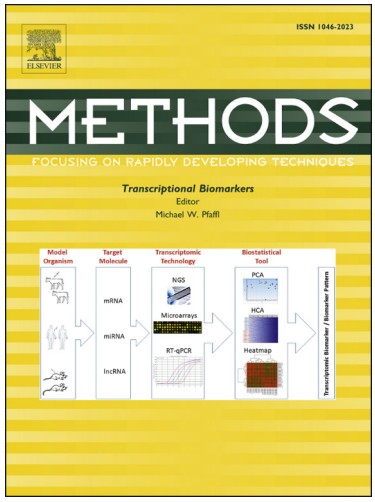

Aptasensor and Genosensor Methods for Detection of Microbes in Real World Samples

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PII: S1046-2023(13)00250-8
DOI: http://dx.doi.org/10.1016/j.ymeth.2013.07.001
Reference: YMETH 3196

To appear in: *Methods*

Please cite this article as: N. Paniel, J. Baudart, A. Hayat, L. Barthelmebs, Aptasensor and Genosensor Methods for Detection of Microbes in Real World Samples, *Methods* (2013), doi: http://dx.doi.org/10.1016/j.ymeth.2013.07.001

Aptasensor and Genosensor Methods for Detection of Microbes in Real World Samples.

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Keywords : Pathogen detection; Genosensor; Aptasensor; Electrochemical transduction, Real samples analysis.

Abstract:

The increasing concerns about food and environmental safety have prompted the desire to develop rapid, specific, robust and highly sensitive methods for the detection of microorganisms to ensure public health. Although traditional microbiological methods are available, they are labour intensive, unsuitable for on-site and high throughput analysis, and need well-trained personnel. To circumvent these drawbacks, many efforts have been devoted towards the development of biosensors, using nucleic acid as bio-recognition element. In this review, we will focus on recent significant advances made in two types of DNA-based biosensors, namely genosensors, and aptasensors. In genosensor approach, DNA or RNA target is detected through the hybridization reaction between DNA or RNA and ssDNA sensing element, while in aptasensor method, DNA or RNA aptamer, capable of binding to a target molecule with high affinity and specificity, plays the role of receptor. The goal of this article is to review the innovative methods that have been emerged in genosensor and