

Supporting Information

Biodegradable nanoparticles meet the bronchial airway barrier: how surface properties affect their interaction with mucus and epithelial cells

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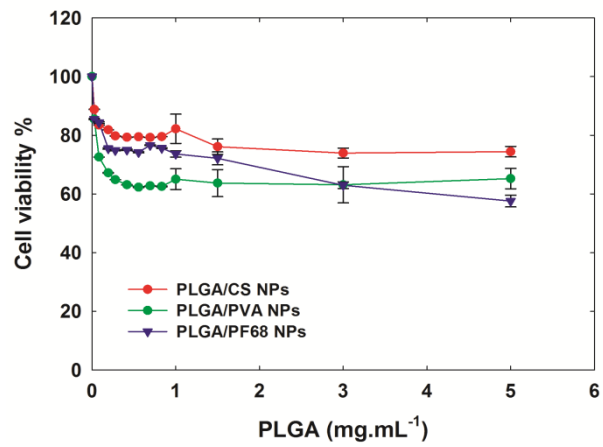


Figure S1. Calu-3 cells viability (MTT assay) after 72 h exposure to PLGA/CS, PLGA/PVA and PLGA/PF68 NPs (0.030–5 mg.mL⁻¹). Each experiment was repeated 8 times from 3 independent incubation preparations. Results are expressed as percentages of absorption for treated cells (\pm SD) in comparison with untreated control cells.

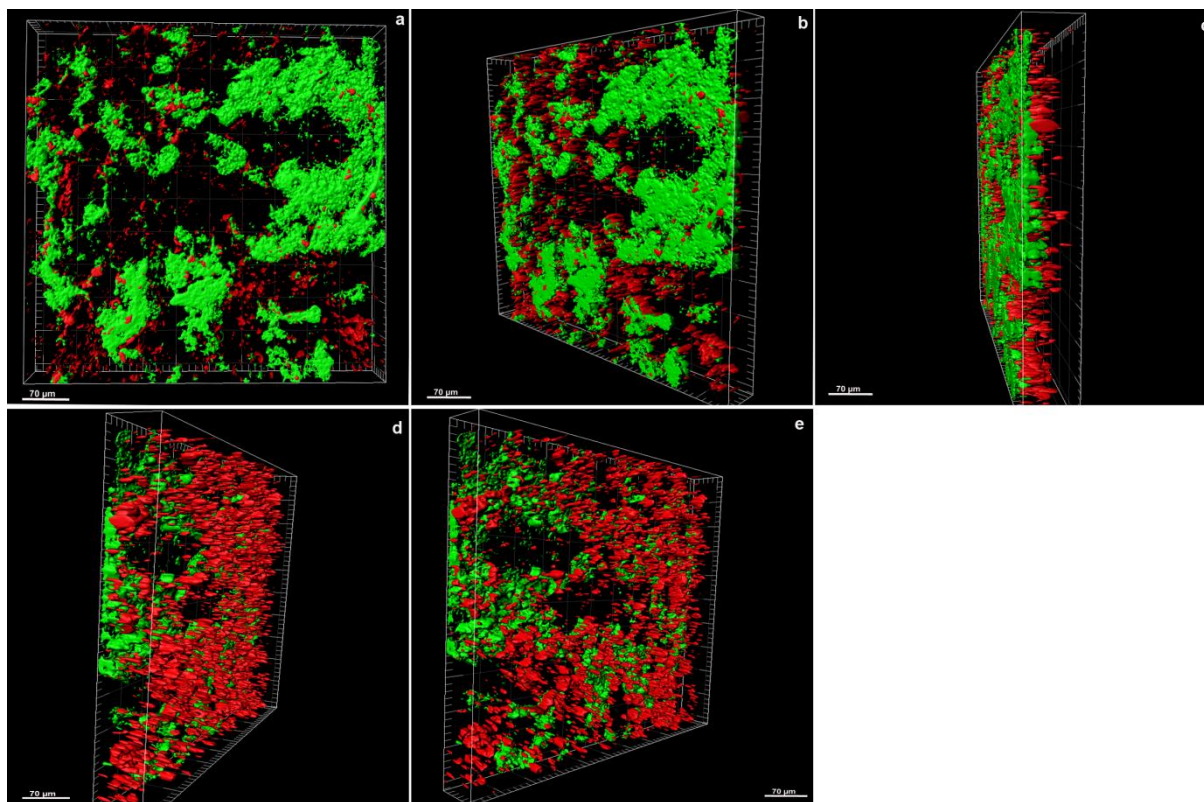


Figure S2. 3D-reconstruction of mucus staining and Rhod-PLGA/CS NPs penetration through the mucus layer covering the surface of confluent monolayers cultured at air / liquid interface on Transwell[®] inserts. Calu-3 cells were exposed to Rhod-PLGA/CS NPs at concentration of $0.2 \text{ mg}\cdot\text{mL}^{-1}$ for 24 h. Mucus layer was stained by incubation with Alexa Fluor[®] 488-labeled wheat germ agglutinin ($10 \text{ }\mu\text{g}\cdot\text{mL}^{-1}$). The cell layer supporting semi permeable membranes were visualised under a spectral confocal laser scanning microscope. The green fluorescence identifies the mucus which covers the cell surface, while the red fluorescent spots correspond to Rhod-PLGA NPs. Despite mucus covers completely the cell monolayer, only a part of the mucus has been represented in order to allow the visualization of entrapped and internalized NPs.

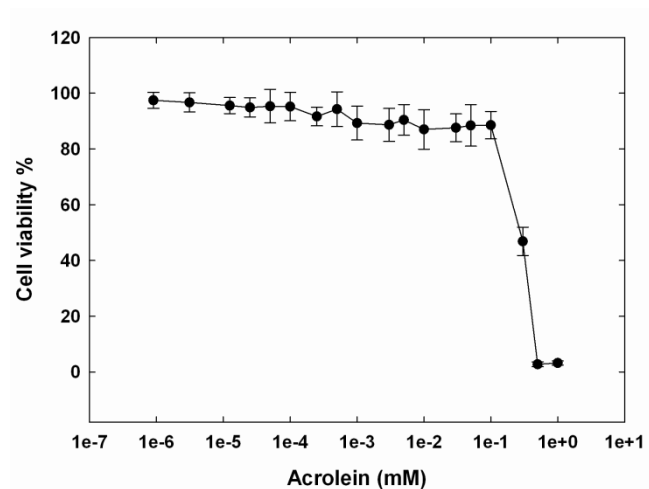


Figure S3. Calu-3 cells viability (MTT assay) after 72 h exposure to acrolein solutions. Each experiment was repeated 8 times from 3 independent incubation preparations. Results are expressed as percentages of absorption for treated cells (\pm SD) in comparison with untreated control cells.