Low Cytotoxicity and Genotoxicity of Two-Dimensional MoS_2 and WS_2

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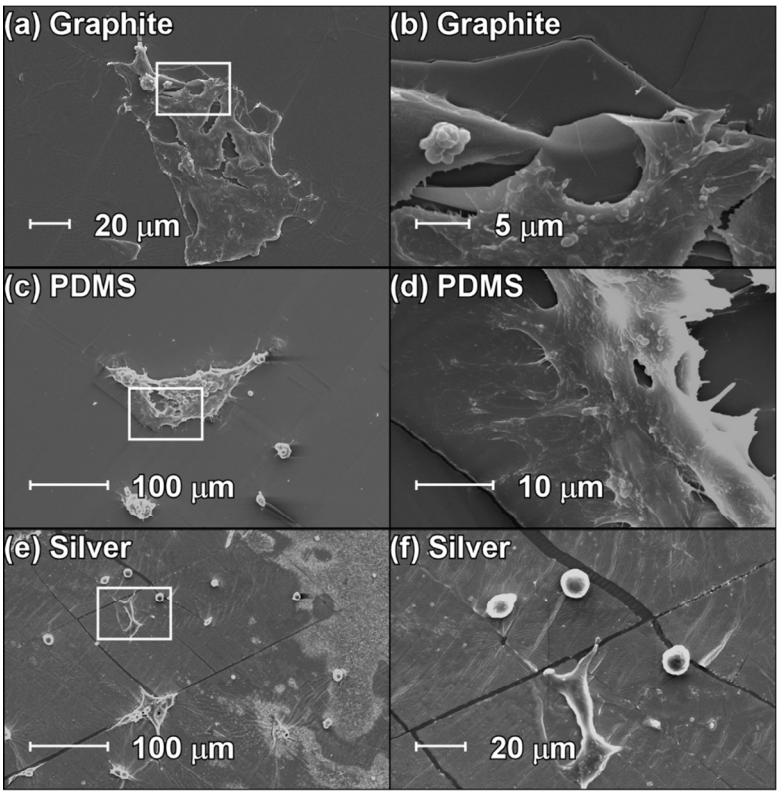
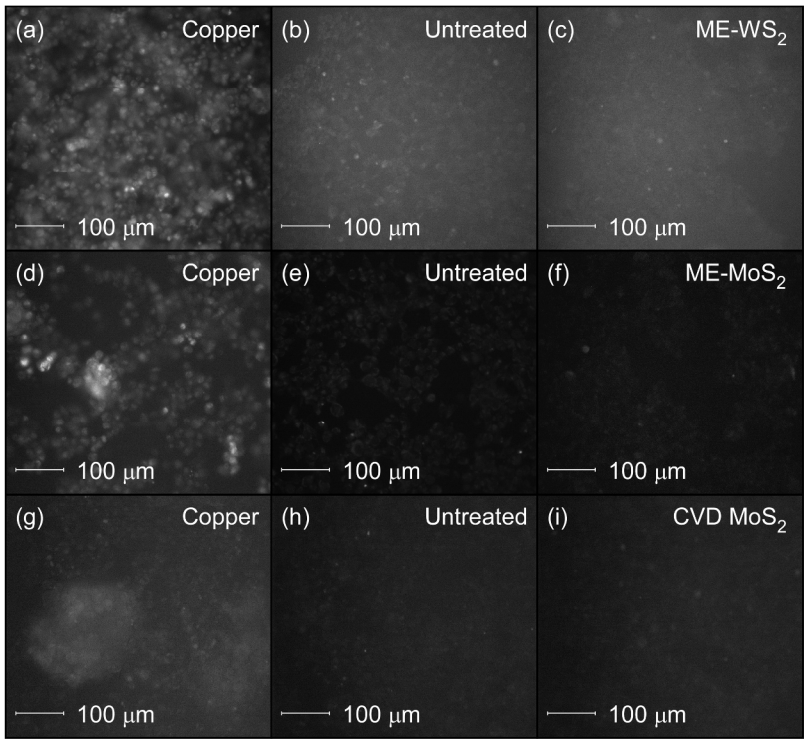
Four Pages

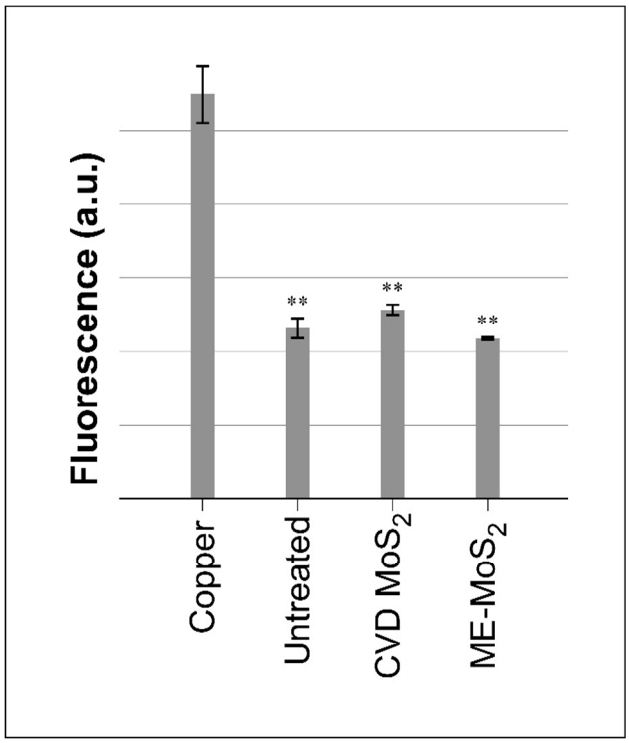
Five Supplemental Figures



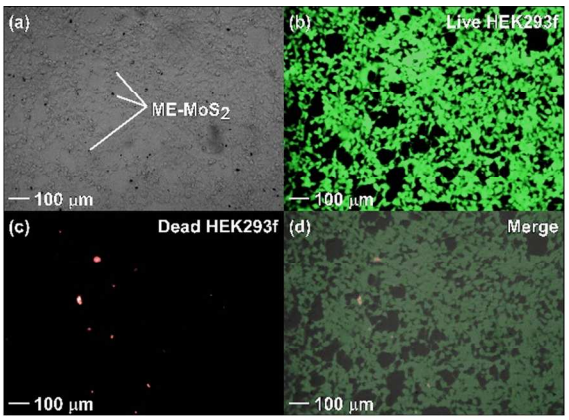
Supplemental Figure 1: Scanning Electron Microscopic images of control materials showing healthy cell morphology in the cases of graphite and PDMS and poor cell morphology in the case of silver. (a) and (b) HEK293f cells adhere to graphite flakes, (c) and (d) HEK293f cells adhere to PDMS substrate, (e) and (f) HEK293f cells adhere to sputtered silver substrate.



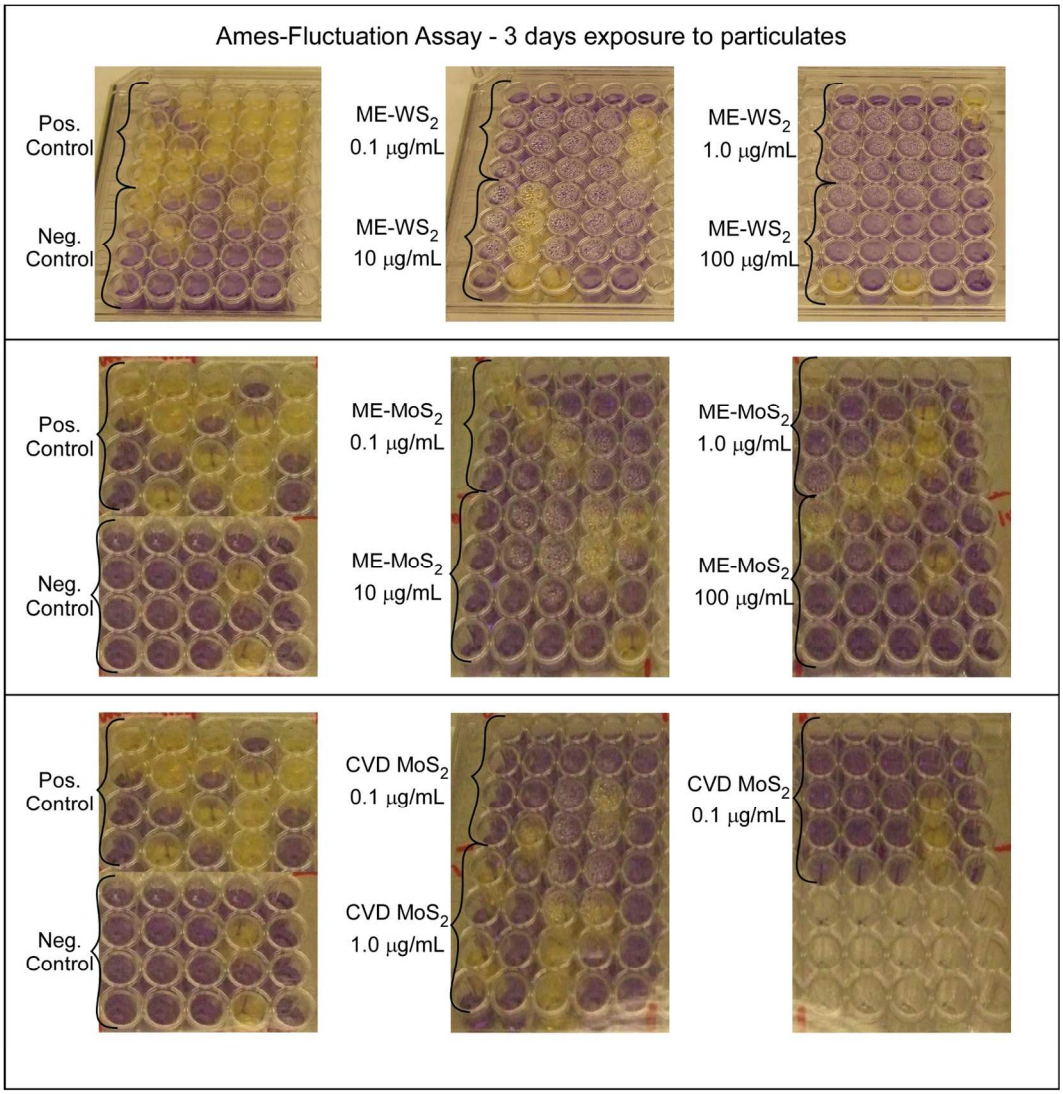
Supplemental Figure 2: Fluorescent images of HEK293f after exposure to various materials, (a, d, g) positive ROS inducing copper, (b, e, h) untreated cells, (c) ME-WS_2, (f) ME-MoS_2, and (i) CVD-MoS_2



Supplemental Figure 3: Fluorescence intensity plots measuring reactive oxygen species (ROS) generation for various TMD flakes/sheets, a copper positive control, and an untreated negative control. TMD flakes/sheets do not generate significant levels of ROS after 12 hours of exposure.



Supplemental Figure 4: Cellular viability assay showing fluorescence images of HEK293f cells in direct contact with particulates of ME-MoS_2 (a) optical image of particulates in contact with HEK293f cells, (b) live cells stained with green fluorescent calcein AM, (c) dead cells stained with red fluorescent ethidium homodimer-1 and (d) merge of (a), (b) & (c) showing the overall viability of cells exposed to particulates of ME-MoS_2



Supplemental Figure 5: Ames-Fluctuation assay after exposure to controls and various concentrations of ME-WS_2, ME-MoS_2 and CVD-MoS_2 showing that TMD particulates are non-mutagenic towards *S. typhimurium* TA100.