Blood Dna Methylation Biomarker Diagnostic Test For Anxiety And Depressive Disorders

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Overview

Genetic data suggests that the etiology of trait-like anxiety in humans is 20-40% genetic, with the remaining contributions arising from environmental and epigenetic sources. Current methods for diagnosing anxiety are based on behavior and individual self reporting and, therefore, are inexact and can take up to 10 years. Studies using post mortem brain tissue suggests that a significant change in DNA methylation in anxiety-associated genes is characteristic of trait-like anxiety when compared to DNA from individuals without anxious proclivities. A method of diagnosis based on these observed genetic markers would allow for more rapid and definitive diagnosis but translation of past studies to the clinic has been stalled by their need for post-mortem brain tissue.

The Invention

A UW-Madison researcher has identified differentially methylated regions (DMRs) associated with 22 genes known to be characteristic of anxiety. All 22 DMR-associated genes are present in blood or saliva samples. Based on these findings, a method for diagnosing anxious temperament was developed comprising the steps of (a) obtaining blood or saliva sample (b) isolating target DNA from sample (c) introducing isolated target DNA to biomarker panel (d) amplification of DMR-associated genes (e) quantifying methylation in amplified genes (wherein a 10% change in DMR-associated genes relative to a non-anxious human indicates trait-like anxiety). A detailed method for amplifying the DMR-associated genes is included.

Also included is a biomarker panel consisting of either probes for DMR associated genes or primers to amplify the genes. The primers or probes can be arrayed on a substrate (eg. chip, a bead, a plate, a microfluidic device, or a multiwall plate) for further ease of use.

Applications

- Rapid, dependable method for diagnosing anxiety
- Use in clinical trials to quantify efficacy of anti-anxiety drugs• Rapid, dependable method for diagnosing anxiety
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Key Benefits

- Blood-based biomarkers for anxiety
- Method for diagnosing trait-like anxiety that is more rapid and definitive than current methods

Stage of Development

A scientific manuscript describing this technology is in preparation.

Additional Information

For More Information About the Inventors

- For more information about the inventor:

Related Technologies

- For another example of DMRs used as diagnostics, please see:

Tech Fields

- Medical Devices : Diagnostics & monitoring tools

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854