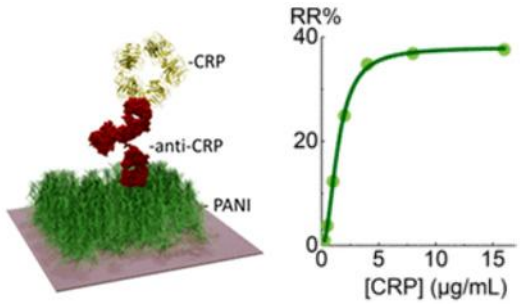
PROJECT NUMBER

17420

A novel redox capacitive biosensor assay based on a phytic acid-doped PANI polymer

A novel redox capacitive biosensor assay based on a phytic acid-doped PANI polymer.

Applications: Molecule detection, molecule quantification, electrochemical impedance spectroscopy (EIS), capacitance spectroscopy, redox capacitance



Features	Benefits
A reagentless capacitive approach to electrochemical impedance spectroscopy that avoids the use of ferrocene	Excellent baseline stability (≤2% drift over 7h after an initial stabilization over 30 min) and good resistance to non-specific protein adsorption
Utilises phytic acid-doped polyaniline (PANI-Pa) as a novel redox capacitive polymer support	Tested on CRP, a well-characterised cardiac biomarker, but easily translated to any conductive surface and any biomarker of interest
Facile assembly of the PANI film via electropolymerisation	Sensitivity of the assay can be varied through manipulation of film thickness (which alters the scale and time frame measured) and assay method allows increased receptor loading compared to previous methods

Features	Benefits
Consists of a receptor bound to the PANI-Pa film that is capable of binding the target compound	The method allows selective assaying across a range of magnitudes with a very low limit of detection (0.5 µg/mL for the biomarker CRP)

Patented and Available for

- Co-development
- Consulting
- Licensing

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.

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