

Special Issue

Precision Local Drug Delivery: From Formulation Design to Local Bioavailability Assessment

Message from the Guest Editor

Recent advances in formulation science, materials engineering, and biopharmaceutics have expanded the potential of locally acting systems across diverse administration routes, including dermal, ocular, pulmonary, nasal, rectal, and vaginal. These locally acting systems are designed to overcome physiological barriers, achieve site-specific retention, and provide controlled drug release. Emerging formulation strategies, such as microneedles, 3D-printed dosage forms, or mucoadhesive systems, enable tailored local drug delivery and improved therapeutic outcomes for both small and large molecules. Conversely, progress in in vitro performance testing, such as in vitro drug permeation, in vitro–in vivo correction, and regulatory science continues to refine our understanding of bioavailability and bioequivalence for locally acting dosage forms.

This Special Issue highlights recent innovations, methodologies, preclinical and clinical studies related to the design, characterization, and evaluation of various locally acting dosage forms.

Guest Editor

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