

## Supplementary Figure Legends

**Figure S1: Optical microscopy of live primary microglia exposed to f-MWNTs.** Primary microglia enriched cell cultures were exposed during 24 h to a unique dose of ox-MWNTs (10  $\mu\text{g}/\text{mL}$ ) and then leaved for 30 days before live imaging. The same field of the microglia monolayer was imaged with phase contrast (i series) and bright field illumination (ii series). (a) Large field of the cell culture monolayer showing aspects of numerous MWNT-loaded cells in phase contrast (a-i) and in bright field (a-ii) where higher contrast reveals MWNT intracellular loading in black. (b) Close up on exposed microglia showing the perinuclear internalisation of MWNTs and the presence of microglia with elongated or spread shapes. The granular aspect of the MWNT loading suggests a vesicular accumulation, possibly in phagolysosomes. (c) Close up on exposed microglia showing perinuclear internalisation of MWNTs and the presence of microglia with elongated or round shapes.

## Supplementary Table

**Table S1: ID/IG band Raman spectra of functionalized MWNTs inside microglia.** Raman spectroscopy was performed on each selected spots within the single cell demarcations. Raman spectra were corrected for cell auto-fluorescence and normalized to G band intensity ( $I_G=1$ ). No significant difference between the different time points or nanotubes studied was observed.