



UNITED STATES PATENT

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INVENTOR

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PRECISION MEDICINE FOR TREATING AND PREVENTING SUICIDALITY

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The present disclosure relates generally to discovery of novel compounds involved in the treatment and prevention of suicidality by bioinformatics drug repurposing using novel genes expression biomarkers involved in suicidality. Disclosed are methods for assessing severity, determining future risk, matching with a drug treatment, and measuring response to treatment, for suicidality. Also disclosed are new methods of use for drugs and natural compounds repurposed for use in preventing and treating suicidality. These methods include computer-assisted methods analyzing the expression of panels of genes, clinical measures, and drug databases. Detailed herein are methods using a universal approach, in everybody, as well as personalized approaches by gender, and by diagnosis. The discovery describes compounds for use in everybody (universal), as well as personalized by gender (males, females), diagnosis (bipolar, depression), gender and diagnosis combined (male bipolar, male depression), male PTSD, male SZ/SZA), and subtypes of suicidality (high anxiety, low mood, combined (affective), and high psychosis (non-affective)). Also disclosed are methods for identifying which subjects should be receiving which treatment, using genes expression biomarkers for patient stratification and measuring response to treatment. The disclosure also relates to algorithms, universal and personalized by gender and diagnosis. The algorithms combine biomarkers as well as clinical measures for suicidality and for mental state, in order to identify subjects who are at risk of committing suicide, as well as to track responses to treatments...

The Director of Patents and Trademarks has received an application for a patent for a new and useful invention. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law. Therefore, this

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Grants to the person or persons having title to this patent the right to exclude others from making, using or selling the invention throughout the United States of America for the term of the patent, subject to the payment of maintenance fees as provided by law.



Katherine Kelly Vidal

Director of the United States Patent and Trademark Office