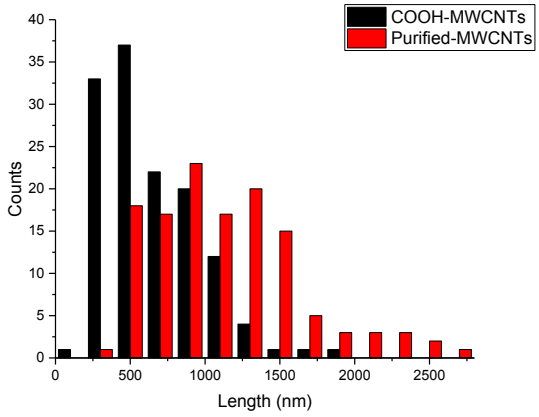
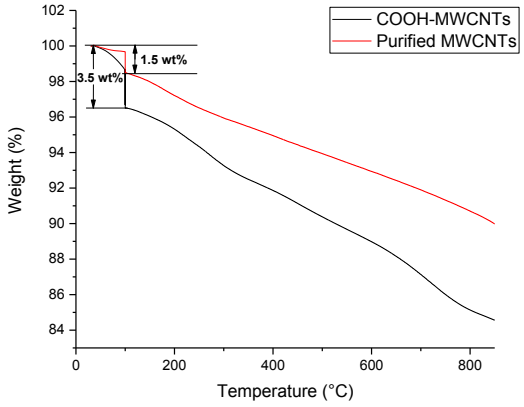
Electronic Supplementary Material (ESI) for Environmental Science: Nano.



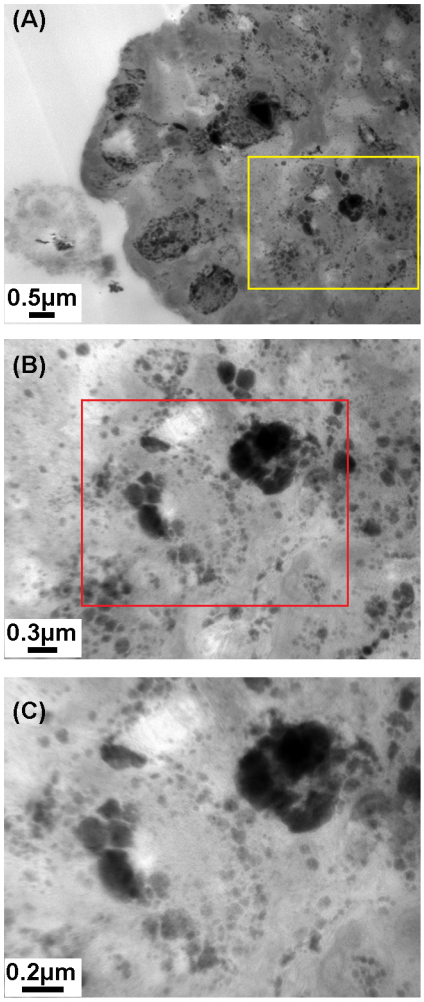
Supplementary Figure S1. The length distribution of COOH- and Purified-MWCNTs, obtained from over 100 SWCNTs imaged on independent positions across the specimen.



Supplementary Figure S2. TGA profile of COOH- and Purified-MWCNTs within the temperature range from 30 °C to 850 °C. The weight drop before and at 100 °C indicated moisture contents within the sample.

Supplementary Table S1. Elemental analysis by SEM-EDS and STEM-EDS.

Sample	SEM-EDS (wt%)				STEM-EDS (wt%)		
	C	O	Ni	Fe	C	O	Ni
Pristine-MWCNTs	94.9±0.8	3.3±0.3	1.2±0.9	0.7±0.2	99.4	0.3	0.2
COOH-MWCNTs	88.6±2.6	8±0.8	2.3±2.5	0.9±1.0	98.8	1.2	0



Supplementary Figure S3 Electron micrograph of the non-treated AM: (A) low magnification image of non-treated AM showing some dark stained of proteins, which normally found within the cytoplasm and vesicles. (B) A high magnification of region of interest in the yellow square in (A). (C) A high magnification of region of interest in the red square in (B) showing dark stain of proteins without contamination of MWCNTs.

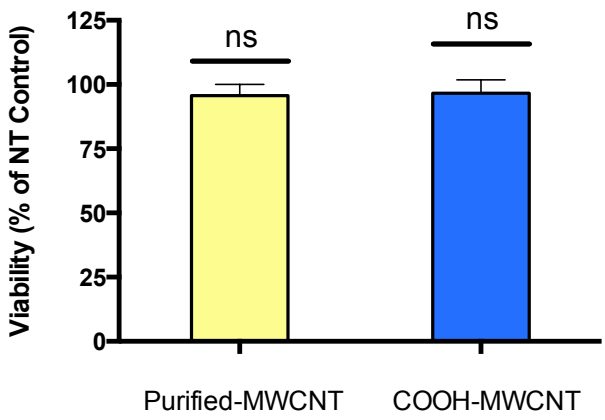


Figure S4 Viability of AMs, after 4 hour treatment with Purified-MWCNT and COOH-MWCNT, as determined by the MTS assay. Cell viability data is presented as a % of the non-treated (NT) control (n=6) ± SEM; significant differences between non-treated and treated AMs are indicated where *P < 0.05; ns = non-significant.

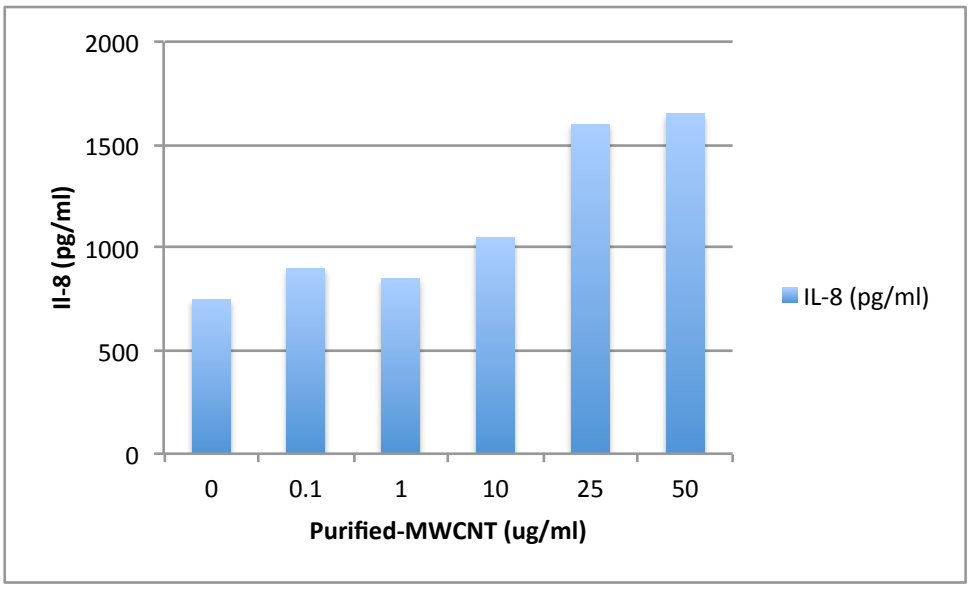
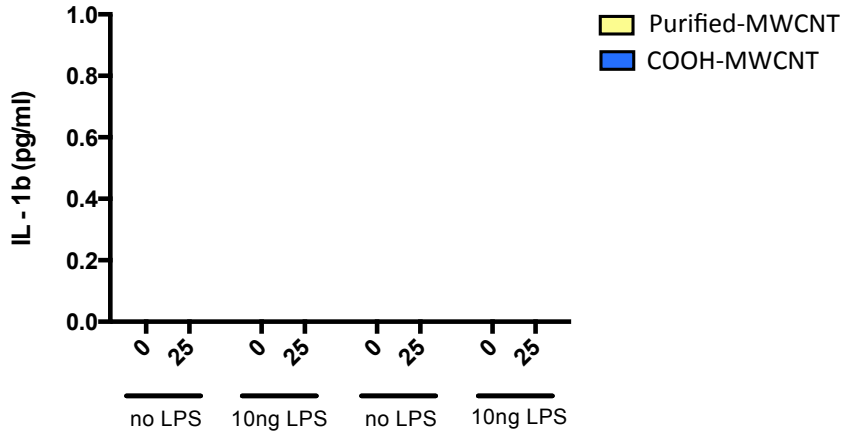


Figure S5 IL-8 release from LPS pre-treated AMs following exposure to Purified-MWCNT (1 – 50 μg/ml). The 25 μg/ml dose was chosen for further study because it induced the greatest magnitude of IL-8 release thus it would give us the best opportunity of seeing any differences in toxicity between the two MWCNT materials. 50 μg/ml caused a substantial reduction in cell viability, thus was not used.

(A)



(B)

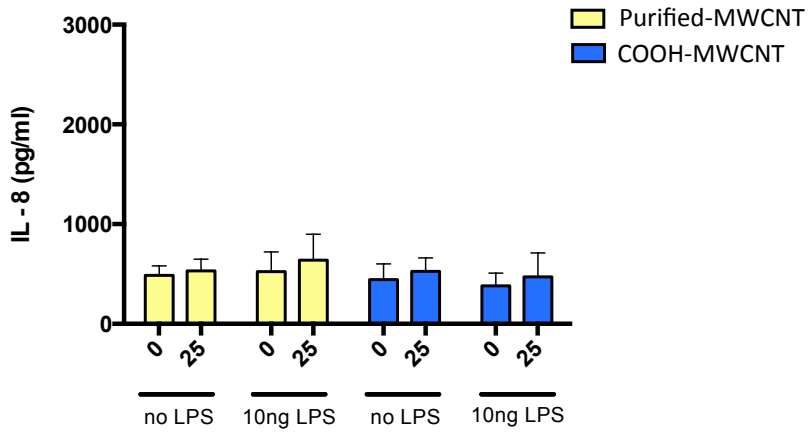


Figure S6 Inflammatory mediator release from MWCNT-treated AMs. IL-1b **(A)** and IL-8 **(B)** release from AMs (with and without LPS priming), after 4 hour treatment with Purified-MWCNT and COOH-MWCNT. Mediator release is presented as pg/ml (n=6) ± SEM; significant differences between non-treated and treated AMs are indicated where * $P < 0.05$ and ** $P < 0.01$.

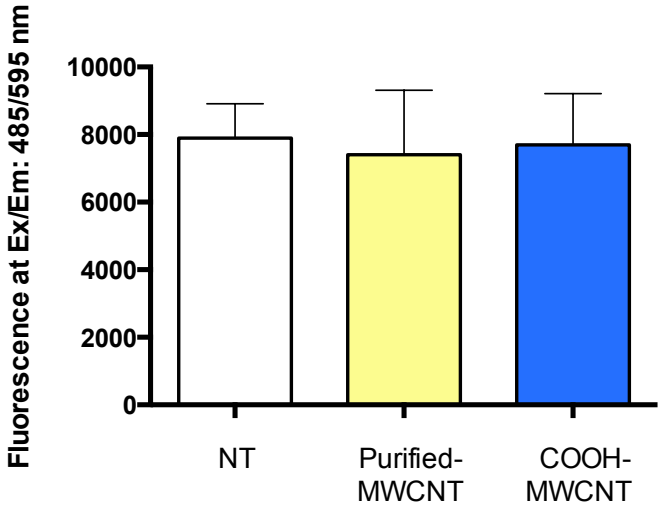


Figure S7 Lysosomal integrity (and/or lysosome numbers) of non-treated AMs and Purified-MWCNT and COOH-MWCNT treated AMs after 4 hours, determined by Lysotracker probe. Graphical representation of measured fluorescence at Ex/Em 485/595 nm is shown. n=6 ± SEM; significant differences between non-treated and treated AMs are indicated where *P < 0.05.

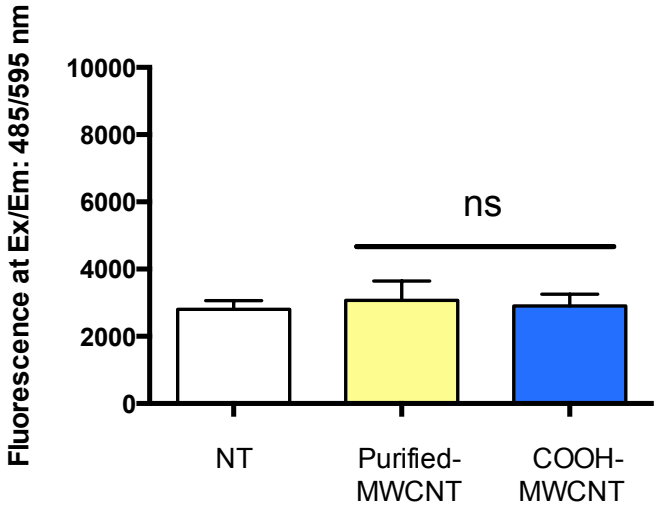
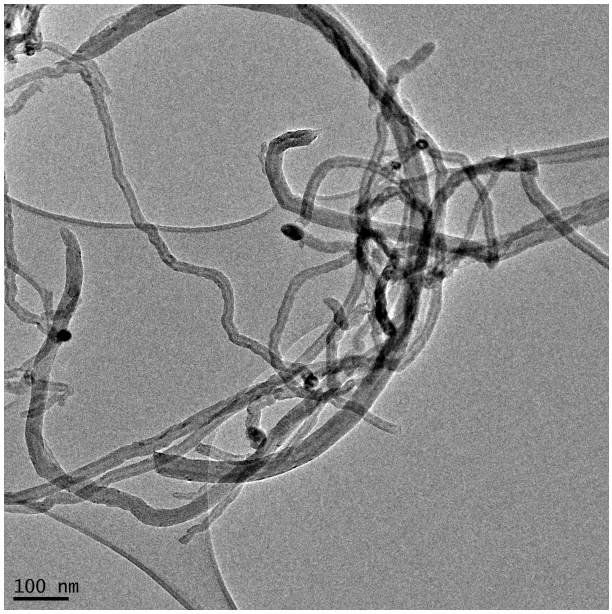
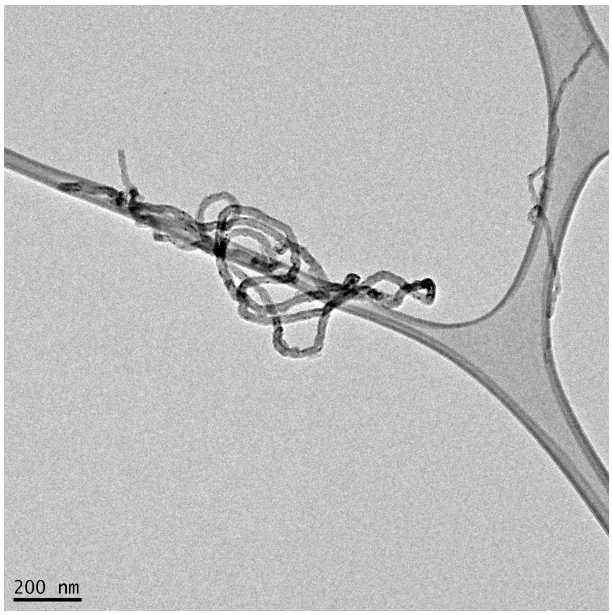


Figure S8 Generation of reactive oxygen species in AMs. ROS measured in AMs after 4 hour treatment with Purified-MWCNT and COOH-MWCNT, determined by the fluorescent DHE probe assay (Ex/Em 485/595); n=6 ± SEM; significant differences between non-treated and treated AMs are indicated where *P < 0.05; ns = non-significant.

(A)



(B)



Supplementary Figure S9 Electron micrograph overviews of (A) Purified-MWCNT and (B) COOH-MWCNT