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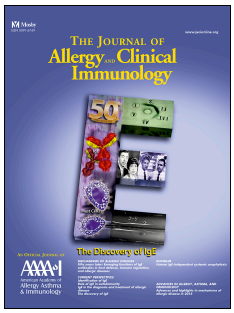

Assessing the Impact of Engineered Nanomaterials on the Environment and Human Health

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Title: Assessing the Impact of Engineered Nanomaterials on the Environment and Human Health

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Engineered nanomaterials (ENs) comprise a diverse suite of structures manufactured from a range of distinct components that are having an ever-increasing number of applications in industry, commerce and medicine (Figure 1). ENs reported to be produced in the largest quantities include TiO_2, SiO_2, ZnO, AlO_x, FeO_x, silver, carbon nanotubes, fullerenes and quantum dots, at levels ranging from 0.5 – 5,500 tonnes/year worldwide [1]. The negative impact of ENs on the environment and human health due to off-target effects is of major concern and requires ongoing investigation. A recent database (NanoE-Tox), compiled from 224 articles published over the preceding decade, was created in order to obtain an overview of the environmental effects of eight chemically distinct ENs where toxicity toward crustaceans (*Daphnia magna*), fish, algae or bacteria was the primary readout [2]. The purposes of such databases are to: 1) gain an understanding of the relative toxicities of various ENs and how these relate to their physicochemical properties, 2) decipher the mechanism(s) by which their