INSTITUTO CAJAL

SEMINARIO PRESENCIAL

Viernes, 01 de julio de 2022
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Extracellular Signaling in Neuro-developmental Disorders

Abstract

Cellular crosstalk is an essential process during brain development and it is influenced by numerous factors, including the morphology of the cells, their adhesion molecules, the local extracellular matrix and the secreted vesicles. Inspired by mutations associated with neurodevelopmental disorders, we focus on understanding the role of extracellular mechanisms essential for the correct development of the human brain. Hence, we combine the in vivo mouse model and the in vitro human-derived neurons, cerebral organoids, and dorso-ventral assembloids in order to better comprehend the molecular and cellular mechanisms involved in progenitors' proliferation and fate as well as migration and maturation of inhibitory and excitatory neurons during human brain development and tackle the causes of neurodevelopmental disorders. We particularly focus on mutations in genes influencing cell-cell contacts, extracellular matrix, and secretion of vesicles and therefore study intrinsic and extrinsic mechanisms contributing to the formation of the brain. Our data reveal an important contribution of cell non-autonomous mechanisms in the development of neurodevelopmental disorders.

Affiliation and short bio

Silvia Cappello is a research group leader at the Max Planck Institute of Psychiatry. The major focus of her laboratory is to understand the basic molecular and cellular mechanisms regulating the development of the human brain. Silvia Cappello studied biotechnology at the University of Bologna, Italy, and carried out her PhD in the University of Padua, Italy and in the laboratory of Magdalena Götz, at the Helmholtz Center. As a postdoctoral fellow, she studied mechanisms regulating neurogenesis and neuronal migration with Magdalena Götz and in the laboratory of Richard Vallee at Columbia University.

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