

ERC Starting Grant awarded for research into Post-Traumatic Stress Disorder

Over the next five years, Dr. Mykhailo Batiuk and his research group at the Heidelberg Faculty of Medicine at Heidelberg University will investigate the biological mechanisms underlying post-traumatic stress disorder. The European Research Council (ERC) is supporting the project with an ERC Starting Grant worth approximately €1.4 million.

Which brain cell types are altered in patients with post-traumatic stress disorder (PTSD)? And which changes in the genome may be linked to the condition? These are the questions addressed by the research project "Single Cell PTSD: Novel Target Identification (sc-PTSD)", led by molecular biologist and biochemist Dr. Mykhailo Batiuk of the Heidelberg Faculty of Medicine at Heidelberg University and the Institute of Human Genetics at Heidelberg University Hospital. The project aims to advance understanding of the biological mechanisms underlying PTSD and to identify potential targets for future therapeutic approaches.

The research is being made possible by a European Research Council (ERC) Starting Grant of approximately €1.4 million over a five-year period. Upon the start of the project on 1 August 2026, Dr. Batiuk moved from the École polytechnique fédérale de Lausanne (EPFL) in Switzerland to Heidelberg University Hospital, where he will establish his own research group at the Heidelberg Faculty of Medicine at Heidelberg University.

PTSD: Causes and Treatment

Post-traumatic stress disorder (PTSD) is a mental health condition triggered by an extremely distressing event. Those affected may have experienced war, natural disasters, serious accidents, violence, or abuse. Symptoms include reliving the traumatic event through flashbacks or nightmares, as well as anxiety, sleep and concentration problems, depression, irritability, and a diminished ability to access or process emotions.

"According to current World Health Organization estimates, approximately 4% of the global population will experience PTSD during their lifetime," says Dr. Batiuk. "Given the ongoing global crises, this figure is expected to continue rising." The clinical consequences of the disorder have been well documented. "What is still lacking are fast-acting, personalized treatment approaches," Dr. Batiuk adds.

At present, PTSD is treated primarily with trauma-focused psychotherapy, where available. Treatment is usually provided on an outpatient basis, although inpatient care may be required in particularly severe cases. Some patients also receive medication to treat co-occurring mental health conditions or participate in complementary therapies such as physiotherapy, art therapy, or occupational therapy.

Research Methodology

As part of the sc-PTSD project, Dr. Batiuk and his team will first analyze post-mortem brain tissue samples from individuals who had PTSD. To determine which biological changes occur in individual cells and how these may contribute to the disorder, the researchers will use single-cell RNA sequencing, among other methods. The team will also employ DNA methylation profiling, which examines chemical modifications to the genome to better understand which genes are active in affected individuals and how their activity is regulated.

In a second step, the findings will be translated into new animal models designed to reflect the diverse manifestations of PTSD more accurately than existing models. "In these preclinical models, we will investigate whether PTSD symptoms can be alleviated by specifically targeting the biological structures identified through our analyses," explains Dr. Mykhailo Batiuk.

The ERC Starting Grant

The European Research Council Starting Grant supports outstanding early-career researchers from all disciplines who have demonstrated excellence in their work and seek to pursue ambitious, pioneering research as principal investigators. The funding is intended to enable recipients to advance fundamental research and develop visionary research projects.

Press release

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Further information

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