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Institute of Psychiatry and Neuroscience of Paris

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Psychiatry and Neuroscience Seminar Series 2022

Dr Clémence BERNARD

(Host A Pierrani – F Causeret)

Centre for Developmental Neurobiology, King's College London, UK

Cortical wiring by synapse-specific control of local protein synthesis

Friday, July 1st, 2022, noon

Room D Levy, 102-108 rue de la santé - 75014 Paris & VISIOCONFERENCE

Dr Clémence BERNARD

Centre for Developmental Neurobiology, King's College London, UK

Dr Clémence Bernard, has been awarded as a 2019 Young Leader by the Franco-British Council to represent and shape the future of Franco-British relations. Her work is dedicated to study of the development of the cerebral cortex in health and disease and to investigate the neural circuit assembly in brain disorders (in Marin & Rico Labs). The assembly of functional neuronal circuits requires appropriate numbers of distinct classes of neurons, but the mechanisms through which their relative proportions are established remain poorly defined. Investigating the mouse striatum, we found that the two most prominent subtypes of striatal interneurons, parvalbumin-expressing (PV +) GABAergic and cholinergic (ChAT +) interneurons, undergo extensive programmed cell death between the first and second postnatal weeks. Remarkably, the survival of PV + and ChAT + interneurons is regulated by distinct mechanisms mediated by their specific afferent connectivity. While long-range cortical inputs control PV + interneuron survival, ChAT + interneuron survival is regulated by local input from the medium spiny neurons. Our results identify input-specific circuit mechanisms that operate during the period of programmed cell death to establish the final number of interneurons in nascent striatal networks.

Keywords:

Cortical development, interneurons, mouse model, neurodevelopmental disorders

ZOOM Meeting ID: 895 7386 8040 / Passcode: 220701

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