

Special Issue

Interdisciplinary Advances: Lab-on-a-Chip Biosensors Shaping Precision Diagnosis

Message from the Guest Editors

Lab-on-a-Chip (LOC) technology enables the miniaturization and integration of diverse laboratory processes, including chemical analysis and biomarker detection, onto compact microfluidic chips. By combining microfluidics, biomedical micro-electromechanical systems (bio-MEMS), and micro total analysis systems (μ TAS), LOC platforms offer precise control of fluids and reactions at the micro/nanoscale, enabling more rapid, precise, and cost-effective diagnostics for clinical and biochemical applications. In recent years, LOC biosensors and their associated microsystems, including bio-MEMS and μ TAS, have emerged as transformative tools for precision diagnosis, supporting applications such as pathogens detection, cancer diagnostics, drug discovery, and personalized medicine. This Special Issue invites contributions that highlight novel designs, fabrication methods, and interdisciplinary approaches aimed at enhancing LOC biosensor performance and translating these technologies into practical healthcare solutions.

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Deadline for manuscript submissions

31 May 2026



Biosensors

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Impact Factor 5.6
CiteScore 9.8
Indexed in PubMed



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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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