



Name: James P. Garcia

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Major Professor: Ei Terasawa, PhD

Degree Objective: Endocrinology and Reproductive Physiology PhD

Background: BS in Biology (Neurobiology Option), University of Wisconsin Madison, May 2011.

Current Research Projects:

Puberty is the process of significant hormonal, physical and behavioral changes through which the body becomes capable of reproducing. Studies suggest that timing of puberty onset is influenced by several factors including nutrition, environmental factors, genetic background and social environment, all of which are integrated by a neuronal network, that directly and indirectly signal to the hypothalamic gonadotropin-releasing hormone (GnRH) neurons. Increased release of GnRH triggers the onset of puberty, however, the mechanism triggering the pubertal increase in GnRH release remains unknown. Kisspeptin and neurokinin B (NKB) signaling has been reported as important stimulators for the regulation of GnRH release. My research will test the hypothesis that the interaction between kisspeptin and NKB signaling to the GnRH neurosecretory system in the hypothalamus is critical for puberty onset in rhesus monkeys. Furthermore, the results of this research will shed a light on the sex difference in the mechanism of puberty onset.

Honors:

NIH R25 TEAM Science Scholar Award (Biological Sciences), July 2012-June 2014.

Outstanding Abstract Award and Travel Award at International Congress of Endocrinology/Annual meeting of the Endocrine Society, June 2014, 21-24 held in Chicago, IL.

Grants Received:

Training and Education to Advance Minority Scholars in Science Program (TEAM SCIENCE) Research Education Grant (R25) for the 2-year period, PI: Dr. Molly Carnes.

Publications:

- Kenealy BP, Kapoor A, Guerriero KA, Keen KL, Garcia JP, Kurian JR, Ziegler TE, Terasawa E. (2013) Neuroestradiol in the hypothalamus contributes to the regulation of gonadotropin releasing hormone release. *J Neurosci.* 33(49):19051-19059.
- Kenealy BP, Keen KL, Garcia JP, Richter DJ, Terasawa E. (2015) Prolonged infusion of estradiol benzoate into the stalk median eminence stimulates release of GnRH and kisspeptin in ovariectomized female rhesus macaques. *Endocrinology.* 156(5):1804-1814



- Kurian JR, Keen KL, Kenealy BP, Garcia JP, Hedman CJ, Terasawa E. (2015) Acute influences of Bisphenol A exposure on hypothalamic release of gonadotropin releasing hormone and kisspeptin in female rhesus monkeys. *Endocrinology*. Apr 8:en20141634.

Presentations:

- Garcia JP, Keen KL, Terasawa E (2013): Interaction between gonadotropin-releasing hormone neurons and aromatase expressing cells in the monkey stalk-median eminence. Poster Presentation at the Annual Symposium of the Endocrinology-Reproductive Physiology Training Program, July 8.
- Garcia JP, Keen KL, Terasawa E (2013): Interaction between aromatase and GnRH neurons in the medial basal hypothalamus of rhesus monkeys. Oral Presentation at the Endocrinology Reproductive Physiology Seminar, Oct 17.
- Garcia JP, Keen KL, Kenealy BP, Terasawa E (2014): Interaction between kisspeptin and neurokinin B neurons in pubertal female rhesus monkeys. Selected for Oral Presentation at the International Congress of Endocrinology and the Annual Meeting of the Endocrine Society, June 21-24, in Chicago, IL (Abstract N0. OR30-4).
- Garcia JP, Keen KL, Kenealy BP, Terasawa E (2014): The role of neurokinin B and kisspeptin signaling in the mechanism of puberty in female rhesus monkeys. Oral Presentation at the Endocrinology Reproductive Physiology Seminar, November 6.
- Garcia JP, Keen KL, Kenealy BP, Richter DJ, Terasawa E (2015): Pubertal modification of the interaction between kisspeptin and neurokinin B signaling in female rhesus monkeys. Poster Presentation at the Annual Meeting of the Endocrine Society, March 5-8, in San Diego, CA (Abstract No. FRI-427).
- Garcia JP, Keen KL, Terasawa E (2015): The interaction between kisspeptin and neurokinin B signaling changes at puberty in female rhesus monkeys. Oral Presentation at the Endocrinology Reproductive Physiology Seminar, October 22.
- Garcia JP, Keen KL, Kohlenberg LK, Lundeen WB, Terasawa E (2016): The role of kisspeptin and neurokinin B signaling in the pubertal increase of GnRH release in rhesus monkeys. Oral Presentation at the Endocrinology Reproductive Physiology Seminar, November 10.

Teaching and Mentorship:

Willam Lundeen, Undergraduate Research Project (September 2015 – Present): Mentor for *in vivo* microdialysis experimentation, animal handling and interpretation of hormone and neuropeptide data for poster presentation at the annual UW-Madison undergraduate research symposium.

Taylor Cesarz, Undergraduate Research Project (September 2013 – Dec 2015): Mentored for *in situ* hybridization, immunohistochemistry, histological imaging, confocal microscopy and interpretation of the results for poster and oral presentations at the annual UW-Madison undergraduate research symposiums.