

DSV Seminars

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DEGLI STUDI DI TRIESTE



DIPARTIMENTO DI
SCIENZE DELLA VITA

PhD Program in Neural and Cognitive Sciences

Wednesday, 28 June 2017 - 14:00

Emiciclo, Q Building – Via L. Giorgieri, 5

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Invited by Prof. Piero Paolo Battaglini

The dark side of movement control

A considerable effort has been directed toward discovering the neural mechanisms underlying the preparation and the execution of goal-directed movements. However, much less attention has been given to one of the key ingredients of goal-directed behavioral control, i.e. our ability to suppress actions. Inhibition is a fundamental property of executive control, as it represents a hinge of behavioral flexibility. At any moment, we need to select and perform actions whenever they are more opportune, i.e. whenever the costs intrinsically associated with them are lower than their benefits. Thus, the opportunity of executing an action must be evaluated continuously as environmental conditions can change unpredictably, making the selected action inappropriate for achieving the desired goal. Despite its key role, the way it is implemented and its neural substrates are still debated and controversial. In this talk, functional interactions of the extended neural network subserving generation and inhibition of goal-directed movements will be outlined, fueling the intriguing hypothesis that both the performance of actions and their suppression are not specified by independent sets of brain regions. Rather, it will be proposed that acting and stopping are emergent functions stemming from specific interactions between largely overlapping brain regions, whose activity is intimately linked to the evaluations of the pros and cons of an action.

