

Special Issue on  
**Intratumoral Trafficking of Nano-Based Drug Delivery Systems**

# CALL FOR PAPERS

Nano-based drug delivery system (DDS) is an important tool in cancer treatment, which can specifically deliver diagnostic and therapeutic agents to tumor sites. Thanks to the evolution of numerous novel DDS formulations, the field has witnessed a significant improvement in delivery efficiency and antitumor efficacy during the past decades. Most studies were able to establish an increase in overall uptake of DDS in tumor by either advanced imaging techniques or postmortal analyses. However, how these DDS formulations are transported inside tumor after they extravasate from the blood vessels remains largely unclear. Elucidation of the intratumoral trafficking of DDS will answer several key questions in the field of oncology. For example, many solid tumors lack sufficient or functional intratumoral vasculature, for example, pancreatic ductal adenocarcinoma. DDS needs to travel a considerable length inside the viscous interstitial fluid before it can deliver chemotherapy drugs to tumor cells. Another example lies in the therapeutic cargos of DDS, especially the oligonucleotides that exert their functions inside the cytosol of tumor cells. Considering the high viscosity of interstitial fluid and large size of DDS formulations (compared to small molecules), the intuitive diffusion may not be sufficient to deliver DDS throughout the tumor mass and eventually into tumor cells. Hence, this special issue is dedicated to the recent studies on the intratumoral trafficking behaviors of DDS.

We invite the researchers to contribute their original research work or review articles that are related to the delivery behaviors of DDS. We encourage studies that integrate both material science and tumor biology and especially welcome those that have direct impact on clinical translation, including tumor biology and physiopathology studies that describe vascular differences among different tumor types and the optimal targeting strategy for each tumor type. In particular, biological illustration of treatment-induced vascularization and the mechanisms of extravasation and perfusion are encouraged, since they are not well understood by formulators of chemistry background. We welcome multidisciplinary reviews on the signaling pathways with potential impact on the intratumoral trafficking of DDS. Such reviews will provide a clear overview of this field to the readers, so that the broad community will have a better appreciation of the research advances in drug delivery. Modern theranostic approaches that combined multiple therapeutic and diagnostic modalities for tumor treatment are also encouraged. Both active and passive targeting approaches are welcome. Studies with clinical data are especially encouraged. Opinions on the translation of DDSs clinical application as well as considerations on the balance between safety risks and beneficial efficacy are welcome, too. Summary on the regulatory aspects of clinical trials in oncology will provide useful insights into the right balance between the expectations of a specific DDS and the real opportunities it may have toward clinics.

Potential topics include but are not limited to the following:

- ▶ Interaction between DDS and complement system
- ▶ Immunotherapeutic drug delivery systems for cancer intervention
- ▶ Delivery systems targeted to the tumoral tissue
- ▶ Cell-mediated delivery of diagnostic agents
- ▶ Interventional techniques that facilitate intratumoral trafficking of DDS
- ▶ Advanced imaging approaches to monitor the intratumoral behavior of DDS

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

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

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