

Special Issue on
Microfluidic Technology for Nanotoxicological Studies

CALL FOR PAPERS

Ubiquitous usage of nanomaterials across a broad spectrum of technologies and disciplines is likely to pose potential risks to the environmental and human health. Alongside the several benefits, nanomaterials are emerging as a matter of high concern because of their potential hazards and safety issues. The field of nanotoxicology deals with the toxic effects of nanomaterials at both the cellular and physiological levels. While there has been a substantial rise in the nanotoxicological studies over the past few decades, the overall outcome of the research efforts appears to be inconsistent due to the lack of standard measurement tools and appropriate testing methods. Recent progress in microfluidic technology has shown tremendous potential in recreating tissue- and organ-level models for nanotoxicity-based studies. Notably, the wide application of microfluidic platform is mainly attributed to its abilities to imitate the physiological condition in vivo very closely and to integrate the various functional units within a single miniaturized system. As a result, microfluidics-controlled cells based systems seem to provide near physiological in vitro models that may serve as attractive alternatives to the live tissues or organs. Hence, an exploration of the microfluidic technology in nanotoxicological studies would be certainly interesting and may provide new avenues to facilitate the deeper understanding of the mechanism of nanotoxicity at a physiological scale.

We invite the authors to submit high-quality original research articles that primarily exploit the microfluidic technology for the enrichment of knowledge pertaining to the thorough understanding of nanotoxicity. Also, this special issue intends to cover full-length review articles that are focused on state-of-the-art microfluidic models and strategies to facilitate the assessment of nanotoxicity in a physiologically relevant environment.

Potential topics include but are not limited to the following:

- Challenges associated with the nanotoxicological examinations
- Impact of nanomaterials on health
- Opportunities for microfluidic technology in nanotoxicological studies
- Mechanisms of nanomaterials-induced toxicity from production to end users
- Physiological relevance of tissue-on-chip and organ-on-chip models for nanotoxicity examinations
- Identification of biomarkers and the detection methods suitable for the monitoring of cellular responses upon exposure to nanomaterials in a microfluidic environment

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/jt/mtns/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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