Data quality: reliable and robust methodology for HTS in Nanomedicine

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Engineered nanomaterials (ENMs), due to their unique properties, contribute considerably to new and exciting commercial products of daily use. However, these same properties may also be responsible for having unintended and potentially harmful effects on the human health and on the environment. In the last 15 years a new field of research has been established: NanoSafety research is aiming to identify potential adverse effects as soon as possible to and so avoiding any social or economic drawbacks. The gained knowledge in NanoSafety is rather limited [1] despite the immense number of published data to a variety of ENMs. The reasons are manifold and addressed in many commentaries and reviews [2]. An important consideration in developing standards and regulations governing the production and usage of commercial ENMs is the development of robust and reliable measurements that are able to accurately support risk-benefit models. Standardization and assay quality controls should be implemented to increase the comparability of the obtained toxicological results. Such measures are common in the areas of analytical and clinical chemistry [2-3]. A systematic approach is cause-and-effect analysis that has been used successfully to identify sources of variability in analytical assays. Here we present in a prove of concept, the direct application of such an analysis to a frequently used cell based viability assay in nanotoxicology, the MTS assay, together with some of the outcome elaborated in an interlaboratory comparison study.

References (if necessary).

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