



Biosensors targeting biomolecules

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Abstract:

Targeting biomolecules in point-of-care (POC) is today a worldwide target of Health systems, today even more visible through COVID-19. A medical decision is often supported by the levels of several biomolecules in the blood, saliva or urine, and it would benefit from shifting the conventional laboratorial tests to the doctor's office. POC testing can also be more accurate because it avoids analyte changes during sample transport/storage, caused by delayed release of analytes, by continued metabolism, and by protein/peptide degradation in the whole blood. Thus, devices involved in POC testing should be portable, small, easy to use and carry, and inexpensive [1].

Mostly considering portability and cost reasons, common POC testing devices such as those of glucose readings make use of screen-printed electrode (SPE) technology [2]. The number of papers published in literature on SPEs and their citations has observed an exponential growth, since 1992. Different disruptive approaches have also been recently reported, offering the possibility of autonomous readings by interfacing photovoltaics and biosensors [3]. This approach is also able to produce visible colour changes (Figure) upon the addition of an electrochromic cell that is powered by the hybrid photovoltaic cell/biosensor.

In a whole, these and other approaches targeting biomolecules, most especially proteins and miRNAs, shall be discussed.

Biography:

Goreti Sales has completed her PhD at the age of 29 years from Porto University. Since Jan 2020, she is associate professor in the Faculty of Sciences and Technology of



Coimbra University, and member of the BioMark sensor research/CEB, from the School of Engineering of the Polytechnic Institute of Porto. She is the Coordinator of BioMark sensor research group and was the recipient of a Starting Grant by the European Research Council, and is currently coordinating the FET-Open project (H2020), MindGAP. She has published more than 140 papers in highly reputed journals.

Recent Publications:

1. Mohamed, H.M., 2016. Screen-printed disposable electrodes: Pharmaceutical applications and recent developments. *TrAC Trends Anal. Chem.*, 82; 1-11.
2. Moreira, F.T.C., M.J.M.S.Ferreira, J.R.T. Puga, M.G.F. Sales, 2016. Screen-printed electrode produced by printed-circuit board technology. Application to cancer biomarker detection by means of plastic antibody as sensing material. *Sens. Actuat. B: Chem.*, 223; 927-935.
3. Tavares A.P.M., L.A.A.N.A. Truta, F.T.C. Moreira, L.P.T. Carneiro, M.G.F. Sales, 2019. Self-powered and self-signalled autonomous electrochemical biosensor applied to cancinoembryonic antigen determination. *Biosens. Bioelectron.*,140; 111320.

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