Special Issue

Point-of-Care Testing Based on Biosensors and Biomimetic Sensors

Message from the Guest Editor

This Special Issue covers the use of biosensors and biomimetic platforms in point-of-care (POC) testing, focusing on their potential and challenges in clinical diagnostics. Immune and enzyme sensors, using specific antigen–antibody or enzyme–substrate interactions, are combined with signal transducers (optical, electrochemical, acoustic) for rapid, accurate diagnosis. These sensors offer high sensitivity and specificity for detecting biomarkers and pathogens. The integration of biomimetic technologies like molecularly imprinted polymers (MIPs), nanoenzymes, and aptamers enhances stability, selectivity, and cost-efficiency. These advancements improve sensor performance, enabling precise detection in complex samples. The issue also highlights trends in biosensor and biomimetic integration, with an emphasis on multiplexing, portability, and user-friendliness for broader clinical use. Challenges in standardization, cost, and stability remain, and future research will focus on optimizing these technologies for widespread clinical application.

Guest Editor

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