Mind and molecules—Fingerprinting psychiatric illness

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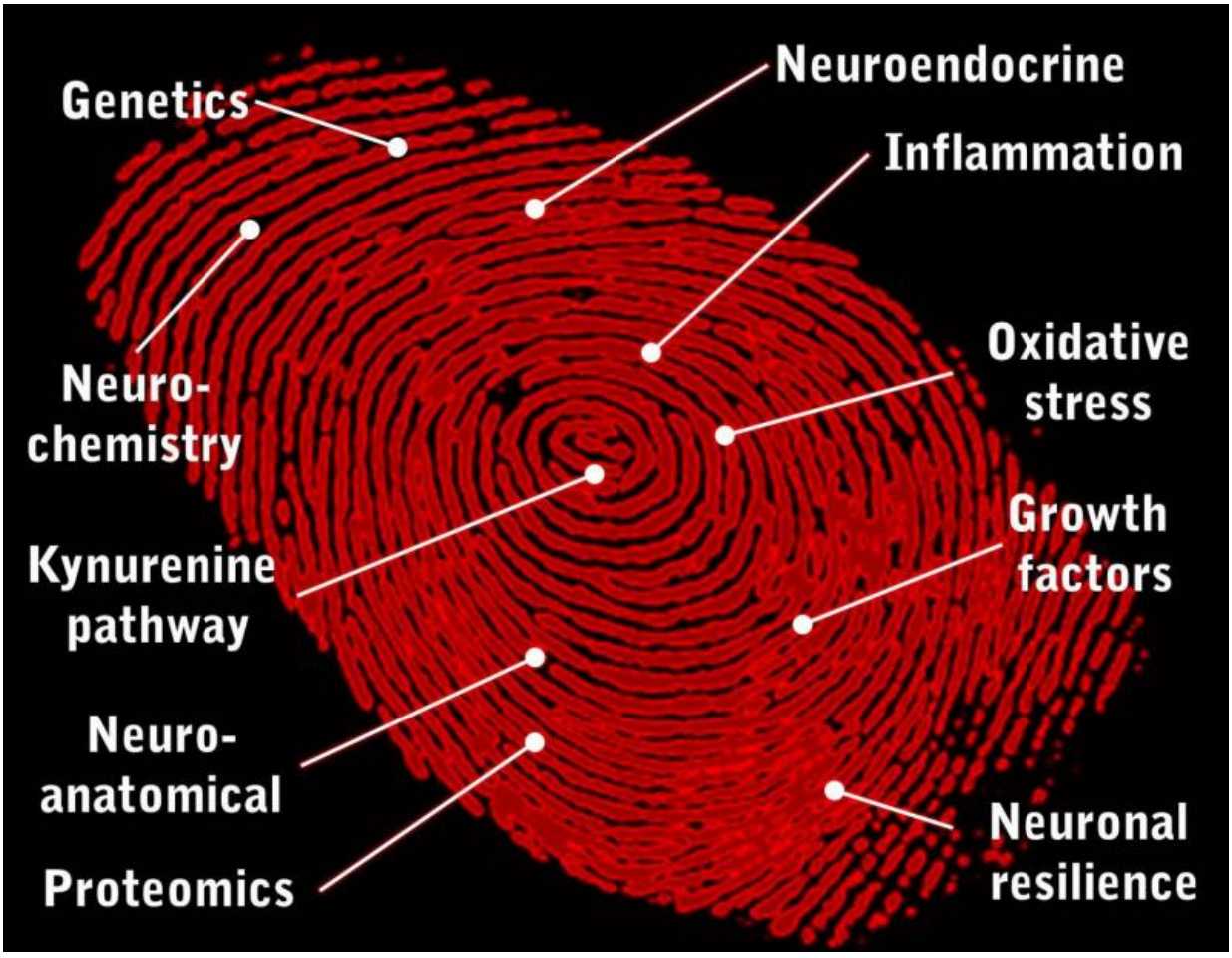

Research into mood and psychotic disorders has advanced to the extent where biochemical hypotheses explaining the aetiology of a particular illness may be individualized to more accurately target one or more underlying pathology in a specific patient or subgroup of patients, hence achieving more effective disease modifying therapy. Credit: Sarel J. Brand, Marisa Moller and Brian H Harvey,

Diagnosis of mood and psychotic disorders depend solely on relatively subjective assessment of symptoms and psychometric evaluations, upon which a decision is made to prescribe one or more standardised treatment regimen. Treatment response in turn is evaluated on the same principles. All this in spite of decades' worth of research efforts aimed at understanding the neurobiological underpinnings of these disorders.

Research into mood (depression, bipolar disorder) and psychotic disorders has advanced to the extent where biochemical hypotheses explaining the aetiology of a particular illness may be individualised to more accurately target one or more underlying pathology in a specific patient or subgroup of patients, hence achieving more effective disease modifying therapy. A "one-size fits all" paradigm is no longer a viable approach. Rather a customized regime based on individual biological abnormalities would pave the way toward more effective treatment.

In reviewing the clinical and preclinical literature, this paper discusses the most highly regarded pathophysiologic processes in mood and psychotic disorders by exploring various biomarkers relating to neuroanatomy, neuro-circuitry, neuronal growth and resilience as well as markers associated with oxidative stress and inflammation. A brief overview of prominent markers in the fields of genetics and proteomics also offers additional insight. Scrutinizing prominent and more equivocal biological markers of mood and psychotic disorders aids to address the urgent need to identify neurobiological targets of a disease as well as its associated biomarkers that will improve the current classification, diagnosis and treatment of these disorders. Ultimately, this knowledge will inform on the development of biomarker panels that in turn will customize treatment regimens for better therapeutic outcomes. The

identified biomarkers should accurately reflect pathophysiologic processes in these disorders that will enable practitioners to stratify patients on a biological basis into more homogeneous clinically distinct subgroups, allowing the prescribing of target-specific therapy.

More information: Sarel Brand et al. A Review of Biomarkers in Mood and Psychotic Disorders: A Dissection of Clinical vs. Preclinical Correlates, *Current Neuropharmacology* (2015). DOI: 10.2174/1570159X13666150307004545

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