The effects of oxytocin variants on grooming behavior in mice

Brittany Donell$^1$, Elizabeth Aulino$^1$, and Heather K. Caldwell$^{1,2}$

Laboratory of Neuroendocrinology and Behavior, Department of Biological Sciences, Kent State University, Kent, Ohio, USA; $^2$School of Biomedical Sciences, Kent State University, Kent, Ohio, USA

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Oxytocin (Oxt) is a nine amino acid neuropeptide that was thought to be invariant in its sequence across species. However, recent work in primates has found that in some New World Monkeys there can be one or two amino acid substitutions in the protein. So, to assess whether or not these alternative sequences are functional in mice, we set out to perform a grooming bioassay. We hypothesized that these alternative forms of Oxt would have differential effects on grooming compared to the native protein. To test this hypothesis we performed stereotaxic surgery on mice and implanted guide cannulae aimed at the third ventricle. Following recovery from surgery, mice were injected with two µl of each of four treatments over the course of four days: Saline, Oxytocin, Peptide 1, and Peptide 2. Following each microinjection subjects were videotaped for 30 minutes and the amount of grooming scored by an observer blind to each treatment. At the completion of the study site checks were performed to verify the location of the microinjections. While we are still in the process of analyzing our data- all of our treatments were successfully delivered to the lateral ventricle; thus, no animals will need to be excluded from the study. We predict that treatment with Peptide 1 and 2 will result in less grooming compared to treatment with Oxt.