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Host: Dr. Maurizio Prato

Nanotoxicology: does it matter how cells die?

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Engineered nanomaterials hold tremendous potential in numerous areas in society not least in medicine. Safety assessment of nanomaterials is therefore of paramount importance. To date, toxicological studies of nanomaterials have focused largely on the assessment of cell viability/cell death using simple assays for the detection of plasma membrane integrity and/or mitochondrial function. However, it is relevant to consider not only whether cells are dead or alive but also whether specific pathways of cell death are engaged by nanomaterials. This may ultimately lead to a better prediction of the potential risks associated with nanomaterial exposure and may also facilitate mechanism-based high-throughput screening of nanomaterial toxicity. Furthermore, a better understanding of how nanomaterials elicit cell death may enable the use of such materials as therapeutics per se (i.e., not only as delivery vehicles).

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Literature:

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