Contribution ID: **845** Type: **Talk in simposio**

Sexual behavior as a model for the study of the neurobiology of motivation: insights from animal studies

Thursday, September 11, 2025 11:50 AM (20 minutes)

Sexual behavior is a natural and highly reinforcing behavior that can be divided in two main components: the appetitive/motivational and the consummatory one. Neurobiological studies involving animal models, mainly rodents, identified a complex brain circuit responsible for the regulation of different aspects of sexual behavior, in which dopamine seems to play a key role in motivation by acting at the level of the mesocorticolimbic pathway (VTA –nucleus accumbens/prefrontal cortex). Recent work from our Lab, employing psychogenetically selected (i.e., the Roman lines) as well as dopamine transporter knockout rats (DAT KO), indicates that differences in dopamine signalling relate to individual differences in (sexual) motivation. In particular, a weak mesolimbic dopaminergic tone relates to a lower sexual motivation and biobehavioral traits resembling depression-like conditions, while a more robust one relates with a higher motivation and better performances. However, chronic hyperdopaminergia as seen in DAT KO rats is associated with impulsive-compulsive traits, stereotypies and inability to properly direct reward-related behavior. The characterization of these processes is necessary not only for the identification of the mechanisms at the basis of sexual motivation and to better understand the pathophysiology behind psychogenic sexual dysfunctions, but also for the understanding of the neurobiology at the basis of more generalized alterations in motivated behavior. On this regard, the use of the animal model represents a potent and useful tool for the identification of genotypic/phenotypic, neurochemical, behavioral and environmental factors involved in the regulation of physiological and pathological conditions affecting the motivational processes at the basis of behavior.

If you're submitting a symposium talk, what's the symposium title?

"I modelli animali nella traslazione clinica della ricerca sperimentale in Psicologia" (id #747)

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Session Classification: I modelli animali nella traslazione clinica della ricerca sperimentale in Psicologia