

Name: Marissa Kraynak

Email: Kraynak@wisc.edu

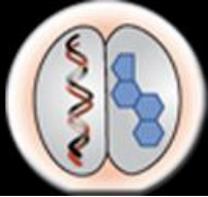
Major Professor: Dr. David H. Abbott

Degree Objective: Endocrinology and Reproductive Physiology

Education Background: B.A. Neuroscience, Drew University, Madison, NJ

Current Research Project:

Personally distressing sexual dysfunction occurs in about 15% of healthy, pre- or post menopausal women, and is more prevalent in women with infertility, PCOS, type 2 diabetes, obesity and chemotherapy-induced ovarian failure. Female sexual interest and arousal disorder (FSIAD) diagnosed in DSM-V, and formerly classified in DSM-IV as hypoactive sexual dysfunction disorder (HSDD), is prevalent and is the major contributor to clinically distressing sexual dysfunction. Estradiol, E₂, has been implicated in women to be a major contributor to the regulation of these behaviors. However, the current understanding of the mechanism estradiol, E₂, regulation of female sexual behavior in women is primarily based off findings from rodent models of reproductive behaviors. Although E₂ has been implicated to be an important contributor to female sexual behavior in primates, including women, the behaviors appear to be more complex than what is observed in rodent models. My current research aims to investigate the neural mechanism of E₂ on female sexual behaviors in a more translatable, NHP model; the marmoset monkey. In primates, contrary to rodents, ovarian E₂ has been shown to contribute to increased expression of female sexual behaviors, however, ovariectomy alone does not abolish the expression of female sexual behaviors. Thus we postulate that there may be a neural component to estrogenic signaling contributing to these behaviors in primates. In order to investigate this mechanism, my research focus is on determining the neural mechanism regulating these behaviors by investigating the role of ER α specifically in the ventromedial nucleus of the hypothalamus, a receptor accepted and brain location in the rodents to facilitate female sexual behaviors. We are also investigating whether extraovarian E₂ suppression, via an aromatase inhibitor, Letrozole, will abolish the expression of female sexual behaviors in the marmoset monkey. Additionally, we are also identifying downstream, behaviorally related gene expression changes, such as major players in reward pathways such as serotonin, dopamine, and oxytocin, in the hypothalamus that will give insight to the neural circuitry of primate behavior; another aspect of primate female sexual behavior that is not well understood. Understanding these aspects of the E₂ mechanism regulating these behaviors, if identified in a female NHP, would likely lead to more translatable understanding of female sexual function and regulation. Since women and NHPs have similar ovarian cycle regulation as well as complexity in behavioral interactions, demonstrating that a neural mechanism identified in rodents translates to NHPs would provide confidence for effectiveness of ER α targeted therapies for women suffering from disorders of sexual function, such as FSIAD.



Honors and Awards:

3RD Annual Award for Mentoring Undergraduates in Research, Scholarly and Creative Activities, April 2016, University of Wisconsin-Madison Office of the Provost and Vice Chancellor of Academic Affairs

Communications-B Teaching Assistant Fellow, Summer 2016, University of Wisconsin-Madison Writing-Across the Curriculum

Grants Received:

NIH R25 Scholar; National Institute of General Medical Sciences, IMSD Institutional Research Education Grant, "Training & Education to Advance Minorities in Science" (TEAM-Science) NIH R25 GM083252; 2013/2014

Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) pre-doctoral trainee award T32 HD041921-13

National Presentations:

Poster Presentation, June 2014, Endocrine Society Meeting, "*Aromatase inhibition elevates post-ovariectomy gonadotropin levels in female marmoset monkeys revealing a non-ovarian source of negative feedback*"

Poster Presentation, April 2016, Endocrine Society Meeting, "*Effect of Letrozole on the gonadotropin secretion and androgen excess in ovary intact female marmoset monkeys*"

Teaching and Mentorship:

Teaching Assistant; Zoology Department Biology 152; Spring 2013, Fall 2015, Spring 2015

Mentoring, OB-Gyn 699 students, 2013-ongoing

Seminar Leader, Graduate course in Psychology on the Broader Impacts of Public Outreach, Education and Engagement about Animal Research, University of Wisconsin-Madison

Publications:

Kraynak M, Flowers T, Shapiro RA, Kapoor A, Levine JE, and Abbott DH. "An Extra-Ovarian Source of Gonadotropin Negative Feedback Revealed by Aromatase Inhibition in Ovariectomized and Ovary Intact Female Marmoset Monkey" (2017, in progress)

University Service:

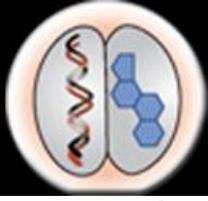
Science Outreach, Biological Outreach Committee, Various outreach leadership at WNPRC, 2013-ongoing

Mentoring Awards Committee, 2016-2017, University of Wisconsin-Madison Office of the Provost and Vice Chancellor of Academic Affairs

ERP Service:

Poster presentation ERP Symposium, July 2014

Poster Presentation ERP Symposium, June 2015



ERP Student Seminar Committee, 2014-ongoing

ERP Symposium Organizing Committee, 2014-ongoing

ERP Program Recruitment, 2014-ongoing