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Biosensors: The Future of Diagnostics

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Editorial

Biosensors are biological sensing molecules with diverse applications in modern biotechnology for the detection of enzymes, toxins, chemicals and most importantly, pathogens. Biosensors are widely used in various fields like food industry to check the quality and safety; in health care sector for the early detection of heart diseases, lung infections, urinary tract infections and rapid identification of pathogens; in pharmaceutical field for drug discovery. Recently, Carbon nanotube based biosensor has been developed for multiplex detection of foodborne pathogens, especially *E. coli* and *S. aureus* with an assay time of 1 min. *S. aureus* and *S. typhimurium* are also detected from food samples by a dual-excitation sensing method with detection limits of 16 cfu/ml and 28 cfu/ml respectively. Biosensors have also spread their way into the detection of neurogenerative disorders. SPR biosensing method has been used in detecting Aβ42 and Aβ40 levels in serum, biomarkers for Alzheimers disease with a detection limit of 20pM; In the recent times, biosensors played a vital role in diagnosing UTIs and detecting the associated uropathogen, which helped in prescribing an appropriate antibiotic treatment.

Although maximum microbes play a significant role in environment, potentially pathogenic microorganisms contaminate environment, and cause contagious infections in both animals and humans. Conventional microbial contamination detecting methods lacks increased sensitivity and selectivity and their slow pace makes them highly undesirable. Hence, innovative techniques with novel approaches have to be developed owing to its miniaturization, low cost, portability, instant diagnostics and abundant marketable applications.

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