Special Issue

Recent Advances and Challenges in Development of Whole Cell Biosensors

Message from the Guest Editors

Whole cell biosensors (WCBs) have emerged as powerful analytical tools for environmental monitoring, healthcare diagnostics, pharmaceutical screening, and synthetic biology applications. These living sensor platforms, leveraging the biological recognition capacities of microbial or eukaryotic cells, offer remarkable advantages in selectivity, adaptability, and cost-effectiveness. However, despite notable progress in genetic engineering, materials interfacing, and electrochemical transduction, critical challenges remain in terms of long-term stability, response time, multiplexed detection, and standardization for real-world deployment. This Special Issue, *"Recent Advances and Challenges in Development of Whole Cell Biosensors"*, aims to present cutting-edge research and comprehensive reviews addressing both fundamental innovations and translational barriers in the field. Topics of interest include, but are not limited to, novel strategies for cell immobilization, synthetic and natural biorecognition design, transduction technologies (optical, electrochemical, and hybrid), and applications across agriculture, toxicology, and biomedical diagnostics.

Guest Editors

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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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