Special Issue

Intelligent Microfluidic Biosensing

Message from the Guest Editor

The convergence of microfluidics and intelligent technologies is opening new frontiers in biosensing. Microfluidic systems offer precise, low-volume, and high-throughput handling of biological samples, enabling portable and cost-effective platforms for real-time analysis. When combined with intelligent components—such as machine learning, advanced signal processing, and IoT connectivity—these systems become powerful tools for rapid, sensitive, and automated biosensing. This Special Issue focuses on the latest advancements in intelligent microfluidic biosensing, highlighting interdisciplinary efforts in device design, sensing strategies, and data-driven analysis. We welcome original research and review articles on topics including lab-on-a-chip platforms, wearable or implantable microfluidic biosensors, AI-assisted detection of biomarkers, and integrated systems for point-of-care diagnostics. Applications may range from clinical testing and infectious disease monitoring to food safety and environmental sensing. This Special Issue aims to showcase how the integration of intelligence into microfluidic biosensing is driving the development of next-generation diagnostic technologies.

Guest Editor

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Message from the Editor-in-Chief

Biosensors is a leading journal, devoted to fast publication of the latest achievements, technological developments and scientific research in the exciting multidisciplinary area of biosensors. Both experimental and theoretical papers are published, including all aspects of biosensor design, technology, proof of concept and application. Special issues are devoted to specific technologies and applications, and a selection of the most outstanding papers each year is recognized. Pushing the boundaries of the discipline, we invite original papers, as well as timely reviews on cutting edge fields within the subject area.

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