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VIRAL-MI

Profiling vulnerability and resilience for mental illness following viral infections: translating epidemiology to deep-phenotyping

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History of infections is known to increase the risk to develop depression and other mental disorders. Individuals diagnosed with a mental disorder tend to develop a more severe course of infective illness and are also at increased risk to die from infectious disease. We aim to identify the underlying neurobiological and environmental mechanisms leading to either increased vulnerability or resilience to mental illness in case of infection, as well as the contribution of these mechanisms to severe infective outcomes in individuals

with pre-existing mental illness. We will move from exploration of large databases covering large samples of population, to specific, well-defined samples deeply characterized from a biological, psychiatric, and neuroimaging point of view, thus allowing the identification of genetic and neurobiological modulations following infections. First, we will explore the association between clinically relevant infections and subsequent development of a mental disorder, then, we will focus on biological underlying mechanisms. Social, economic and cultural factors will be used to build a predictive model which will determine what are the environmental characteristics leading to increased risk for mental disorder and severe outcome in pre-existing mental disorder. The profiles of highly vulnerable versus highly resilient individuals will be examined in the deeply characterized samples, to assess whether there are specific brain structures, genetic patterns or an immune response which further characterize them. These models will set the stage to identify potential brain or immune markers which can later be used to develop drugs, as well as to offer new therapeutic and preventive strategies.

