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A Wearable Platform for In-Situ Analysis of Hormones

Tech ID: 30607 / UC Case 2018-657-0

SUMMARY

UCLA researchers in the Department of Electrical and Computer Engineering have developed a highly sensitive, wearable hormone monitoring platform.

BACKGROUND

Biofluid levels provide insight for monitoring depression, reproduction, and stress. Invasive methods are used to detect low-concentration biofluids. However, realizing the full-potential of biofluid health monitoring necessitates easy access to low-abundant biofluids such as hormones. Wearable solutions promote ease of access but have been limited to detecting high-concentration biofluids due to low sensing interface sensitivity and limited biomarker labeling strategies. A platform combining the sensitivity of invasive methods and the convenience of non-invasive systems will offer great advantages to current methods of biofluid monitoring.

INNOVATION

UCLA researchers have developed a non-invasive, wearable hormone monitoring platform with high detection sensitivity. This new development enables detection of biomarkers such as cortisol, which are critical for molecular diagnostics at concentrations orders of magnitude below competing technologies. Additionally, the detection interface has been enhanced to withstand chemical degradation processes, resulting in improved longevity.

APPLICATIONS

- ▶ Depression monitoring
- ▶ Stress monitoring
- ▶ Clinical health monitoring
- ▶ Personal health monitoring
- ▶ Animal health monitoring
- ▶ Fluid-based monitoring (sweat, saliva, interstitial)

ADVANTAGES

- ▶ Wearable platform
- ▶ Non-invasive detection method
- ▶ Detection at low biomarker concentrations
- ▶ Durable detection interfaces

STATE OF DEVELOPMENT

Successful proof of concept in the context of cortisol detection.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20210153783	05/27/2021	2018-657

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INVENTORS

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OTHER INFORMATION

KEYWORDS

hormone, monitoring, depression, sweat, biofluid, biomarker, saliva, interstitial, wearable, invasive, non-invasive, body, surface, cortisol, sensitivity, sensitive, concentration, durable, clinical, personal, stress, health, wildlife, animal, science, medical, biosensor, analyte, mental health, record

CATEGORIZED AS

- ▶ **Agriculture & Animal Science**
 - ▶ Animal Science
 - ▶ Devices
 - ▶ Other
- ▶ **Biotechnology**
 - ▶ Health
 - ▶ Other
- ▶ **Medical**
 - ▶ Devices
 - ▶ Diagnostics
 - ▶ Other
 - ▶ Screening
- ▶ **Sensors & Instrumentation**
 - ▶ Biosensors
 - ▶ Medical

- ▶ Other
- ▶ Scientific/Research
- ▶ **Veterinary**
 - ▶ Diagnostics
 - ▶ Large Animal
 - ▶ Other

RELATED CASES

2018-657-0

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