# Electronic Supplementary Information (ESI)

*for*

# Gold nanoparticle interactions with endothelial cells cultured under physiological conditions

C. Freese[a*], L. Anspach[a], R. C. Deller[b†], S.-J. Richards[b], M. I. Gibson[b], C. J. Kirkpatrick[a] and R. E. Unger[a]

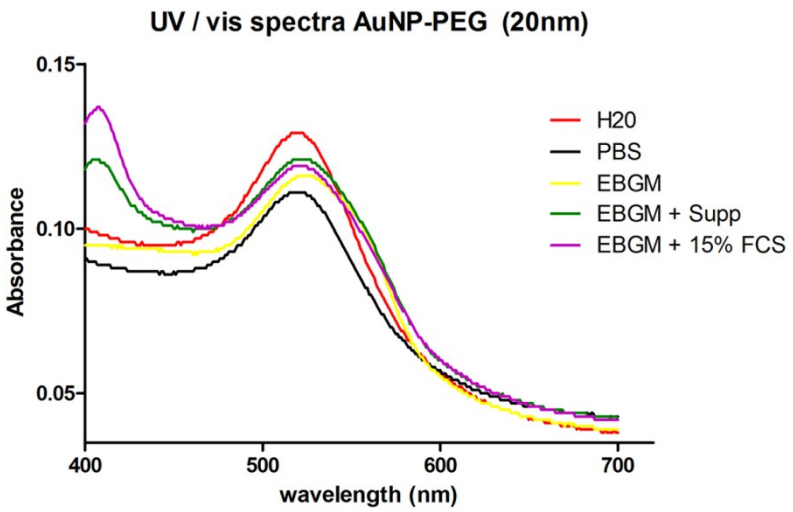
[a] REPAIR-lab, Institute of Pathology, University Medical Center of the Johannes Gutenberg University Mainz and European Institute of Excellence on Tissue Engineering and Regenerative Medicine, Langenbeckstr. 1, 55131 Mainz, Germany

[b] University of Warwick, Department of Chemistry, Coventry, CV4 7AL, United Kingdom.

A

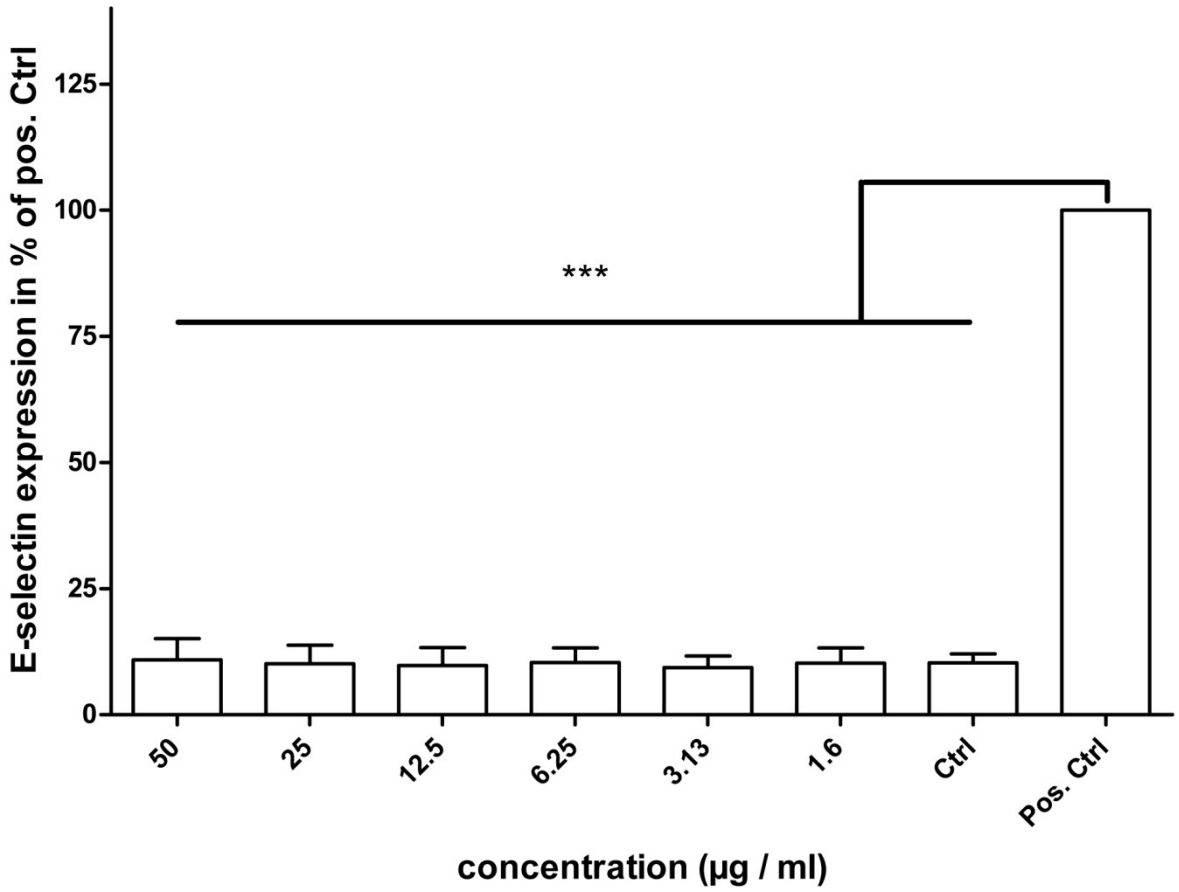
| Diluent | $H_2O$ | PBS | EBGM | EBGM + Supplement | EBGM + 15% FCS |
|---|---|---|---|---|---|
| $UV_{max}$ (nm) | 519 | 520 | 524 | 522 | 521 |
| Diameter (nm)* | 29 (± 0.7) | 27 (± 0.1) | 30 (± 0.7) | 34 (± 1.1) | 19 (± 0.6) |

B



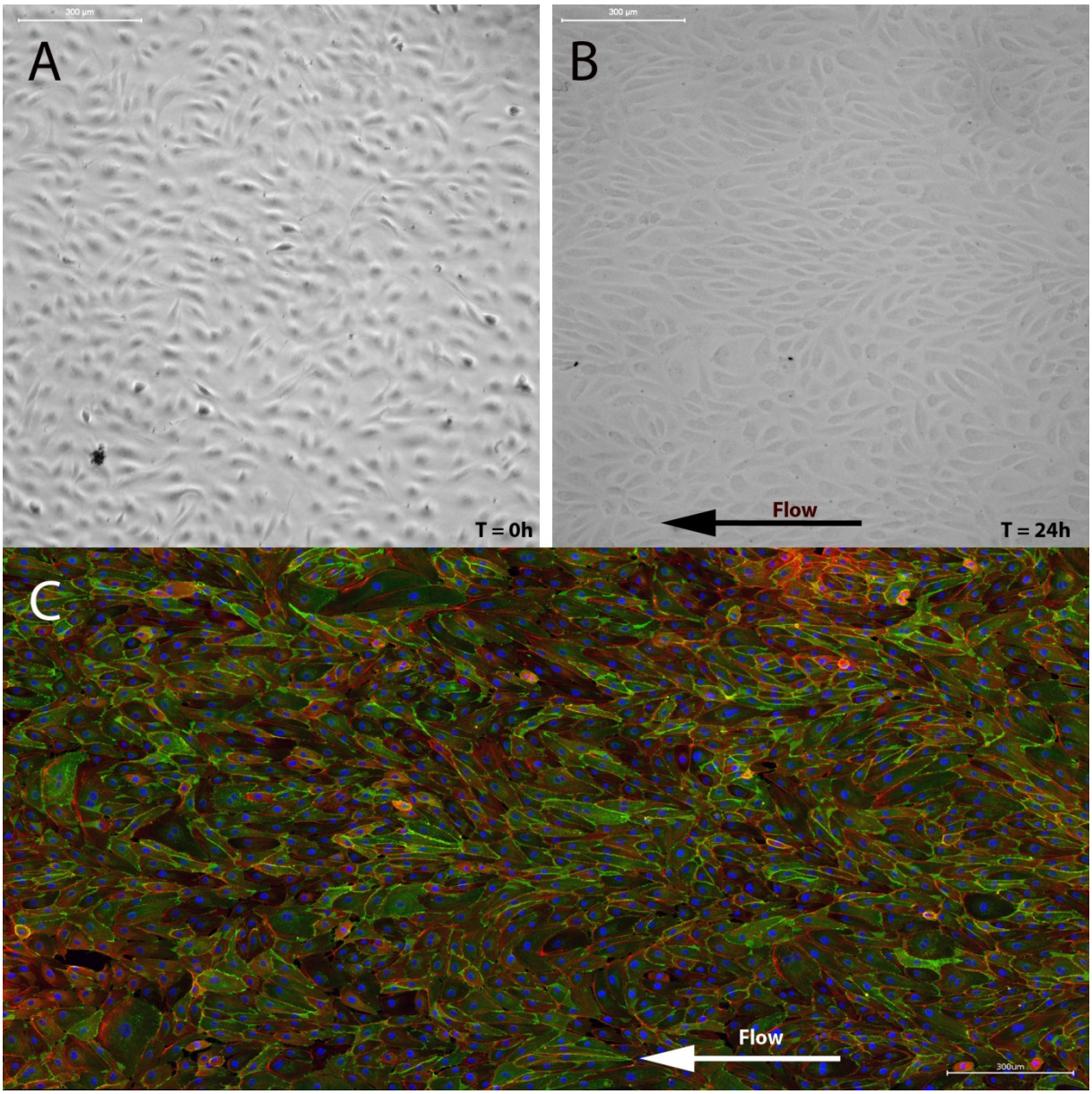

Supplemental figure 1. Characterization of PEGylated AuNPs.

PEGylated Gold nanoparticles (AuNPs) were characterized using dynamic light scattering (DLS; (A)) and ultra violet – visible spectroscopy (A + B). PEGylated AuNPs were diluted in different media (water, PBS, cell culture media (ECBM) without and with additives (supplement or 15 % serum).




**Supplemental figure 2.** E-selectin expression in HUVEC after PEGylated AuNP exposure.

HUVEC were treated with different concentrations of PEGylated AuNPs and the expressioln of E-selectin was quantified by CAM-EIA. Control cells were treated with the same amount of diluent. Lipopolysaccharide (LPS; 1 µg / mL) was used as positive control and set to 100% E-selectin expression. Data is presented in mean ± SD for five independent experiments. ***: $P < 0.001$ compared to the positive control (ONEway ANOVA with Dunnetts t-test).




**Supplemental figure 3**. HUVEC cultured under flow conditions.

HUVEC were seeded into fibronectin-coated µ-Slide VI 0.1 flow chambers. After 24 hours (A; T=0h) cells were imaged and cultured under flow for an additional 24 hours (B) or 72 hours (C). Cells were fixed and stained with anti-CD31 antibody (green) and actin fibers were stained with phalloidin (red). Nuclei were stained with Hoechst dye (blue). Scale bar: 300 µm.