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Identificación del proyecto:

Vínculo neuroinmune entre el estrés en adolescencia y el comportamiento social

Descripción del proyecto:

The adolescence period is characterized by extensive neuroanatomical, functional, and chemical reorganization of the brain together with substantial maturational changes in cognition, anxiety and social behavior. Any environmental disruption, such as stress exposure during this vulnerable period, may have deleterious effects on the brain structure and function. There is now substantial evidence that the immune system is critical for normal brain development and function during adolescence. Interestingly, the involvement of particular brain cells such as microglia and astrocytes in mediating the immune dysregulation after stress during vulnerable periods has just started and more research is needed. The hypothesis of the NASS project is that social isolation and/or stress exposure during adolescence will induce specific immune changes (i.e. tryptophan/kynurenine metabolism changes in the brain) driven by cell-type specific mechanisms involving astrocytes and/or microglia and having an impact on mouse social behavior. By combining genetic, behavioral, imaging and metabolomic approaches, the general aim of this project is to causally link the neuroimmune and behavioral changes induced by social isolation and chronic stress during adolescence in mice. Thus, we will combine advanced genetic, imaging and metabolomics analysis to characterize the neuroimmune and the behavioral consequences. Specifically, we will characterize the behavioral, molecular and cellular impact of adolescence stress and we will use genetic approaches to modulate the kynurenine pathway to explore the causal link between adolescence stress and social impairment. By the development of the NASS project we will be able to provide : (i) a novel functional role of glial population(s) involved in adolescence stress, (ii) cell-type specific mechanisms that will provide causality between the behavioural deficits and the adolescence adversity, (iii) a characterization of a particular metabolic pathway, the tryptophan/kynurenine pathway that could represent a novel therapeutic target, which drives cell-type specific effects of adolescent adversity. Altogether, the NASS project will benefit the society by providing a better understanding of the neuroglial mechanism underlying the negative effects of adolescence adversity.

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