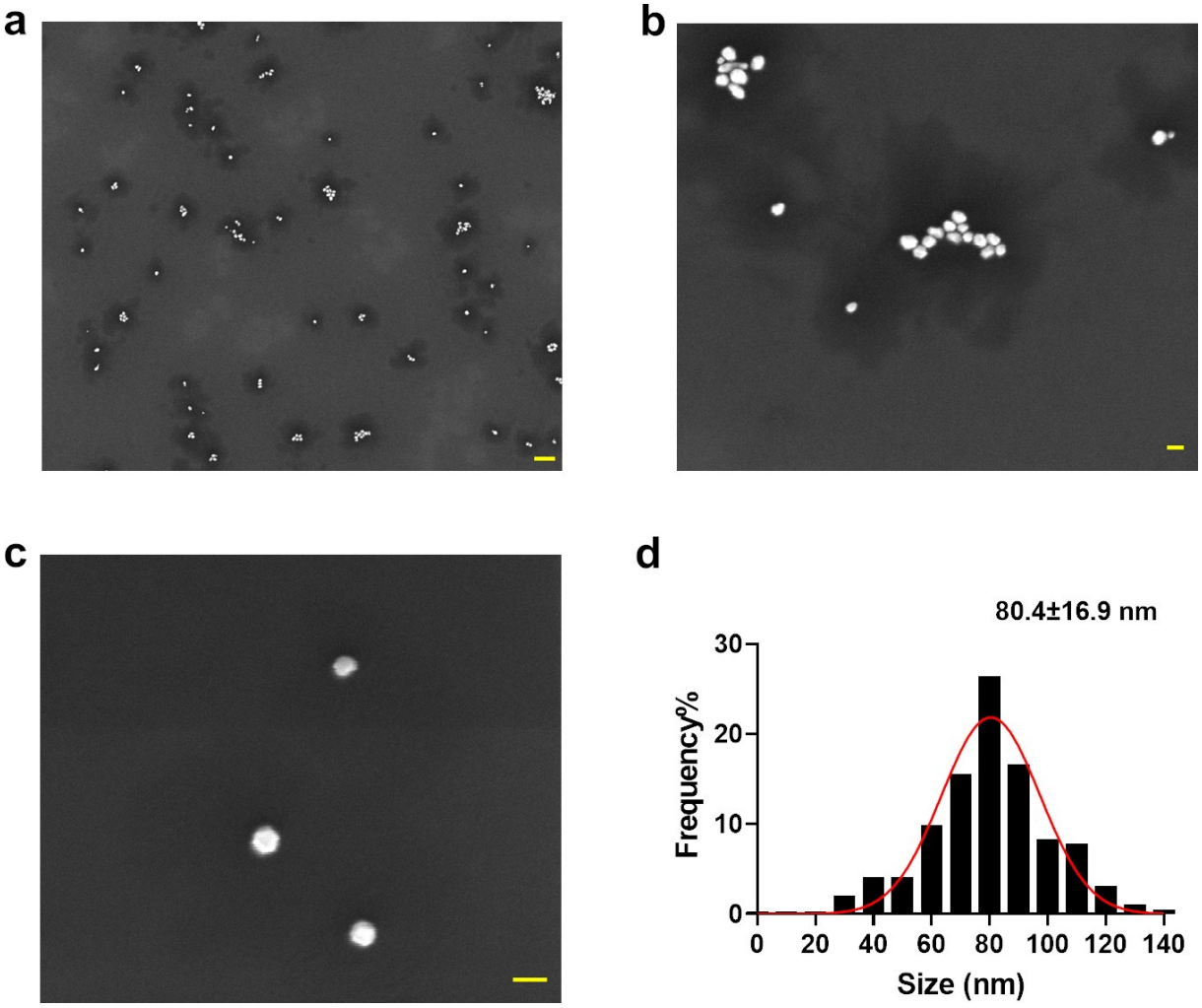

Figure S1. (a-c) Scanning electron microscopy images of PDDAC coated AuNPs. The images were analyzed via the ImageJ software. (panel a: scale bar = 500 nm, panel b-c: scale bar 100 nm). (d) Corresponding histogram showing the size distribution of PDDAC-coated AuNPs.

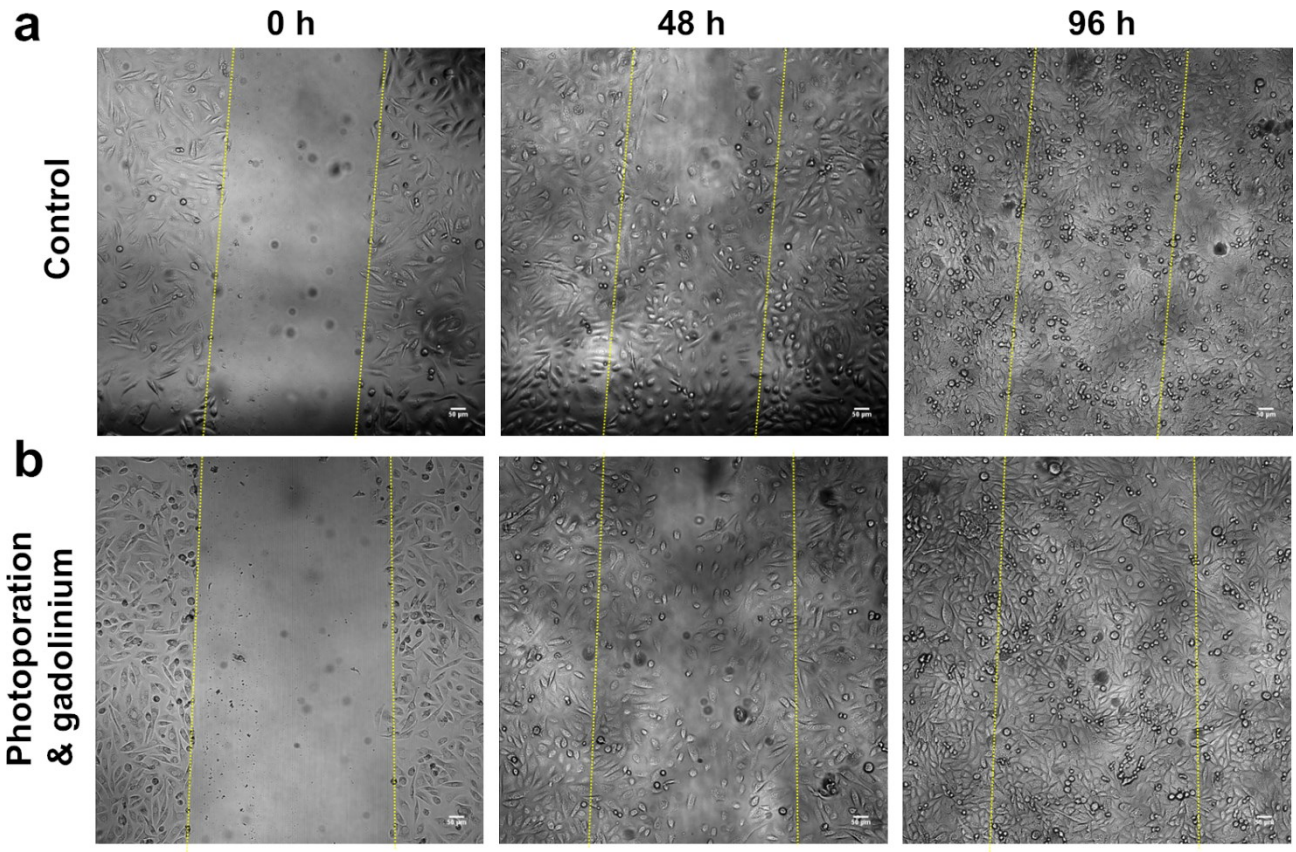

Figure S2. (a-b) In vitro scratch assay to verify the migratory capacity of (a) untreated control SK-OV-3 IP1 cells compared to (b) SK-OV-3 IP1 cells photoporated with 100 mM gadobutrol (scale bar = 50 µm). The images were analyzed via the ImageJ software.

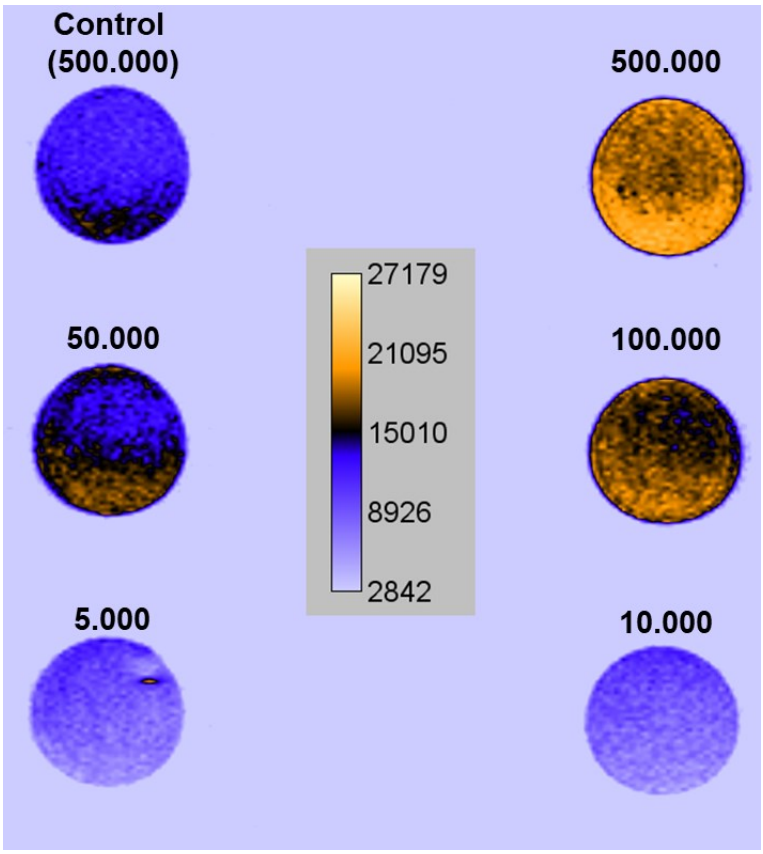

Figure S3. *In vitro* T_1-weighted image showing the detection limit of gadobutrol-labeled SK-OV-3 IP1 cells as measured via MRI. False-colored T_1-weighted images of a decreasing amount of gadobutrol-labeled SK-OV-3 IP1 cells with the control in the upper left corner.

Table S1. Determination of the concentration of Au in SK-OV-3 IP1 cells as obtained via ICP-MS analysis. The total volume of samples: 100 µL, total amount of seeded cells: 20.000 cells.

Au samples	Au concentration ($\mu g\ L^{-1}$)	SD ($\mu g\ L^{-1}$)
Control 1 – C1	0.26	0.01
Control 2 – C2	0.38	0.02
Control 3 – C3	0.16	0.01
Average	**0.27**	**0.11**
Gold incubation – Au-1	10.48	0.04
Gold incubation – Au-2	10.80	0.08
Gold incubation – Au-3	11.16	0.08
Average	**10.81**	**0.34**
Gold photoporation – Au+L-1	9.79	0.04
Gold photoporation – Au+L-2	9.21	0.03
Gold photoporation – Au+L-3	8.92	0.05
Average	**9.31**	**0.44**