Brain Activity Imbalance Biomarker For Dementia

Tech ID: 34480 / UC Case 2023-091-0

TECHNOLOGY DESCRIPTION

UNMET NEED: Current structural biomarkers for neurodegenerative diseases, such as hippocampal atrophy or amyloid burden, provide limited insights into treatment responsiveness and cognitive function. There is a need for dynamic, functional biomarkers that can monitor cognitive improvement and assess neuroanatomical changes during treatment.

TECHNOLOGY: UCSF scientists developed a novel biomarker for detecting brain activity imbalances that correlate with clinical dementia severity. Using machine learning and mathematical modeling, this biomarker was derived from a comprehensive database of functional and structural MRI brain scans from patients with Alzheimer's disease and Frontotemporal dementia.

COMPETITIVE ADVANTAGE:

- **Dynamic biomarker** that reflects treatment responsiveness, unlike structural biomarkers that primarily indicate disease progression.
- **Correlates with cognitive impairment across multiple neurodegenerative diseases**, providing broad applicability.
- **Supports clinical trials** by enabling patient enrichment and tracking cognitive improvement with neuroanatomical evidence.
- **Flexible implementation** as a service or software product for pharmaceutical companies and radiology centers.

DEVELOPMENT STAGE: The technology is currently in the proof-of-concept stage.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Biomarkers, Alzheimer's, Dementia,

CATEGORIZED AS

- **Biotechnology**
  - Bioinformatics
  - Health
- **Computer**
  - Software
- **Imaging**
  - Medical
  - Software
- **Medical**
  - Diagnostics
  - Disease: Central Nervous System

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