

Multianalyte Sensing

Track Code: 2013-RICK-66495

Categories:

- Biomedical Engineering
- Chemistry and Chemical Analysis

Keywords:

- Biomedical Engineering
- Biosensors
- Chemistry and Chemical Analysis
- Instrumentation
- Medical Devices

The role of biological sensors is invaluable to the study of life sciences; sensors with higher accuracy, smaller size, or increased functionality enable deeper insights and improved tools for research or medical applications. A major goal of this type of research is a miniature sensor that is capable of sensing multiple substances. These sensors could be implanted in the body for in vivo monitoring of glucose, metabolism, or other biological conditions.

Researchers at Purdue University have developed a new method for layer-by-layer assembly of enzyme-based amperometric biosensors. The design uses electroactive polymer based nanomaterials to allow for fine control of localization and doping, enabling high spatial and temporal resolution multianalyte sensing. Unlike current functionalization strategies, this one has the electrode actively produce its own entrapment matrix, which makes this method more easily amendable to further miniaturization and multiplexing.

Advantages:

- Scalability
- High spatial and temporal resolution
- Adaptable with enzymatic transducers and macro/nanoscale sensing paradigms

Potential Applications:

- Glucose sensing chips for blood glucose monitoring
- On-chip sensors for metabolites
- Implantable electrodes for in vivo monitoring of multiple analytes

People:

- Rickus, Jenna Leigh (Project leader)
- Madangopal, Rajtarun

Intellectual Property:

Application Date: April 2, 2019

Type: CON-Patent

Country of Filing: United States

Patent Number: 10,480,091

Issue Date: November 19, 2019

Application Date: April 16, 2014

Type: Utility Patent

Country of Filing: United States

Patent Number: 10,287,699

Issue Date: May 14, 2019

Application Date: April 16, 2013

Type: Provisional-Patent

Country of Filing: United States

Patent Number: (None)

Issue Date: (None)

Contact OTC:

Purdue Office of Technology Commercialization

The Convergence Center

101 Foundry Drive, Suite 2500

West Lafayette, IN 47906

Phone: (765) 588-3475

Fax: (765) 463-3486

Email: otcip@prf.org