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Title:	Application of 2D Nanomaterials as Fluorescent Biosensors
Authors:	Devi, M. (/jspui/browse?type=author&value=Devi%2C+M.)
Keywords:	Biomedical applications Nanomaterials Biomolecular Chemical
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Abstract:	The increasing demand for bioassays and biomedical applications has considerably encouraged the development and fabrication of a wide range of functional nanomaterials. Pairing these functional nanomaterials with biomolecular recognition events leads to the development of unique sensing and diagnostic platforms. Owing to their extraordinary electrical, chemical, optical, mechanical, and structural properties, of two-dimensional (2D) materials have attracted the attention of researchers in the development of various optical biosensors. These 2D materials possess key characteristics that are helpful for developing high-performance sensing platforms such as high surface area-to-volume ratios and sensitivity of the surface to the external environment. 2D materials (such as graphene and graphene like materials) can behave as either fluorescent emitters or efficient fluorescence quenchers; thus, they can be employed as powerful platforms for the development of various optical biosensor-based on fluorescence techniques for selective detection of various biologically important analytes such as ions, small molecules, nucleic acids, proteins, and cancer biomarker targets. Fluorescence-based sensors are associated with high efficiency, selectivity, sensitivity, reliability, repeatability, low cost, and ease of operation. This chapter highlights the application of 2D materials for the fabrication of optical biosensors based on fluorescence spectroscopy.
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