

## **AS23-03 - FROM GENOMICS TO PATHOBIOLOGY AND PERSONALIZED MEDICINE - WHERE DO WE STAND IN PSYCHIATRY**

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A dysfunctional cerebral glutamate system is a major focus in neurobiological research in schizophrenia. Several glutamate modulating therapeutics are worldwide in phase I and II trials. Evidence for glutamate dysfunctions in psychiatric disorders are mainly provided by direct concentration measurements (MRS; magnetic resonance spectroscopy) functional brain imaging and neuroelectric studies informed by genetic variations of the glutamate system. The results of recent genome wide association studies together with the candidate gene approach identified genetic markers in schizophrenia and bipolar disorder targeting the glutamate system and other excitatory neurotransmitters. In addition, current brain imaging investigations and cerebral oscillation measures demonstrated that activation deficit patterns in major psychiatric diseases are in part determined by glutamate genetic variants or by the interaction of glutamate and other neurotransmitter variants. Recent advances in MRS allow the direct association of genetics and the absolute glutamate concentration in key regions of schizophrenic. This talk reflects the state-of-the-art in the human glutamate research presenting recently observed associations between glutamate genetics and 1) nosology, 2) clinical-behavioral measures and 3) brain imaging as important intermediate phenotypes.