Center for Translational Social Neuroscience Investigators Receive Five-Year, $9.5 Million Grant To Study Oxytocin

Goal is to Improve Social Cognition in Humans Who Have Autism

Investigators in the Center for Translational Social Neuroscience (CTSN) and the Yerkes National Primate Research Center at Emory University have received a five-year, $9.5 million grant from the National Institute of Mental Health (NIMH) to establish a Silvio O. Conte Center in Neuroscience Research to study oxytocin, a brain chemical known for forming bonds between mother and baby. Emory's Conte Center for Oxytocin and Social Cognition is the first NIH-funded center to explore how normal brain chemistry involved in mother-infant bonding and attachment affects brain communication and mental processing of social experiences in animals and humans, including those with autism spectrum disorder.

Larry Young, PhD, director of the CTSN at Emory University and professor of Psychiatry in Emory's School of Medicine, will lead the Conte Center team that includes researchers at Yerkes and Emory as well as the University of Arizona and the University of Washington. CTSN investigators in the Conte Center include Larry Young, Donald "Tig" Rainnie, Lisa Parr, Mar Sanchez (Yerkes; SOM, Psychiatry), Robert Liu (Emory College, Biology), Jim Rilling (Emory College, Anthropology), Becky Kinkead, Joe Cubells, Mark Rapaport (SOM, Psychiatry). The team's goal is to determine how oxytocin acts in the brain to enhance functional connectivity in the brain and social cognition in order to facilitate the development of novel treatment strategies to improve social function in disorders such as autism.

"This award is a testament to the outstanding recognition of the CTSN members of our Conte Team" says Young. "I am convinced that our research team will make significant advances in social neuroscience that will ultimately improve the treatment of mental health in disorders of the social brain."

Individuals with autism or schizophrenia have impairments in social functioning that a malfunction in chemical communication within and between brain areas involved in processing social information and reward is thought to cause. Oxytocin is considered the most viable target for pharmacologically enhancing social cognition in disorders characterized by compromised social cognition. While most know of oxytocin for its role in forming the powerful bond between mother and baby, recent studies have demonstrated oxytocin also plays a more general role in regulating how humans relate to each other.

The five-year grant will focus on four projects:

Two of them will examine the impact of oxytocin on brain activity in response to social stimuli on rodents and rhesus monkeys; one will examine the impact of oxytocin on social perception

and social attunement in rhesus monkeys; and another will examine the impact of oxytocin on social cognition and neural activity in healthy and autistic humans.

The Center also includes an Administrative Core and a Neurochemistry Core that will develop new tools for investigating oxytocin function in the brain.

Young and his team will use prairie voles (known for their monogamous relationships), a rat model of autism, rhesus macaques and human participants to explore how oxytocin modulates communication between the brain's reward centers and circuits involved in processing of social information. Using Emory's extensive imaging capabilities, the team will analyze human brain images to compare how oxytocin affects the salience of social stimuli, social reward and brain activation patterns. Complementary studies will record neural activity in rodents and primates following oxytocin administration in relation to social interactions.

In addition to these four focused research projects, the Silvio O. Conte Center for Oxytocin and Social Cognition will facilitate outreach activities to local schools and the community. The Conte Center will be integrated in the CTSN to provide seed grant funding for new research on social neuroscience and autism.

"This latest grant affirms the critical role the Yerkes Research Center and Emory play in shaping social neuroscience research and leading the way to discoveries that will result in new and more effective treatments for disorders characterized by social impairments," says Stuart Zola, PhD, director of the Yerkes Research Center. "I can think of no one more qualified and dedicated than Dr. Young to lead this new Conte Center for Yerkes, Emory and all those who are affected by social disorders."

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The CTSN mission is to bring together basic and clinical scientists in order to facilitate the translation of our understanding of the social brain into novel treatments for social deficits in psychiatric disorders, including autism.