



Drift-Free and Calibration-Free Measurement of Analytes

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OTHER INFORMATION

KEYWORDS

indpharma, analytes,

biosensors

CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Other
- ▶ **Medical**
- ▶ Other

RELATED CASES

2017-607-0

BRIEF DESCRIPTION

A method of achieving the calibration- and drift-free operation of voltammetric electrochemical biosensors.

BACKGROUND

Existing electrochemical biosensor architectures all require calibration in order to correct for inter-sensor variation arising due to variation in fabrication and intra-sensor variation caused by drift in order to achieve accurate results. It would be advantageous to develop electrochemical biosensor platforms that work stably and autonomously over long periods of time even in complex environments (such as in vivo) without the need for end-user calibration.

DESCRIPTION

Researchers at the University of California, Santa Barbara have created a method of achieving the calibration- and drift-free operation of voltammetric electrochemical biosensors. This approach can be used to determine absolute target concentrations without the need to calibrate the sensor. For the measurement of several drugs the errors between experimental values and estimated values are within 10% across broad concentration ranges. Additionally, this approach eliminates the baseline drift problem seen in complex media, such as in flowing, undiluted whole blood.

ADVANTAGES

- ▶ Calibration-free operation reduces the need for high precision fabrication
- ▶ Calibration-free operation reduces end user burden and costs
- ▶ Increased measurement reliability
- ▶ Long-duration measurements in complex media

APPLICATIONS

- ▶ Detection of a variety of targets including small molecules, ions, specific oligonucleotides and proteins in complex sample matrices, such as in the living body

RELATED MATERIALS

- ▶ [Calibration-Free Electrochemical Biosensors Supporting Accurate Molecular Measurements Directly in Undiluted Whole Blood](#) - 07/16/2017

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,946,098	04/02/2024	2017-607

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Drift-Free, Self-Calibrated Interrogation Method For Electrochemical Sensors Based On Electron Transfer Kinetics](#)
- ▶ [Dual-Labeled E-AB Platform for Continuous, Real-Time Monitoring of Small Molecules](#)

