# 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**
  - Biosensors
  - Medical

## 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 rhinorreha: 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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