

Title: Oxytocin, maternal behavior and excitatory-inhibitory balance

Abstract: Oxytocin is important for social interactions and maternal behavior. However, little is known about when, where, and how oxytocin modulates neural circuits to improve social cognition. Here I will discuss new data from our lab on how oxytocin enables maternal behavior in new mother mice. I will focus on experience-dependent plasticity in auditory cortex related to recognizing the significance of pup distress calls, which are important for mother mice retrieving lost pups back to the nest. Surprisingly, this behavior, neural responses, and oxytocin receptor expression were lateralized to the left side of the auditory cortex. Our results describe fundamental synaptic mechanisms by which oxytocin increases the salience of acoustic social stimuli. Furthermore, examining changes in responses to infant vocalizations provides an opportunity to study synaptic plasticity naturally induced in vivo in an ethological context.