

Tentative Outline

Special Thematic Issue for the Current Drug Metabolism

Title of the Thematic Issue: Tissue Distribution and Metabolism of Microparticles and Nanoparticles and Medical Implants

Executive Guest Editor's Name: Dr. Yajun Shuai

Scope of the Thematic Issue:

With the continuous advancement of modern science and engineering, numerous functional materials and active molecules have been developed and utilized in various industrial, medical, and food applications. Many of these can enter the body, either actively or passively, and have significant and intricate impacts on human health. For example, biomaterials can be actively implanted in the body to repair damaged tissues. Micro/nanoparticles can penetrate tissues through active means, such as drug carriers, or passive means, such as viruses, dust, and microplastics, and can have an impact on health. Therefore, to safely apply these new materials and make accurate clinical predictions, it is necessary to have a comprehensive understanding of their interactions with cells and organisms.

Keywords: biomaterial implants, inhalation, microplastics, biodegradation, gut microbiota, nanotoxicology, pharmacokinetics.

Sub-topics:

- Nanomaterials on cell or tissue metabolism
- Drug screening and toxicology evaluation
- Cell-biomaterial interaction
- Regulation of gut microbiome by materials
- Degradation of biomaterials *in vitro* and *in vivo*
- Evaluation of the efficacy and safety of biomaterials
- Advanced imaging and detection methods for metabolites
- Effect of materials on engineered 2D/3D cellular microenvironments.

Tentative titles of the articles:

1. Developmental toxicity of microplastics to mammalian embryos.
2. Health effects of toxic drug exposure.
3. Biomaterials safety in biomedical designs.
4. Micro- and nano-plastics induce oxidative stress *in vivo*.
5. The relationship between the metabolism of biomaterials *in vivo* and the promotion of tissue regeneration.
6. Effects of nanoparticles on the gut microbiome.
7. Tracing and pharmacokinetics of nanoparticles *in vivo*.
8. Effect of polystyrene nanoplastics on tissues.
9. Effect of medical implants on metabolic profiles and oxidative stress.
10. Nano & Micro Materials in Healthcare.

Schedule:

✧ Thematic issue submission deadline: 30th April 2024.

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