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Newborn Biomarkers of Cumulative Autism Risk Factors

Tech ID: 33840 / UC Case 2017-733-0

ABSTRACT

Researchers at the University of California, Davis have identified DNA methylation biomarkers in placenta, as well as maternal and newborn blood, allowing early autism diagnosis and risk assessment.

FULL DESCRIPTION

Autism spectrum disorder (ASD) is a bio-neurological developmental disability that generally appears before age three. Children with ASD often experience difficulties in verbal and non-verbal communication, social interactions, and leisure or play activities. In 2020, the CDC reported that approximately 1 in 36 children (2.8% of the US) were diagnosed with ASD. Boys are four times more likely to be diagnosed than girls, with most children diagnosed after age four. Therapeutic interventions are most effective if applied early; however, diagnosis is challenging and often delayed, primarily because the current diagnosis identifies abnormal behaviors that do not emerge until the disorder is well-established. In addition, there is no laboratory-based test for ASD.

Researchers at the University of California, Davis, have developed a diagnostic test for ASD that analyzes biomarkers (measurable biological traits) in newborns. These genetic and DNA methylation biomarkers can be measured in the placenta and blood samples and shown to identify newborns at highest likelihood for developing ASD. The test enables early autism risk assessment, leading to earlier and more effective behavioral intervention.

APPLICATIONS

- ▶ Early screening of ASD in newborns.

FEATURES/BENEFITS

- ▶ Laboratory test that uses DNA from placenta, maternal or newborn blood for detecting ASD.
- ▶ It provides the first early screening test for ASD and can be used for early therapeutic and behavioral intervention.
- ▶ Early treatment via the test can improve the child's development and quality of life.

PATENT STATUS

| Country | Type | Number | Dated | Case |
|---------------------------|-----------------------|--------------------------------|------------|----------|
| Patent Cooperation Treaty | Published Application | WO 2023/022788 | 02/23/2023 | 2017-733 |

Additional Patent Pending

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OTHER INFORMATION

KEYWORDS

epigenetic, methylation,
newborn, placenta, cord
blood, autism, neurological
disorders, diagnostic

CATEGORIZED AS

- ▶ **Biotechnology**
 - ▶ Food
 - ▶ Genomics
- ▶ **Medical**
 - ▶ Disease: Central Nervous System
 - ▶ Research Tools
- ▶ **Research Tools**
 - ▶ Nucleic Acids/DNA/RNA

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