

**Monday, October 7<sup>th</sup>, 2019 – 12h15**  
Department of Physiology, Bugnon 7, 1005 Lausanne  
Seminar room, 6th floor

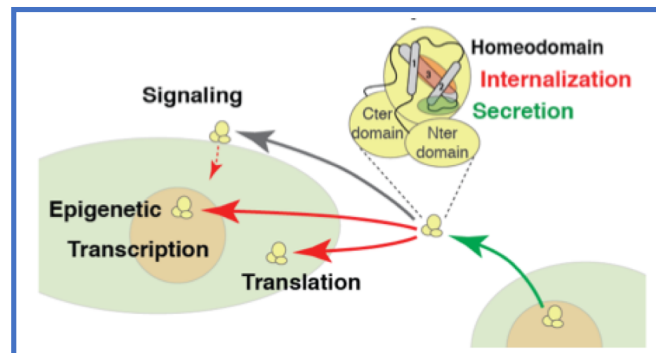
## Regulation of Cerebral Cortex Plasticity by Non-Cell Autonomous OTX2 Homeoprotein

**Prof. Alain Prochiantz**

Centre Interdisciplinaire de Recherche en Biologie  
Collège de France



**Host :** Prof. Christian Widmann



The novel signaling pathway based on homeoprotein intercellular passage and signaling serves several functions in brain development and physiology. Among the latter functions is the regulation of cerebral cortex “plasticity” by an extra cortical source of the OTX2 homeoprotein transcription factor. The seminar will describe how OTX2 secreted from the choroid plexus and targeted to parvalbumin fast spiking interneurons in layer IV of the cerebral cortex regulates the opening and closure of critical periods of plasticity throughout the entire cortex.

The present understanding of how non-cell autonomous OTX2 exerts this regulatory activity will be presented. In the context of a possible neurodevelopmental origin of several brain pathologies, the possibility to use OTX2 and OTX2 modifiers as a mean to understand mood/cognition pathologies and to develop novel therapeutic strategies will be discussed.

### Two Recent Reviews

A. Prochiantz & A.A. Di Nardo. Homeoprotein signaling in the developing and adult nervous system. *Neuron*, **85**: 911-925, 2015.

A.A. Di Nardo *et al.* The physiology of homeoprotein transduction. *Physiological Reviews*, **98**:1943-1982, 2018.