

# 14<sup>th</sup> URA International Seminar

DATE MARCH 28<sup>th</sup>, 2019; TIME 17:30- 19:00

VENUE AT JUNKO FUKUTAKE HALL (J HALL) AT OKAYAMA UNIV. SHIKATA-CAMPUS

HTTP://J-HALL.MED.OKAYAMA-U.AC.JP

## The Neural Mechanisms of Social Bonding: Implications for Novel Therapies for Autism

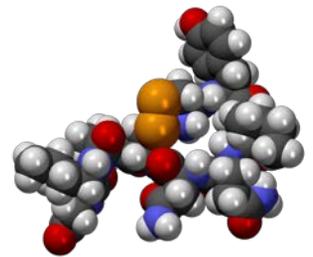
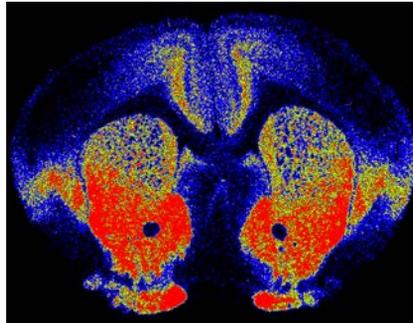
**Professor Larry YOUNG,**

*Emory University (USA) and Tsukuba University (Japan)*



### ABSTRACT

Studies in monogamous prairie voles have provided considerable insights into the neural mechanisms underlying complex social behaviors, including social bonding and empathy-related behavior. This presentation will discuss the role of oxytocin and oxytocin receptors (OXTR) in enhancing the salience and reinforcing value of social information, leading to the formation of a social bond. In prairie voles, oxytocin links the neural encoding of the social signature of the partner with the rewarding aspects of mating by coordinating communication across a social salience network. Diversity in OXTR expression patterns within the brain contribute to diversity in social behaviors across and within species, providing a mechanism for the evolution of sociality. Genetic polymorphisms robustly predict natural variation in OXTR expression in the striatum, which predict pair bonding behavior and resilience to neonatal social neglect. Oxytocin acting in the anterior cingulate cortex mediates empathy-based consoling behavior toward a distressed partner. The absence of OXTR signaling in the striatum after loss of a partner results in depressive-like "grieving" behavior, which may serve to maintain social bonds. Clinical studies suggest that the role of oxytocin in regulating social cognition is conserved from rodent to man. Thus, pharmacological manipulation of the oxytocin system may represent a means of improving social function in psychiatric disorders such as autism, particularly when combined with behavioral therapies. Drugs that evoke endogenous oxytocin release may represent a next generation approach for improving social function in autism.



### 【Inquiry】

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Co-organized by  
*Okayama University*  
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*Technology and Graduate School of Medicine,*  
*Dentistry and Pharmaceutical Sciences*



Co-sponsored by Tsukuba University

# Larry YOUNG \*\*\* -- BIO

## Professor at Emory University and Tsukuba University

Dr. Larry J. Young, PhD is Director of the Center for Translational Social Neuroscience at Emory University in Atlanta. He is also William P. Timmie Professor in the Department of Psychiatry and Behavioral Sciences at Emory School of Medicine and chief of the Division of Behavioral Neuroscience and Psychiatric Disorders at Yerkes National Primate Research Center. Dr. Young has most recently established a new Center for Social Neural Networks at the University of Tsukuba in Japan. Dr. Young has published over 200 peer reviewed publications, including in premier journals such as Science, Nature, Nature Neuroscience and PNAS. He is Past-President of the international Society for Social Neuroscience and has received several awards for his academic achievements including the Golden Brain Award, the Frank Beach Award, the Daniel H. Efron Award from the American College of Neuropsychopharmacology, and elected Fellow in the American Academy of Arts and Sciences.

Dr. Young's research seeks to understand how the brain functions to regulate social relationships with a particular focus on the role of oxytocin in the formation and maintenance of pair bonds. Much of his research uses socially monogamous prairie voles as a model organism. He uses state-of-the-art technology including viral vector transgenics, CRISPR, electrophysiology, optogenetics and genomics to investigate the regulation and diversity of social behavior in voles. He has also developed paradigms using prairie voles that are being used to screen drugs that enhance social function, and is developing novel strategies for drug discovery for treating social impairments in psychiatric disorders.

Dr. Young is the author of *The Chemistry Between Us: Love, Sex, and the Science of Attraction*, which explores the latest discoveries of how brain chemistry influences all aspects of our relationships with others. This book has been translated into Japanese.



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