



MOLECULAR AND CELLULAR NEUROBIOLOGY

12h15 A.M

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“Cultural Transmission of Mating Preferences in Fruit Flies – Diving into Neurobiological Mechanisms”

Abstract:

We recently showed that the social learning of mating preferences (i.e., mate copying) in the fruit fly *Drosophila melanogaster* has all the cognitive abilities that can lead to the emergence of persistent cultural traditions of preferring one male type over other types of males, which considerably broadens the taxonomic scope of the cultural process. Now, we are interested in the cognitive mechanisms of this social learning. Fruit flies have relatively small brains, and many genes and molecular pathways are well conserved (signal transduction, neurotransmitters, etc.), which makes fruit flies an excellent model organism. Up to now, most studies focus on visual or olfactory individual learning and memory but not on social learning (mate copying in our specific case). In aversive olfactory learning tasks, the protein Rutabaga was identified as a coincidence detector needing simultaneous inputs from two stimuli to be fully activated (in olfactory aversive learning electric shocks and an odour). I will present recent results revealing the role of Rutabaga in selective subsets of brain neurons for achieving this specific form of learning. This is the first study showing the neuronal pathways required for social learning in a mate-choice context in an invertebrate.

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