

Mapping and interrogating top-down control of the memory engram of the posttraumatic stress disorder (topdownPTSD)

Project Coordinator: Prof. Mazahir Hasan, Achucarro Basque Center for Neuroscience Research Fundazioa Laboratory of Memory Circuits, MINECO, Leioa, Spain

Project Partners: Prof. Stefano Puglisi-Allegra, Fondazione Santa Lucia, MOH, Rome, Italy

Prof. Agnès Gruart i Massó, Division of Neurosciences, Pablo de Olavide University, MINECO, Seville, Spain

Philipp Böhm-Sturm, Dpt. of experimental Neurology, Center for Stroke Research, BMBF, Berlin, Germany

Prof. Stephanie Le Hellard, Department of Clinical Sciences, Haukeland University Hospital, RCN, Bergen, Norway

Dr. Ewa Oglodek, Department of Psychiatry, Collegium Medicum, NCBR, Bydgoszcz, Poland

Post-traumatic stress disorder (PTSD) is a psychiatric disorder of significant prevalence and morbidity, whose pathogenesis relies on paradoxical changes of emotional memory processing. In PTSD, life threatening experience leave a lasting trace of fear memory, which can last a lifetime. It is estimated that roughly 50% of the people world-wide will encounter a trauma-causing experience once in their lifetime. This generate a huge burden on the European Union citizens and calls for attention to tackle PTSD. There is no suitable treatment that is currently available to treat the cognitive features of PTSD, and/or to prevent its development. The present project aims at investigating the neurobiological underpinnings (at a synaptic level) of acute and chronic response to a traumatic experience both in animal and human subjects, who will (susceptible) or will not (resilient) develop the chronic pathological phenotype. Understanding the neurobiological basis of PTSD can be of great help in the identification of innovative therapeutic strategies. This can be done through genetic, biomarker, imaging and psychological screening. By generating drugs that activate these molecular mediators of plasticity, it may be possible to enhance extinction of inappropriate fear associations.