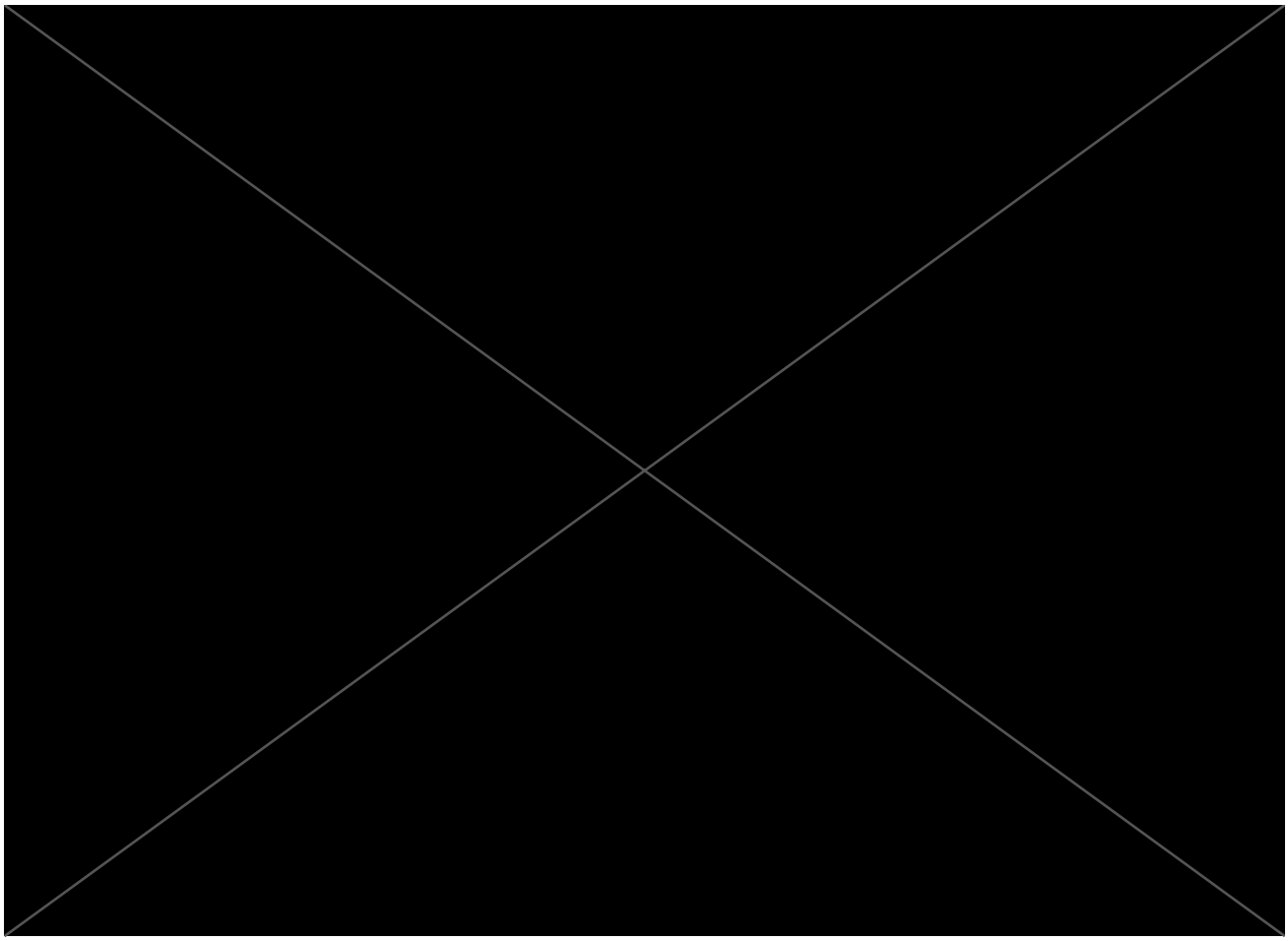

P43 **- Conditional deletion of Fgfr1 in GnRH neurons directly impacts the hypothalamic-pituitary-gonadal axis during pubertal transition of male mice**. Cynthia Dela Cruz, Cassandra Horton, Pei-San Tsai

Neurons secreting gonadotropin-releasing hormone (GnRH) represent the most upstream neuroendocrine activators of the hypothalamic-pituitary-gonadal (HPG) axis and are indispensable for reproductive success. GnRH neurons arise at the tip of nose during embryogenesis, and a failure of the nasal region to develop results in the disruption of the GnRH system, leading to GnRH insufficiency and infertility. An important gene causally linked to GnRH insufficiency is *fibroblast growth factor receptor 1*(*Fgfr1*). It has been established that Fgfr1 is needed for the development of the GnRH system, but it is unclear if Fgfr1 signaling directly upon GnRH neurons contributes to their postnatal function. Our goal is to understand if decreased Fgfr1 signaling in GnRH neurons impacts the postnatal GnRH system and downstream reproductive functions. To address this, we generated a mouse with the conditional deletion of *Fgfr1*specifically in GnRH neurons (abbreviated*Fgfr1*-floxed mice) using the Cre-LoxP technology. Control and *Fgfr-1*floxed male mice were examined for the timing of balanopreputial separation, testicular and seminal vesicle (SV) mass, testicular histology (to assess the percent open seminiferous tubules and the mature sperm in seminiferous tubules), *GnRH* and *KiSS1*expression in the preoptic area, and pituitary and serum levels of

luteinizing hormone (LH) on postnatal day (PN) 25 (n=4/group), 30 (n=10/group) and 60 (n=8/group). *Fgfr1*-floxed males showed decreased SV somatic index (p=0.0003), gonadosomatic index (p=0.0484), and both pituitary and serum LH (p=0.0373 and p=0.0205, respectively) on PN25 but an increase in serum LH (p=0.0095) on PN30. No additional changes in the parameters examined and at other ages were observed. Together, these results suggest that the conditional deletion of *Fgfr1*in GnRH neurons disrupts pubertal transition but does not alter the postnatal GnRH system and HPG axis in earlier adulthood. (Supported by NIH HD083260).