Clinical Applications of Graphene Based Eletrochemical Biosensors

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Electrochemical biosensors provide sensitive, fast response, low cost, miniaturized and easy to handle systems to obtain excellent point of care (POC) platforms. In recent years, a prompt development of nanotechnology and a better understanding of nanoparticle structures and properties have enabled their use in different areas of biosensors for diagnosis and monitoring of not only diseases but also drug discovery, food analysis and quality control. Among all nanomaterials, graphene oxide (GO) is one of the most attributed materials for opening new possibilities in the development of next generation biosensors due to its unique properties, such as high electron transfer rate, high affinity for specific biomolecules, thermal stability, water solubility, large specific surface area, exceptional elasticity and rigidity

Herein we demonstrate aptamer and nucleic acid-based biosensor including miRNA based ovarian cancer diagnosis, neurodegenarative disorders in model of multiple sclerosis (MS) and demyelination monitoring and pathogenic microorganism detection applications for diagnostics and possible therapeutic purposes were designed in our laboratory.

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