A Method and Device for the Estimation of Blood Glucose Concentration from Signals of Sensors Implanted in Tissues

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BACKGROUND

Diabetes is a major disease affecting all populations and age groups, and society as a whole. All therapies for diabetes are based on achieving close glucose control. Close glucose control achieved by sufficient and timely administration of therapy has been shown to reduce the destructive “long-term complications” of diabetes, such as retinal damage, kidney failure, amputations, and cardiovascular damage, as well as debilitating and life-threatening short-term hypoglycemia. However, attainment of close control requires a means of glucose monitoring and means for correction of glucose imbalances such as administration of insulin, pharmaceuticals, diet adjustment, and exercise, based on the monitored glucose concentration.

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have developed a method for estimating blood glucose concentration from signals of sensors that are implanted subcutaneously or percutaneously in tissues or are deployed on bodily surfaces of people with diabetes and other medical conditions. The invention is used in conjunction with glucose sensors currently available or under development that are deployed in or on tissues.

APPLICATIONS

The invention is a means of isolating and removing errors due to oxygen variability, measurement inaccuracy, diffusional lag, and noise, errors that derive from tissues in which the sensors are implanted. Methods for therapy of diabetes based on estimated blood glucose described by the invention are included.

ADVANTAGES

The accuracy of estimated blood glucose compared to reference blood glucose values, as judged by such parameters as the mean absolute relative difference (MARD), is greater than by certain other methods.

INTELLECTUAL PROPERTY INFO

A provisional patent has been submitted and the technology is available for licensing

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	2019143741	07/25/2019	2018-084

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OTHER INFORMATION

KEYWORDS

Blood glucose, diabetes, glucose monitoring, sensors

CATEGORIZED AS

- **Medical**
  - Devices
  - Disease: Metabolic/Endocrinology
- **Sensors & Instrumentation**
  - Biosensors

RELATED CASES

2018-084-0

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