

Special Issue

Aptamer-Based Molecular Recognition: State-of-the-Art and Future Perspectives

Message from the Guest Editor

Aptamers, synthetic single-stranded nucleic acids capable of highly selective molecular recognition, have emerged as versatile tools for probing and controlling biological systems. Their advantages, including predictable synthesis, chemical tunability, structural flexibility, and low immunogenicity, make them attractive alternatives or complements to antibodies and small molecules. As the demand grows for precise recognition elements in diagnostics, therapeutics, and biotechnology, aptamer research continues to expand and evolve. This Special Issue is devoted to recent advances and emerging directions in this dynamic field. Areas of interest include new SELEX methodologies, aptamer structural and mechanistic insights, chemical modifications for enhanced affinity and stability, and integration with nanomaterials, biosensing platforms, and imaging technologies. Studies contributing to research on therapeutic aptamers, targeted delivery systems, computational design, and translational challenges are encouraged.

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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