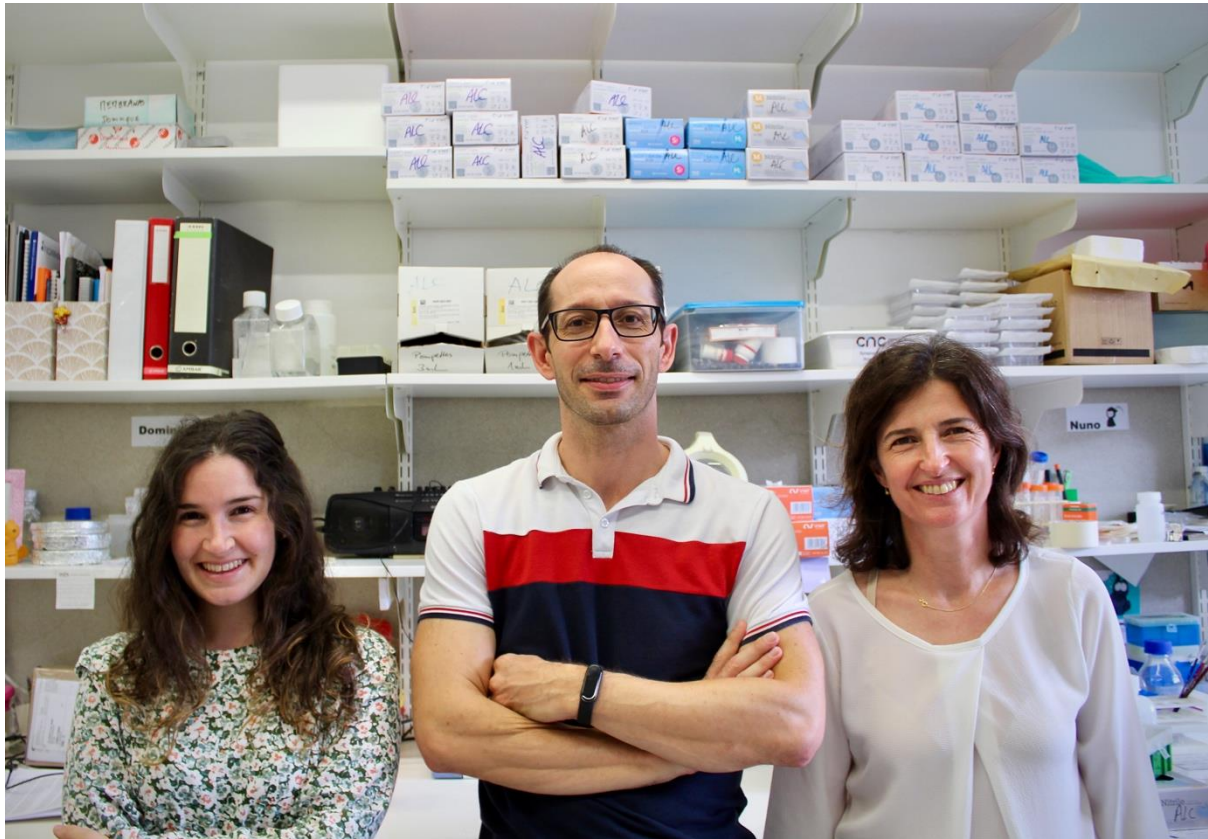


## University of Coimbra team wins nearly half a million euros to study the effects of chronic stress on the brain



A project dedicated to the study of the effects of chronic stress on the brain, coordinated by the Center for Neuroscience and Cell Biology of the University of Coimbra (CNC-UC), has just won 492 thousand euros in funding from the CaixaResearch Health Research Contest - an initiative of the Foundation “la Caixa” which has the support of the Foundation for Science and Technology.

Chronic stress is increasingly prevalent in modern societies and results in an increased risk to mental health due to its effects on the brain. One of the brain regions most affected by stress is the prefrontal cortex, which is involved in planning complex behaviors and making decisions. It is estimated that in Europe more than 40 million people suffer from anxiety and depression - mental disorders associated with chronic stress. These disturbances are significantly worsening due to the Covid-19 pandemic, making solutions urgently needed.

“It is known that individuals subjected to chronic stress are more likely to suffer alterations in their cognitive abilities, but the molecular bases of this association are not known”, explains Paulo Pinheiro, responsible for the project.

In this way, explains the CNC researcher, it is intended to study “the function of a gene expression regulatory molecule – miR-186-5p – which is known to be increased in the brain in situations of chronic stress, and which regulates cellular processes and molecular involved in learning and memory”.

The researchers explain that they will "test the hypothesis that normalizing miR-186-5p levels can counteract the negative effects of chronic stress on cognition."

Thus, the main objective of this project, entitled “Regulation of synaptic function and dependent behavior of the prefrontal cortex by microRNA-186-5p induced by chronic stress”, is to understand how miR-186-5p levels vary in prefrontal cortex in response to chronic stress, and what is the impact of this regulation on neuronal function and behaviors dependent on this brain region. Additionally, the researchers aim to understand whether the regulation of miR-186-5p differs between sexes, which could help explain different susceptibility to the harmful effects of chronic stress.

With a duration of three years, this study could lead to the identification of new therapeutic targets to mitigate the effects of chronic stress and improve mental health.

In addition to Paulo Pinheiro, project coordinator and researcher at CNC-UC, are also part of the team, Ana Luísa Carvalho, leader of the Synapse Biology group at CNC-UC and professor at the Department of Life Sciences of the Faculty of Science and Technology of the University of Coimbra, Ângela Inácio, Beatriz Rodrigues, Lino Ferreira, Mariline Silva, Miguel Lino, Sandra Santos, researchers at CNC-UC and Jorge Valero, researcher at Achucarro - Basque Center for Neuroscience (Spain).

In this 2021 edition, the CaixaResearch Health Research Contest awarded a total funding of 22.1 million Euros to the 30 selected projects. Of the 644 projects submitted to the competition, 195 were submitted by Portuguese institutions, with 12 having been financed with a global budget of 7.9 million Euros.

Carolina Caetano & Cristina Pinto

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