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Electrochemical Point-Of-Care Cerebrospinal Fluid Detection

Tech ID: 33898 / UC Case 2022-956-0

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OTHER INFORMATION

CATEGORIZED AS

- » **Medical**
 - » Devices
 - » Diagnostics
 - » Disease: Central Nervous System
- » **Sensors & Instrumentation**
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RELATED CASES

2022-956-0

BRIEF DESCRIPTION

A revolutionary device for the diagnosis of cerebrospinal fluid (CSF) leaks with rapid, accurate, and low-volume sampling at the point of care.

FULL DESCRIPTION

Researchers at UC Irvine developed a pioneering "lab-on-a-chip" point-of-care device leveraging electrochemical-aptamer based electrodes for the detection of cerebrospinal fluid (CSF). Utilizing custom-designed aptamers specific to beta-2 transferrin protein, this non-invasive device promises to deliver results within minutes, requiring only minimal sample volumes and ensuring accuracy even in samples contaminated with other bodily fluids.

SUGGESTED USES

- » Hospitals and emergency departments for immediate CSF leak detection.
- » Clinics and primary care settings for routine screening and diagnosis.
- » Neurology and neurosurgery departments for pre- and post-operative evaluation.
- » Research institutions for studying CSF dynamics and related diseases.

ADVANTAGES

- » Rapid detection of CSF within minute, enhancing patient care.
- » High sensitivity and specificity for CSF-specific biomarkers, enabling accurate diagnosis.
- » Low sample volume requirement, facilitating easier sample collection.
- » Non-invasive with potential for self-administration, improving patient comfort and compliance.
- » Portable and easy to use, akin to a glucometer, for use in various healthcare settings.
- » Reduces the need for costly, time-consuming laboratory tests and specialized imaging.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20240255462	08/01/2024	2022-956

Additional Patent Pending

STATE OF DEVELOPMENT

Experimental stage (in vitro demonstrations using clinical samples).

RELATED MATERIALS

- » Torabi, S. J., Abiri, A., et al. Luptak, A., Khine, M., Kuan, E. C. (2024). Multimodal diagnosis of cerebrospinal fluid rhinorrhea: State of the art review and emerging concetps. Laryngoscope Investig. Otolaryngol. 9 (3).
- » Abiri, A., et al. Luptak, A., Khine, M., Kuan, E. C. (2024). In vitro selection of human cerebrospinal fluid-specific aptamers using clinical samples. Rhinology

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