



Graphene-Based Immunosensing for the detection of protein Biomarkers

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Abstract:

Advancements in the early detection and monitoring of certain diseases have resulted in a shift from treatment based medicines towards preventive medicines. Early detection and diagnosis of certain diseases has become possible by detection of biomarkers, which have gained tremendous attention in the past few years and will continue to grow in the future. Portable electroanalytical sensors with high selectivity and sensitivity provide the opportunity to perform clinical analysis away from a centralized laboratory. However, there has been a persistent challenge with electrochemical Biosensors, when they are exposed to biological fluids. When applied to the biological fluid, biofouling of the sensor takes place, as proteins are attracted towards the electrode surface driven by a variety of forces (such as hydrogen bonding and other polar interactions) and upon contact with the surface they deleteriously alter the surface chemistry [1,2]. Thus, fabrication of such sensors that are capable of proper functioning even in biological fluids requires engineering of the surface in such a way that the protein adsorption does not alter the electrochemical signal. This review paper focuses on some graphene based electrochemical biosensors that have been developed recently for the sensitive determination of protein biomarkers and their potential application in biological fluids.

Biography:

Ratnanjali has completed her PhD at the age of 28 years



from Dayalbagh Educational Institute, Agra, India. She has worked as a Research Assistant for two years post PhD. She works as a technical officer in the School of Analytical and Applied science, University of Western Sydney, Australia. She has published more than 10 papers in reputed journals. Her Research interest includes fabrication of biosensors based on graphene-biomaterial interface.

Publication of speakers:

- Barfidokht, A. and Gooding, J. (2014). Approaches Toward Allowing Electroanalytical Devices to be Used in Biological Fluids. *Electroanalysis*, 26(6), pp.1182-1196.
- Banerjee, I., Pangule, R. and Kane, R. (2010). Antifouling Coatings: Recent Developments in the Design of Surfaces That Prevent Fouling by Proteins, Bacteria, and Marine Organisms. *Adv. Mater.*, 23(6), pp.690-718.

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