Supplementary Information

Immunotoxicity of nanoparticles: carbon nanostructures can be recognized as pathogens by Toll-like receptors

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‡The Johns Hopkins University, Applied Physics Laboratory, Laurel, MD 20723, USA
Table S1. A panel of cytokine expressions for C60 and CNT.

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| C60 20 PI          | 0.165 | 0          | 0.07 | 0.045| 0.22 | 90    | 0.09  | 0      | 0      | 0      | 0      | 4.15   | 230.78 |
| C60 2 NO PI       | 0.2   | 0          | 0.09 | 0.055| 0.15 | 84.81 | 0.045 | 0      | 0      | 0      | 0      | 2.38   | 206.715|
| CNT 200 PI        | 0.195 | 0          | 0.03 | 0     | 0.36 | 84.775| 0.075 | 0      | 0      | 0      | 0      | 1.655  | 204.385|
| CNT 20 NO PI      | 0.175 | 0          | 0.04 | 0     | 0    | 84.7  | 0.09  | 0      | 0      | 0      | 0      | 1.64   | 214.49 |
| CNT 2 NO PI       | 0.17  | 0          | 0.06 | 0    | 0.26 | 87.33 | 0.075 | 0      | 0      | 0      | 0      | 1.655  | 223.72 |
| C60 200 NO PI     | 0.165 | 0          | 0.05 | 0    | 0.26 | 82.525| 0     | 0      | 0      | 0      | 0      | 0.535  | 203.045|
| C60 20 NO PI      | 0.175 | 0          | 0.07 | 0    | 0.15 | 78.02 | 0     | 0      | 0      | 0      | 0      | 0.27   | 183.36 |

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<p>| C60 2 NO PI | 0.18 | 0 | 0 | 0.05 | 0 | 0 | 77.56 | 0 | 0 | 0 | 0 | 0 | 0.915 | 189.465 | 0 | 0.765 |
| CNT 200 NO PI | 0.165 | 0 | 0 | 0.03 | 0 | 0.36 | 71.79 | 0.025 | 0 | 0 | 0 | 0 | 0 | 0.73 | 183.995 | 0 | 0.81 |
| CNT 20 NO PI | 0.185 | 0 | 0 | 0.03 | 0 | 0.08 | 78.185 | 0 | 0 | 0 | 0 | 0 | 0.46 | 196.05 | 0 | 0.765 |
| CNT 2 NO PI | 0.17 | 0 | 0 | 0.05 | 0 | 0.08 | 76.465 | 0 | 0 | 0 | 0 | 0 | 0.73 | 193.24 | 0 | 0.765 |
| NO CELLS | 0.16 | 0 | 0 | 0.03 | 0.03 | 0.15 | 41.66 | 0.025 | 0 | 0 | 0 | 0 | 0.46 | 147.3 | 0 | 0.44 |
| POS CONT | 0.125 | 0 | 0 | 0.06 | 0 | 0.26 | 55.175 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135.25 | 0 | 0.35 |
| NEG CONT | 0.17 | 0 | 0 | 0.05 | 0 | 0.29 | 73.75 | 0 | 0 | 0 | 0 | 0 | 0.46 | 196.415 | 0 | 0.63 |
| VEHICLE CONT | 0.17 | 0 | 0 | 0.02 | 0 | 0.08 | 77.835 | 0 | 0 | 0 | 0 | 0 | 1.085 | 197.575 | 0 | 0.72 |
| LPS CONT | 0.175 | 0 | 0 | 0.05 | 0 | 0.15 | 73.645 | 0.045 | 0 | 0 | 0 | 0 | 0.915 | 213.97 | 0 | 0.99 |
| C60 200 PI | 0.21 | 0 | 0 | 0.14 | 0.38 | 0.25 | 109.57 | 0 | 0 | 0.395 | 0 | 0 | 2.66 | 297.805 | 0 | 1.45 |
| C60 20 PI | 0.185 | 0 | 0 | 0.1 | 0.295 | 0.46 | 112.4 | 0 | 0 | 0.245 | 0 | 0 | 3.69 | 269.17 | 0 | 1.525 |
| C60 2 PI | 0.17 | 0 | 0 | 0.09 | 0.26 | 0.16 | 102.22 | 0 | 0 | 0.26 | 0 | 0 | 1.985 | 238.5 | 0 | 1.375 |
| CNT 200 PI | 0.165 | 0 | 0 | 0.12 | 0.185 | 0.33 | 93.265 | 0 | 0 | 0.245 | 0 | 0 | 0.675 | 227.845 | 0 | 1.15 |
| CNT 20 PI | 0.165 | 0 | 0 | 0.09 | 0.2 | 0.25 | 101.99 | 0 | 0 | 0.265 | 0 | 0 | 1.485 | 244.29 | 0 | 1.225 |
| CNT 2 PI | 0.18 | 0 | 0 | 0.1 | 0.305 | 0.08 | 111.74 | 0 | 0 | 0.245 | 0 | 0 | 2.49 | 264.81 | 0 | 1.3 |
| C60 200 NO PI | 0.165 | 0 | 0 | 0.08 | 0.315 | 0.04 | 86.325 | 0 | 0 | 0.25 | 0 | 0 | 0.415 | 219.07 | 0 | 1.23 |
| C60 20 NO PI | 0.18 | 0 | 0 | 0.1 | 0.165 | 0.08 | 78.955 | 0 | 0 | 0.24 | 0 | 0 | 0.74 | 190.98 | 0 | 1.3 |
| C60 2 NO PI | 0.155 | 0 | 0 | 0.08 | 0.14 | 0.08 | 78.17 | 0 | 0 | 0.235 | 0 | 0 | 1.075 | 195.955 | 0 | 1.15 |
| CNT 200 NO PI | 0.165 | 0 | 0 | 0.08 | 0.12 | 0.21 | 73.685 | 0 | 0 | 0.23 | 0 | 0 | 0.1 | 185.455 | 0 | 1.08 |
| CNT 20 NO PI | 0.15 | 0 | 0 | 0.1 | 0.135 | 0.08 | 78.68 | 0 | 0 | 0.25 | 0 | 0 | 0.515 | 183.15 | 0 | 1.115 |
| CNT 2 NO PI | 0.155 | 0 | 0 | 0.1 | 0.205 | 0.33 | 87.605 | 0 | 0 | 0.25 | 0 | 0 | 2.105 | 198.975 | 0 | 1.23 |
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| POS CONT | 0.135 | 0 | 0 | 0.09 | 0.03 | 0 | 70.355 | 0 | 0 | 0.255 | 0 | 0 | 0 | 180.035 | 0 | 0.79 |
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| VEHICLE CONT | 0.165 | 0 | 0 | 0.1 | 0.14 | 0.12 | 83.895 | 0 | 0 | 0.27 | 0 | 0 | 0.2 | 243.81 | 0 | 1.08 |
| LPS CONT | 0.17 | 0 | 0 | 0.08 | 0.135 | 0.16 | 92.815 | 0 | 0 | 0.28 | 0 | 0 | 1.33 | 279.16 | 0 | 1.01 |
| C60 200 PI | 0.31 | 0 | 0.2 | 0.05 | 0.18 | 0.3 | 112.5 | 0.3 | 0.18 | 0.33 | 0 | 0 | 0 | 230.325 | 0 | 0.16 |
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</tbody>
</table>

| LOD           | 0.6   | 1.6 | 0.7 | 0.6  | 2.6   | 1.1  | 1.03 | 3.5  | 0.7  | 3.3  | 1.7  | 2.2  | 6.4  | 1.1  | 2.4  | 6    |

Highlighted cells are above LOD
Figure S1. IL-8 and MCP-1 concentration for C60 and CNTs after 24H, 48H and 72H of exposition.
Figure S1. Continuation