

CURRICULUM VITAE

PEI-SAN TSAI, PH.D.

I. CONTACT INFORMATION

Department of Integrative Physiology
University of Colorado
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II. EDUCATION

- 1993** Ph.D. in Zoology, University of California at Berkeley
- 1989** M.A. in Zoology, University of California at Berkeley
- 1987** B.S. in Zoology, Texas A&M University

III. PROFESSIONAL EXPERIENCE

- 2012-** Professor
Department of Integrative Physiology
University of Colorado Boulder
- 2014-2017** Chair
Department of Integrative Physiology
University of Colorado Boulder
- 2001-** Faculty Member
Center for Neuroscience
University of Colorado Boulder
- 2006-2012** Associate Professor
Department of Integrative Physiology
University of Colorado Boulder
- 2003-2006** Assistant Professor
Department of Integrative Physiology
University of Colorado Boulder
- 1999-2003** Assistant Professor
Department of Environmental, Population and Organismic Biology
University of Colorado, Boulder

- 1996-1999** Assistant Professor
Department of Physiology and Neurobiology
University of Connecticut, Storrs
- 1995-1996** Postdoctoral Fellow
Department of Physiology
University of California at Los Angeles Medical School
(Advisor: Dr. Nancy Wayne)
- 1993-1995** Postdoctoral Fellow
Reproductive Endocrinology Center
University of California at San Francisco
(Advisor: Dr. Richard Weiner)

III. RESEARCH INTERESTS

Functional and structural evolution of the gonadotropin-releasing hormone (GnRH) superfamily; developmental and postnatal regulation of the GnRH system by neurotrophic factors; regulation of the hypothalamic-pituitary-gonadal axis.

IV. FELLOWSHIPS, HONORS AND AWARDS

- Fellow, Excellence in Leadership Program (2013). University of Colorado System.
- Provost's Faculty Achievement Award (2010). University of Colorado Boulder.
- The Endocrine Society Research Award (2008).
- CRCW Junior Faculty Development Award (2001). University of Colorado Boulder.
- CAREER Award (1997). National Science Foundation.
- Neuroendocrinology Training Grant (HD-07228-15; 1995-1996).
- NIH Individual postdoctoral NRSA: "Regulation of GnRH neurons by bFGF" (NIH NS-09453; 1993-1995).
- Outstanding Research Accomplishments in Endocrinology (1992). University of California at Berkeley.
- Best Student Paper Award (1991). American Society of Zoologists.
- Outstanding Graduate Student Instructor (1991). University of California at Berkeley.

V. FUNDING

Current:

•NSF IOS 1352944. "Multifunctional nature of protostomian gonadotropin-releasing hormone-like molecules" (PI). \$480,000. 2014-2020.

•NIH R01 HD083260. "Postnatal Plasticity in the GnRH System" (PI). \$1,508,607. 2016-2021.

Past:

•NIH R01 HD042634. "FGF regulation of GnRH neurons" (PI). \$1,000,000. 2009-2015.

•NIH R01 HD042634-06S1. "FGF regulation of GnRH neurons" (PI). \$103,844. 2010-2012.

•NIH F32 AG037257. "The role of social interaction in restoring the GnRH system" (Faculty sponsor of Johanna Rochester). \$156,438. 2010-2012.

•NSF IOS 0743818. "Functional and structural evolution of gonadotropin-releasing hormone" (PI). \$312,000. 2008-2012.

•NIH K99 HD058044. "Developing neuroendocrine brain, androgen and fibroblast growth factor signaling" (Faculty sponsor of Wilson Chung). \$180,000. 2009-2011.

•NIH R56 HD042634. "FGF Regulation of GnRH Neurons" (PI). \$254,227. 2008-2009.

•NIH R01 HD042634. "FGF Regulation of GnRH Neurons" (PI). \$800,000. 2004-2008.

•NIH F31 HD47991. "Regulation of GnRH Neuronal Development by FGF signaling" (Faculty Sponsor of John Gill). \$51,416. 2004-2006.

•NSF DBI 0216118. "Acquisition of a Confocal Microscope and the Creation of an Interdepartmental Microscopy Imaging Facility for Developmental and Evolutionary Biology at the University of Colorado" (Co-PI). \$306,920. 2002-2005.

•NSF IBN 0218243. REU Supplement. "Functional and Structural Evolution of Gonadotropin-Releasing Hormone" (PI). \$12,000. 2002-2003.

•NSF IBN 9996398 (formerly IBN-9733237). "CAREER: Functional and Structural Evolution of Gonadotropin-Releasing Hormone" (PI). \$406,481. 1998-2004.

•NSF IBN 9707446. "Dynamics of the Hypothalamic-Pituitary System in the Rapid Frogs" (PI). \$22,754. 1997-1999.

VI. PUBLICATIONS (names of student/postdoctoral coauthors are underlined):

Peer-reviewed Articles:

AW Martillotti, **P-S Tsai** (2018). An adipokinetic hormone acts as a volume regulator in the intertidal gastropod mollusk, *Aplysia californica*. *Front Endocrinol* 9:493, 1-10.

P-S Tsai (2018). Gonadotropin-releasing hormone by any other name would smell as sweet. *Gen Comp Endocrinol* 264:58-63.

SI Kavanaugh, **P-S Tsai** (2016). Functional authentication of a novel gastropod gonadotropin-releasing hormone receptor reveals unusual features and evolutionary insight. *PLoS One* 11:e0160292.

DC Plachetzki, **P-S Tsai**, SI Kavanaugh, SA Sower (2016). Ancient origins of metazoan gonadotropin-releasing hormone and their receptors revealed by phylogenomic analyses. *Gen Comp Endocrinol* 234:10-19.

AV Miller, SI Kavanaugh, **P-S Tsai** (2016). Disruption of the suprachiasmatic nucleus in fibroblast growth factor signaling-deficient mice. *Front Endocrinol* 7:11, 1-8.

W Zhang, JL Johnson, **P-S Tsai** (2015). Fgf8-deficient mice compensate for reduced GnRH neuronal population and exhibit normal testicular function. *Front Endocrinol* 6:151, 1-8.

JL Johnson, SI Kavanaugh, C. Nguyen, **P-S Tsai** (2014). Localization and functional characterization of a novel adipokinetic hormone in the mollusk, *Aplysia californica*. *PLoS One* 9:e106014.

LR Brooks, HL Pals, CL Enix, RA Woolaver, ED Paul, CA Lowry, **P-S Tsai** (2014). Fibroblast growth factor 8 deficiency compromises the functional response of the serotonergic system to stress. *PLoS One* 9:e101420.

LR Brooks, CL Enix, SC Rich, JA Magno, CA Lowry, **P-S Tsai** (2014). Fibroblast growth factor deficiencies impact anxiety-like behavior and the serotonergic system. *Behav Brain Res* 264C:74-81.

LH Jung, SI Kavanaugh, B Sun, **P-S Tsai** (2014). Localization of a molluscan gonadotropin-releasing hormone in *Aplysia californica* by in situ hybridization and immunocytochemistry. *Gen Comp Endocrinol* 195:132-137.

H Miraoui, AA Dwyer, GP Sykiotis, WC Chung, L Plummer, B Feng, A Beenken, TH Pers, P Dworzynski, S Durrani, K Keefe, M Niedziela, T Raivio, WF Crowley, SB Seminara, R Quinton, VA Hughes, M Ozata, P Kumanov, J Young, MA Yialamas, JE Hall, GV Vliet, JP Chanoine, J Rubenstein, M Mohammadi, **P-S Tsai**, Y Sidis, K Lage, N Pitteloud (2013). Mutations in FGF17, IL17RD, DUSP6, SPRY4 and FRLT3 are identified in individuals with congenital hypogonadotropic hypogonadism. *Am J Hum Genet* 92:725-743.

JR Rochester, WC Chung, TB Hayes, **P-S Tsai** (2012). Opposite-sex housing reactivates the declining GnRH system in aged transgenic mice with FGF signaling deficiency. *Am J Phys Endo Metab* 303:E1428-E1439.

LR Brooks, CDV Le, WC Chung, **P-S Tsai** (2012). Maternal behavior in transgenic mice with reduced fibroblast growth factor receptor function in gonadotropin-releasing hormone neurons. *Behav Brain Funct* 8:47, 1-8.

BK Tata, WC Chung, LR Brooks, SI Kavanaugh, **P-S Tsai** (2012). Fibroblast growth factor signaling deficiencies impact female reproduction and kisspeptin neurons in mice. *Biol Reprod* 86:119, 1-7.

B Sun, SI Kavanaugh, **P-S Tsai** (2012). Gonadotropin-releasing hormone in protostomes: Insights from functional studies on *Aplysia californica*. *Gen Comp Endocrinol* 176:321-326.

MJ McCabe, C Gaston-Massuet, V Tziaferi, LC Gregory, KS Alatzoglou, M Signore, E Puelles, D Gerrelli, IS Farooqi, J Raza, J Walker, SI Kavanaugh, **P-S Tsai**, N Pitteloud, JP Martinez-Barbera, MT Dattani (2011). Novel *FGF8* mutations associated with recessive holoprosencephaly and hypothalamo-pituitary dysfunction. *J Clin Endocrinol Metab* 96:E1709-1718.

B Sun, **P-S Tsai** (2011). A gonadotropin-releasing hormone-like molecule modulates the activity of diverse central neurons in a gastropod mollusk, *Aplysia californica*. *Front Endocrinol* 2:36, 1-8.

P-S Tsai, LR Brooks, JR Rochester, SI Kavanaugh, and WC Chung (2011). Fibroblast growth factor signaling in the developing neuroendocrine hypothalamus. *Front Neuroendocrinol* 32:95-107.

LR Brooks, WC Chung and **P-S Tsai** (2010). Abnormal hypothalamic oxytocin system in fibroblast growth factor 8-deficient mice. *Endocr* 38:174-180.

WC Chung, TA Matthews, BK Tata and **P-S Tsai** (2010). Compound deficiencies in multiple FGF signaling components differentially impact the murine GnRH system. *J Neuroendocrinol* 22:944-950.

NT Motts, WC Chung, **P-S Tsai** and TR Pak (2010). Differential fibroblast growth factor 8 (FGF8)-mediated autoregulation of its cognate receptors, Fgfr1 and Fgfr3, in neuronal cell lines. *PLoS One* 5:e10143.

P-S Tsai, B Sun, JR Rochester and NL Wayne (2010). Gonadotropin-releasing hormone-like molecule is not an acute reproductive activator in the gastropod, *Aplysia californica*. *Gen Comp Endocrinol* 166:280-288.

WC Chung and **P-S Tsai** (2010). Role of fibroblast growth factor signaling in gonadotropin-releasing hormone neuronal system development. *Front Horm Res* 39:37-50.

P-S Tsai and L Zhang (2008). The emergence and loss of gonadotropin-releasing hormone (GnRH) in protostomes: Orthology, phylogeny, structure, and function. *Biol Reprod* 79:798-805.

WC Chung, SS Moyle and **P-S Tsai** (2008). Fibroblast growth factor 8 signaling through FGF receptor 1 is required for the emergence of gonadotropin-releasing hormone neurons. *Endocrinology* 149:4997-5003.

J Falardeau, WC Chung, A Beekeen, L Plummer, Y Sidis, T Raivio, A Dwyer, S Na, J Hall, C Huot, N Alois, R Quinton, L W Cole, V Hughes, M Mohammadi, **P-S Tsai** and N Pitteloud (2008). Decreased FGF8 signaling causes GnRH deficiency in human and mice. *J Clin Invest* 118:2822-2831.

L Zhang, JA Tello, W Zhang and **P-S Tsai** (2008). Molecular cloning, expression pattern, and immunocytochemical localization of a gonadotropin-releasing hormone-like molecule in the gastropod mollusk, *Aplysia californica*. *Gen Comp Endocrinol* 156:201-209.

L Zhang, AE Kessler and **P-S Tsai** (2007). Characterization and steroidal regulation of gonadotropin beta subunits in the male leopard frog, *Rana pipiens*. *Gen Comp Endocrinol* 150:66-74.

P-S Tsai (2006). Gonadotropin-releasing hormone in invertebrates: structure, function, and evolution. *Gen Comp Endocrinol* 148:48-53.

P-S Tsai and JC Gill (2006). Mechanism of disease: insights into X-linked and autosomal dominant Kallmann syndrome. *Nat Rev Endocrinol* 2:160-171.

JC Gill and **P-S Tsai** (2006). Expression of a dominant negative FGF receptor in developing GnRH1 neurons disrupts axon outgrowth and targeting to the median eminence. *Biol Reprod* 74:463-472. (*Highlight Article*)

P-S Tsai and JT Jones (2005). Steroid-induced changes in the morphology of GnRH neurons in the male leopard frog, *Rana pipiens*: Correlation with plasma gonadotropin and gonadal size. *Gen Comp Endocrinol* 141:152-160.

P-S Tsai, AE Kessler, JT Jones, and KB Wahr (2005). Alteration of the hypothalamic-pituitary-gonadal axis in estrogen- and androgen-treated adult male leopard frog, *Rana pipiens*. *Reprod Biol Endocrinol* 3:2.

P-S Tsai, SM Moenter, HR Postigo, M El Majdoubi, TR Pak, JC Gill, S Paruthiyil, S Werner and RI Weiner (2005). Targeted expression of a dominant negative FGF receptor in GnRH neurons reduces FGF responsiveness and the size of GnRH neuronal population. *Mol Endocrinol* 19:225-236.

JC Gill, SM Moenter and **P-S Tsai** (2004). Developmental regulation of gonadotropin-releasing hormone neurons by FGF signaling. *Endocrinology* 145:3830-3839.

P-S Tsai, JB Lunden, and JT Jones (2003). Effects of steroid hormones on spermatogenesis and GnRH release in male leopard frogs, *Rana pipiens*. *Gen Comp Endocrinol* 134:330-338.

P-S Tsai, SM Moenter, and JM Cavolina (2003). Development of a novel enzyme immunoassay for the measurement of *in vitro* GnRH release from rat and bullfrog hypothalamic explants. *Comp Biochem Physiol A Mol Integr Physiol* 136:693-700.

TR Pak, GR Lynch, and **P-S Tsai** (2003). Steroidal modulation of *in vitro* gonadotropin secretion in prepubertal and adult male Siberian hamsters. *J Exp Zool* 298A:53-59.

P-S Tsai, TA Maldonado, and JB Lunden (2003). Localization of gonadotropin-releasing hormone in the central nervous system and a peripheral chemosensory organ of *Aplysia californica*. *Gen Comp Endocrinol* 130:20-28. (*Cover Article*)

TR Pak, GR Lynch, DM Ziegler, JB Lunden, and **P-S Tsai** (2003). Disruption of pubertal onset by exogenous testosterone and estrogen in two species of rodents. *Am J Physiol Endo Metab* 284:E206-212.

TR Pak, GR Lynch, and **P-S Tsai** (2002). Estrogen accelerates gonadal recrudescence in photo-regressed male Siberian hamsters. *Endocrinology* 143:4131-4134.

TR Pak, GR Lynch, and **P-S Tsai** (2002). Differential alteration of the reproductive axis by testosterone and estrogen in peripubertal and adult male Siberian hamsters (*Phodopus sungorus*). *Biol Reprod* 67:706-711.

TR Pak, GR Lynch, and **P-S Tsai** (2001). Testosterone and estrogen act via different pathways to inhibit puberty in the male Siberian hamsters (*Phodopus sungorus*). *Endocrinology* 142:3309-3316.

L Zhang, NL Wayne, NM Sherwood, HR Postigo and **P-S Tsai** (2000). Biological and immunological characterization of multiple GnRH in an opisthobranch mollusk, *Aplysia californica*. *Gen Comp Endocrinol* 118:77-89.

E Vitalis, JL Costantin, **P-S Tsai**, H Sakakibara, S Paruthiyil, T Iiri, JF Martini, M Taga, A Choi, A Charles and RI Weiner (2000). Role of cAMP signaling pathway in the regulation of gonadotropin-releasing hormone secretion in GT1 cells. *Proc Natl Acad Sci USA* 97:1861-1866.

P Licht, T Hayes, **P-S Tsai**, G Cuhna, H Kim, M Golbus, S Hayward, MC Martin, RB Jaffe and SE Glickman (1998). Androgens and masculinization of the female spotted hyaena (*Crocuta crocuta*). 1. Urogenital morphology and placental androgen production during fetal life. *J Reprod Fertil* 113:105-116.

P-S Tsai and RI Weiner (1996). Regulation of GnRH neurons by basic fibroblast growth factor. *Trends Endocrinol Metab* 7:65-68.

P-S Tsai, S Werner and RI Weiner. (1995). Basic fibroblast growth factor is a neurotrophic factor in GT1 GnRH neuronal cell lines. *Endocrinology* 136:3831-3838.

P Licht, **P-S Tsai** and J Sotowska-Brochocka. (1994). Nature and distribution of gonadotropin-releasing hormones in brains and plasma of ranid frogs. *Gen Comp Endocrinol* 94:186-198.

P-S Tsai, TB Hayes and P Licht. (1994). Role of aromatization in testosterone-induced inhibition of LH secretion in female turtles, *Trachemys scripta*. *Biol Reprod* 50:144-151.

T Iguchi, M Edery, **P-S Tsai**, S Ozawa, T Sato and HA Bern. (1993). Epidermal growth factor receptor levels in reproductive organs of female mice exposed neonatally to diethylstilbestrol. *Proc Soc Exp Biol Med* 204:110-116.

P-S Tsai and P Licht. (1993). *In vivo* GnRH responsiveness of LH secretion in the female turtle, *Trachemys scripta*, in relation to the reproductive stage. *Gen Comp Endocrinol* 90:328-337.

P-S Tsai and P Licht. (1993). Differential distribution of chicken I and chicken II GnRH in the turtle brain. *Peptides* 14:221-226.

P-S Tsai and P Licht. (1993). Gonadotropin-releasing hormone-induced desensitization of *in vitro* luteinizing hormone secretion in a turtle, *Trachemys scripta*. *Gen Comp Endocrinol* 89:238-247.

P-S Tsai and HA Bern. (1991). Estrogen-independent growth of mouse vaginal epithelium in organ culture. *J Exp Zool* 259:238-245.

P-S Tsai, FDA Uchima, ST Hamamoto and HA Bern. (1991). Proliferation and differentiation of prepubertal mouse vaginal epithelial cells *in vitro* and the specificity of estrogen-induced growth retardation. *In Vitro Cell Dev Biol* 27A:461-468.

Peer-reviewed Book Chapters:

P-S Tsai (2011). Neuroendocrine control of reproduction in amphibians. In: *Hormones and Reproduction of Vertebrates. Vol 2: Amphibians*. Eds. DO Norris and KH Lopez. pp 21-38. Academic Press, London.

P-S Tsai and RI Weiner (1997). Cell Biology of GT1 GnRH neurons. In: *GnRH Neurons: Gene to Behavior*. Eds. IS Parhar and Y Sauma. pp.439-457. Brain Schuppan Publishers, Tokyo.

Work in Progress:

JR Rochester, SI Kavanaugh, **P-S Tsai** (in preparation). Opposite-sex housing upregulates neurotrophic signals and restores the GnRH system in aged female mice deficient in FGF signaling.

VII. ABSTRACTS AND MEETING PRESENTATIONS IN LAST FIVE YEARS (names of student/postdoctoral trainees are underlined):

KE Jewell, ND Anderson, JC Coulombe, **P-S Tsai**. "Morphological study of GnRH neurons using enzyme metallography and X-ray microscopy". Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2019.

ND Anderson, KE Jewell, **P-S Tsai**. "Quantitative assessment of the mechanism underlying GnRH neuronal decline in fibroblast growth factor receptor-deficient mice". Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2019.

TN Akonom, PK Gonzales, MA Ehringer, **P-S Tsai**. "Characterization of genes differentially expressed during the sexual enrichment of transgenic male mice for FGF signaling deficiency". Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2019.

C Dela Cruz, **CA Horton**, **P-S Tsai**. "Conditional deletion of Fgfr1 in GnRH neurons directly impacts the hypothalamic-pituitary-gonadal axis during pubertal transition of male mice". Annual Meeting of the Society for the Study of Reproduction, San Jose, 2019.

HS Zhang, **P-S Tsai**. "Cage enrichments negatively impact the reproductive brain in male mice". Biennial Conference of the North American Society for Comparative Endocrinology, Gainesville, 2019.

AW Martillotti, **P-S Tsai**. “Functional characterization of a lophotrochozoan adipokinetic hormone”. Annual Meeting of the Society for Integrative and Comparative Biology, Orlando, 2019.

HS Zhang, **P-S Tsai**. “Cage enrichments negatively impact the reproductive brain in male mice”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2018.

SJ Bonelli, AN Brown, **P-S Tsai**. “Altered androgen responsiveness in FGF8-deficient male mice”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2018.

C Dela Cruz, **P-S Tsai**. “Reproductive phenotype in female mice with conditional deletion of FGFR1 in GnRH neurons”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2018.

AW Martillotti, **P-S Tsai**. “An adipokinetic hormone acts as a volume regulator in the intertidal gastropod mollusk, *Aplysia californica*”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2018.

AV Miller, LR Brooks, **P-S Tsai**. “Sex induces neuroplasticity in the reproductive brain of male transgenic mice”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2017.

AW Martillotti, X Dai, A Diaz, **P-S Tsai**. “An adipokinetic hormone acts as an osmoregulatory factor in the gastropod mollusk, *Aplysia californica*”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2017.

SJ Bonelli, LR Brooks, **P-S Tsai**. “Female *Fgfr3*-deficient mice display defects in pituitary-gonadal function without a defect in GnRH mRNA expression”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2017.

AW Martillotti, X Dai, T Vernon, N Anderson, **P-S Tsai**. “A novel osmoregulatory role of an adipokinetic hormone in the gastropod mollusk, *Aplysia californica*”. International Congress of Comparative Endocrinology, Lake Louis, Canada, June 2017.

AV Miller, LR Brooks, **P-S Tsai**. “Sex as an enrichment to rescue reproductive deficits in male transgenic mice”. International Congress of Comparative Endocrinology, Lake Louis, Canada, June 2017.

J Cruz-Robles, SJ Bonelli, **P-S Tsai**. “The reproductive axis in mice deficient in fibroblast growth factor receptor 3”. International Congress of Comparative Endocrinology, Lake Louis, Canada, June 2017.

A Ary, SJ Bonelli, AV Miller, LR Brooks, **P-S Tsai**. “Compensatory mechanisms for GnRH production in *Fgf8*-deficient mice”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2016.

P-S Tsai, SI Kavanaugh, CD Link, PK Gonzales, LR Brooks. “The rescue of declining GnRH neurons in FGF signaling-deficient mice is associated with changes in diverse gene expression”. Annual Meeting of the Society for Neuroscience, San Diego, 2016.

SJ Bonelli, LR Brooks, SN Kalavity, SI Kavanaugh, P-S Tsai. “Characterization of the HPG axis in Fgfr3-deficient mice”. Annual Meeting of the Society for Neuroscience, San Diego, 2016.

SI Kavanaugh, P-S Tsai. “Functional authentication of two isoforms of a gastropod gonadotropin-releasing hormone receptor”. Annual Meeting of the Society for Neuroscience, San Diego, 2016.

E Simmons, SI Kavanaugh, P-S Tsai. “Evaluating the presence of GnRH Neurons on E13.5 and E15.5 Fgf8 hypomorphic embryos in a mouse model”. 2016 ABRCMS Conference, Tampa, FL, 2016.

SI Kavanaugh, P-S Tsai. “Gonadotropin-releasing hormone receptor in *Aplysia californica*”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2015.

AV Miller, SI Kavanaugh, P-S Tsai. “Disruptions of the suprachiasmatic nucleus in fibroblast growth factor-deficient mice”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2015.

SA Sower, P-S Tsai, SI Kavanaugh, DC Plachetzki. “Evolution of the GnRH and GnRH receptor families: Insight from a basal vertebrate and mollusk”. Biennial Conference of the North American Society for Comparative Endocrinology, Ottawa, 2015.

SI Kavanaugh, P-S Tsai. “Characterization of the gonadotropin-releasing hormone receptor in *Aplysia californica*”. Biennial Conference of the North American Society for Comparative Endocrinology, Ottawa, 2015.

AV Miller, SI Kavanaugh, P-S Tsai. “Structural and functional disruptions of the suprachiasmatic nucleus in fibroblast growth factor-deficient mice”. Biennial Conference of the North American Society for Comparative Endocrinology, Ottawa, 2015.

JI Johnson, P-S Tsai. “Gonadotropin-releasing hormone and adipokinetic hormone in the sea hare, *Aplysia californica*”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2014.

AV Miller, SI Kavanaugh, SA Christopher, P-S Tsai. “Age-dependent disruption of the suprachiasmatic nucleus in Fgf signaling-deficient mice”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2014.

S Bonelli, SI Kavanaugh, A Le, F Doherty, P-S Tsai. “Reproductive phenotype and GnRH system in Fgfr3-deficient mice”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2014.

JI Johnson, P-S Tsai. “Functional evolution of gonadotropin-releasing hormone and adipokinetic hormone: Studies from the sea hare, *Aplysia californica*”. Annual Meeting of the Society for Neuroscience, Washington DC, 2014.

AV Miller, SI Kavanaugh, SA Christopher, P-S Tsai. “VIP neurons in the suprachiasmatic nucleus of neonatal mice with disrupted fibroblast growth factor signaling”. Annual Meeting of the Society for Neuroscience, Washington DC, 2014.

Jl Johnson, Sl Kavanaugh, **P-S Tsai**. “Localization and physiological characterization of adipokinetic hormone (AKH) in the sea hare, *Aplysia californica*”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2013. ”.

S Ramelli, A Wolfe, S Radovick, **P-S Tsai**. “Conditional deletion of fibroblast growth factor receptor 1 in GnRH Neurons deleteriously impacts male and female reproductive phenotype”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2013.

AV Miller, Sl Kavanaugh, MA Basse, SD King, **P-S Tsai**. “Impacts on input and output neurons of the suprachiasmatic nuclei in fibroblast growth factor 8-deficient mice”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2013.

C Nguyen, Jl Johnson, **P-S Tsai**. “Functional divergence of two evolutionarily related peptides in the sea hare *Aplysia californica*: *in vivo* comparison of gonadotropin-releasing hormone (ap-GnRH) and adipokinetic hormone (ap-AKH)”. Annual Meeting of the Front Range Neuroscience Group, Fort Collins, 2013.

S Ramelli, A Wolfe, S Radovick, **P-S Tsai**. “Reproductive phenotype of transgenic mouse with conditional deletion of fibroblast growth factor receptor 1 in GnRH neurons”. Annual Meeting of the Society for Neuroscience, San Diego, 2013.

LR Brooks, RA Woolaver, CL Enix, CA Lowry, **P-S Tsai**. “A developmentally compromised serotonergic system is associated with reduced serotonin neuronal activation in response to stress: The role of fibroblast growth factor 8”. Annual Meeting of the Society for Neuroscience, San Diego, 2013.

Jl Johnson, Sl Kavanaugh, **P-S Tsai**. “Localization of adipokinetic hormone (AKH) peptide, transcript, and its putative receptor in the sea hare, *Aplysia californica*”. Annual Meeting of the Society for Neuroscience, San Diego, 2013.

A Sanchez, Sl Kavanaugh, **P-S Tsai**. “Arginine vasopressin neurons in suprachiasmatic nucleus of transgenic mice deficient in FGF8 and FGFR1”. The Leadership Alliance National Symposium, Stamford, 2013.

H Miraoui, AA Dwyer, G Sykiotis, LC Plummer, WC Chung, B Feng, A Beenken, J Carke, TH Pers, P Dworzynski, KW Keefe, M Niedziela, TJ Raivio, MD, WF Crowley, SB Seminara, R Quinton, VA Hughes, F Kumanov, J Young, MA Yialamas, JE Hall, J-P Chanoine, J Rubenstein, M Mohammadi, **P-S Tsai**, Y Sidis, N Pitteloud, K Lage. “Interactome-based affiliation scoring (IBAS) is a novel bioinformatic tool to identify and prioritize candidate genes: validation study in congenital hypogonadotropic hypogonadism”. Annual Meeting of the Endocrine Society, San Francisco, 2013.

VIII. INVITED TALKS SINCE 2001 (OUTSIDE HOME DEPARTMENT)

“Adipokinetic hormone in a gastropod: Insight from localization and functional studies”. Symposium on *GnRH-Related Peptides in Metazoa: Recent Progress and Discoveries*, North American Society of Comparative Endocrinology Meeting, Gainesville, May 2019.

“Functional divergence of two GnRH superfamily members in a gastropod mollusk”. Symposium on *Progress in Comparative Endocrinology: Evolution and Functions of*

Neuropeptide Signaling Systems. Conference of European Comparative Endocrinologists. Glasgow, Aug 2018.

"Sexual cues enrich the reproductive brain". Regis University, Department of Psychology and Neuroscience. April 2018.

"Sexual interactions stimulate the reproductive brain". University of Denver, Department of Biological Sciences, Sept 2017.

"Gonadotropin-releasing hormone-related peptides and their receptors in a gastropod mollusk". Symposium on *Invertebrate Sex Steroids and Peptides*, International Congress of Comparative Endocrinology, Lake Louis, Canada, June 2017.

"Postnatal plasticity in the reproductive brain". University of Colorado Boulder, Neuroscience Seminar, March 2016.

"Plasticity in the postnatal gonadotropin-releasing hormone system". Symposium on *Vertebrate Reproductive Neuroendocrinology*, North American Society of Comparative Endocrinology Meeting, Ottawa, Canada, June 2015.

"Plasticity in the postnatal GnRH system". University of Michigan, Department of Molecular and Integrative Physiology, Ann Arbor, June 2014.

"Fgf signaling in GnRH neuronal development and maintenance". Van der Kloot Symposium on *Neuroendocrine Circuits: A Fertile Ground to Study Puberty & Reproduction*, SUNY Stony Brook University Medical Center, New York, Oct 2013.

"The use of sea slug, *Aplysia californica*, as a model for comparative neuroendocrinology". Symposium on *Molecular Tools in Comparative Endocrinology*, International Congress of Comparative Endocrinology, Barcelona, Spain, June 2013.

"Developmental and postnatal control of gonadotropin-releasing hormone neurons". University of Colorado Anschutz Medical Campus, Program in Reproductive Sciences, April 2012.

"Fgf signaling in the developing and postnatal GnRH system". Endocrinology Seminar Series. Université de Lausanne, Switzerland, March 2012.

"*Aplysia* GnRH: a new way of thinking about GnRH". Department of Aquaculture, National Taiwan Ocean University, Taiwan, Dec. 2011.

"Functional characterization of a GnRH-like molecule in a gastropod mollusk". The University of Maryland Institute of Marine & Environmental Technology, Baltimore, Nov. 2011.

"*Aplysia* GnRH: A role in reproduction?" Symposium on *Neuroendocrine Control of Reproduction*, North American Society of Comparative Endocrinology Meeting, Ann Arbor, July 2011.

"Central and peripheral functions of gonadotropin-releasing hormone in a gastropod". Howard Bern Symposium on *Recent Advances in Comparative Endocrinology*, Berkeley,

March 2010.

"FGF signaling: A common tie between olfactory morphogenesis and reproductive failure". University of Colorado at Boulder, Center for Neuroscience, Nov. 2009.

"FGF signaling, olfactory development, and reproductive failure". University of Colorado Anschutz Medical Campus, Neuroscience Program, Sept. 2009.

"Gonadotropin-releasing hormone in lophotrochozoans: An evolutionary and functional analysis". Symposium on *Invertebrate Reproductive Endocrinology*, 16th International Congress of Comparative Endocrinology, Hong Kong, June 2009.

"Structural, functional, and phylogenetic analysis of gonadotropin-releasing hormone in protostomes". Nanosymposium on *GnRH and Reproduction*. Annual Meeting of the Society for Neuroscience, Washington DC, 2008.

"Fgf8 hypomorphy, olfactory bulb defects, and reproductive failure". Loyola University Medical School, Neuroscience Program, Oct. 2008.

"Hypogonadotropic hypogonadism caused by FGF signaling deficiency". Regis University, Department of Psychology, March 2008.

"Androgenic and estrogenic regulation of the hypothalamic-pituitary-gonadal axis in the leopard frog". International Symposium on Amphibian and Reptile Endocrinology and Neurobiology, Berkeley, March 2007.

"FGF signaling deficiency: Pathway to hypogonadotropic hypogonadism". Department of Biomedical Sciences, Colorado State University, Feb. 2007.

"FGF signaling deficiency: Pathway to hypogonadotropic hypogonadism". Department of Zoology & Physiology, University of Wyoming, Nov. 2006.

"FGF signaling and GnRH neuronal development". Symposium on *New Players in the Reproductive Brain*. Annual Meeting of the Endocrine Society. Boston, June 2006.

"The gastropod gonadotropin-releasing hormone system: Function, structure, and receptor". Western Regional Conference on Comparative Endocrinology Invited Lectures. New Port, March 2006.

"FGFR1 and GnRH neuronal development: Insights into Kallmann syndrome". Reproductive Endocrine Sciences Center Seminar, Massachusetts General Hospital. Boston, Feb. 2006.

"FGF signaling regulates GnRH neuron genesis, migration, and axon targeting". Symposium on *New Horizons in GnRH Research*. Bethesda, Nov 2005.

"Gonadotropin-releasing hormone systems in a marine mollusk, *Aplysia californica*". Satellite Symposium on *Reproductive Endocrine Systems in Agnathans and Protochordates*. 15th International Congress of Comparative Endocrinology, University of New Hampshire, May 2005.

"FGF signaling in GnRH neurons". NIH Center for Reproductive Biological Research,

Neuroendocrine Focus Group Special Seminar. Baylor College of Medicine, Feb 2005.

"From mollusk to mammal: development and evolution of the gonadotropin-releasing hormone system". School of Life Sciences, Arizona State University, Oct 2003.

"Evolution and development of gonadotropin-releasing hormone neurons". Regis University, Department of Psychology, April 2003.

"Characterization of a novel molluscan gonadotropin-releasing hormone system". Symposium on *Cell and Molecular Basis of Behavioral Neuroendocrinology: a Comparative Approach*. Annual Meeting of the Society for Behavioral Neuroendocrinology, Scottsdale, AZ. June 2001.

"From mollusk to mammal: development and evolution of the gonadotropin-releasing hormone system". University of Denver. Department of Biological Sciences. May 2001.

"Gonadotropin-releasing hormone neurons: development, function, and evolution". University of Colorado at Boulder, Center for Neuroscience, Jan 2001.

IX. PROFESSIONAL SOCIETY MEMBERSHIPS

- Society for Neuroscience
- The Endocrine Society
- Society for Integrative and Comparative Biology

X. SERVICE

Department:

- IPHY Sensory/Muscle Physiologist Search Committee (Fall 2019)
- IPHY PUEC for Janet Casagrand's reappointment, Chair (Fall 2019)
- IPHY Faculty mentor to Jia Shi and Janet Casagrand (Spring 2019-present)
- IPHY Merit Review Committee (Summer 2019-Fall 2019)
- IPHY Introductory Physiology Sequence Committee (Spring 2019)
- IPHY Grievance Committee (Spring-Summer 2018)
- IPHY Program Review Executive Workgroup (Fall 2018)
- IPHY Department Action Team on Teaching Quality Framework (Fall 2017- present)
- IPHY Chair (Fall 2014-Spring 2017)
- IPHY Chair-Elect (Fall 2013-Spring 2014)
- IPHY Integrative Physiologist Search Committee, Chair (Fall 2012-Spring 2013)
- IPHY PUEC for Christopher Lowry's tenure and promotion, Chair (Fall 2012)
- IPHY faculty mentor to Janet Casagrand (Spring 2011-Spring 2014)
- IPHY faculty mentor to Christopher Lowry (Fall 2007-Spring 2013)
- IPHY Animal Facility, Director (Spring 2006-Fall 2012)
- IPHY Animal Care Committee, Member (Spring 2013-Spring 2014) and Chair (Spring 2006-Fall 2012)
- IPHY Graduate Admissions Committee (Fall 2004-Spring 2013)
- IPHY Committee on Diversity (Fall, 2005-Spring 2013)
- IPHY PUEC for Christopher Lowry's reappointment, Chair (Fall 2011)

- IPHY Integrative Physiologist Search Committee (Fall 2011-Spring 2012)
- IPHY Shared core facility development with EBIO (Fall 2010)
- IPHY Heidi Bustamante's Reappointment Committee (Fall 2010)
- IPHY Comparative Curriculum Committee, Chair (Spring 2010)
- IPHY Integrative Physiologist Search Committee (Fall 2009-Spring 2010)
- IPHY PUEC for Marissa Ehringer's tenure and promotion (Fall 2009)
- IPHY Welfare Committee, Chair (Spring 2006-2009)
- IPHY PUEC for Kenneth Wright's tenure and promotion (Fall 2008)
- IPHY Graduate Task Force (Fall 2006-Spring 2007)
- IPHY Integrative Physiologist Search Committee (Fall 2005-Spring 2006)
- IPHY PUEC for Kenneth Wright's reappointment (Fall 2005)
- IPHY Ad hoc Committee on Instructor Evaluation (Spring 2004)
- IPHY Ad hoc Committee on Future Hires (Spring 2004)
- EPOB Graduate Committee (2001-2002)
- EPOB Animal Care Committee (2001-2002)
- EPOB Executive Committee (2000-2001)
- EPOB Outcomes Committee (2000-2001)
- EPOB Mark Osadjan Reappointment Committee (Fall, 2000)

University:

- Institute for Behavioral Genetics, internal program reviewer (2018-2019)
- Vice Chancellor for Research & Innovation Shared Instrumentation Task Force (2017-present)
- UROP Review Board (2017-2018)
- Department of French & Italian, program reviewer (2015-2016)
- Pew Scholar internal selection, reviewer (2013)
- IACUC, member (Spring 2009-Fall 2012), Vice Chair (Summer 2013-Fall 2013), and Chair (Spring 2013).
- Responsible Conduct of Research (RCR), instructor/facilitator on "Use of Laboratory Animals " (Fall 2011-2013)
- Radiation Safety Committee (2001, 2008-2012, Spring 2019)
- Council on Research and Creative Work (2008-2009)
- Innovate Grant Proposal (IGP) Review Panel (2007-2010)
- Speaker, NIH/HHMI Professional Development Workshop (2004-2005)
- Host, University Health Professional Day (2000-2001)
- Dean's Small Grant review panel (2000)

Professional Societies:

- The Endocrine Society Presidential Poster Competition, judge (2014)
- Awards Committee. North American Society for Comparative Endocrinology (2013-present).
- Program Committee. North American Society for Comparative Endocrinology (2012-2013).
- Scientific Advisory Committee. North American Society for Comparative Endocrinology (2011-2012)
- International Federation of Comparative Endocrinology Societies, council member (2009-2017)
- Program Committee. International Congress of Comparative Endocrinology (2009-2017)
- Endocrine Society Summer Graduate Fellowship, reviewer (2009)
- The Endocrine Society "GnRH-Gonadotropins" session, abstract reviewer (2006-2011)

- Front Range Chapter of the Society for Neuroscience Poster Competition, judge (2004-present)
- Steering Committee, Front Range Chapter of the Society for Neuroscience (2004-2008)

Organizer/Chair of Meetings and Symposia:

- Co-organizer and co-chair. Symposium on “*GnRH-related peptides in Metazoa: recent progress and discoveries*”. 2019 Meeting of the North American Society for Comparative Endocrinology (2019).
- Organizer and co-chair. Symposium on “*Invertebrate Sex Steroids and Peptides*”. International Congress of Comparative Endocrinology (2017).
- Chair. Symposium on “*The Reproductive Neuroendocrine System Comes of Age*”. International Congress of Endocrinology and the Endocrine Society Meeting (2014).
- Co-organizer and co-chair. Symposium on “*Molecular Tools in Comparative Endocrinology*”. International Congress of Comparative Endocrinology (2013).
- Chair. Symposium on “*Development and Function of Hypothalamic Circuitry*”. The Endocrine Society Meeting (2012).
- Co-chair. Session on “*Development and Modulation of Hypothalamic Neuropeptidergic Neurons*”. The Endocrine Society Meeting (2012).
- Co-organizer and co-chair. Symposium on “*Neuroendocrine Control of Reproduction*”. 2011 Meeting of the North American Society for Comparative Endocrinology (2011).
- Chair, Organizing Committee, Western Regional Conference on Comparative Endocrinology (2003).

Panelist for US Funding Agencies:

- Standing member, NIH NNRS Study Section (2019-present)
- Member, NIH ZRG1 EMNR Special Emphasis Panel (2019)
- Panelist, NSF Modulation Panel (2017)
- Member, NIH NNRS Study Section (2017, 2018)
- Member, NIH ZRG1 IFCN Special Emphasis Panel (2016)
- Ad hoc reviewer, NIH TAG Study Section (2015)
- Standing member, NIH ICER Study Section (2009-2013)
- Panelist, NICHD Reproductive Neuroendocrinology Advisory Panel (2011)
- Member, NIH ZRG1 EMNR Special Emphasis Panel (2009, 2010, 2014)
- Panelist, NSF PSI Panel (2008)
- Panelist, NSF MRI Panel (2003-2005)

Editorial:

- Associate Editor, *Frontiers in Endocrinology* (2011-present)
- Topic Co-Editor of “Biology of GnRH Neurons” in *Frontiers in Endocrinology* (2012)
- Editorial Board, *ISRN Endocrinology* (2010-present)
- Editorial Board, *Biology of Reproduction* (2004-2009)

Ad Hoc Reviewer for Grant Proposals & Scientific Evaluations:

- Biotechnology and Biological Sciences Research Council (UK)
- NIH CSR Peer Review Quality Experiment (USA)
- Fondation Gertrude von Meissner (Switzerland)
- Medical Research Council (Great Britain)

- NSF Modulation and PSI Programs (USA)
- National Research Council (South Africa)
- NIH U54 Specialized Cooperative Centers Program in Reproduction and Infertility Research (USA)
- Swiss National Foundation (Switzerland)
- Wisconsin National Primate Research Center Pilot Project Grant (USA)

Ad Hoc Reviewer for Journals:

- Aquaculture
- American Journal of Human Genetics
- American Journal of Pathology
- American Journal of Physiology
- Bioessays
- Biology of Reproduction
- Case Reports in Genetics
- Clinical Endocrinology
- Comparative Biochemistry and Physiology
- Endocrinology
- eNeuro
- Exercise and Sport Science Review
- Experimental Biology and Medicine
- Expert Review of Proteomics
- European Journal of Endocrinology
- European Journal of Neuroscience
- Frontiers in Neuroscience
- Frontiers in Neuroendocrinology
- FASEB Journal
- General and Comparative Endocrinology
- Human Molecular Genetics
- Integrative and Comparative Biology
- Invertebrate Reproduction and Development
- Journal of Applied Physiology
- Journal of Comparative Neurology
- Journal of Endocrinology
- Journal of Molecular Endocrinology
- Journal of Neurochemistry
- Journal of Neuroendocrinology
- Journal of Neuroscience
- Molecular and Cellular Endocrinology
- Molecular Endocrinology
- Molecular Reproduction and Development
- Neuroendocrinology
- Neuroimmunomodulation
- Peptides
- PLoS One
- Proceedings of the National Academy of Sciences USA
- Reproduction
- Trends in Endocrinology and Metabolism

Consultation:

- Anatomy Consultant Board, McGraw-Hill Publishing (2004-2005)

Community:

- Poster Judge. Science Fair, Windham High School, CT (1998).
- Development of NSF-supported outreach website on metazoan reproduction (<http://squishiesandcrunchies.net/index.html>)

XI. TEACHING

Primary:

- EPOB 2060. Cell and Integrative Physiology (50%)
Spring 2000: 80 students.
- EPOB 3420. Human Anatomy (100%)
Fall 2000: 270 students
Fall 2001: 294 students
Fall 2002: 289 students
Fall 2003: 350 students
- EPOB/IPHY 4480. Comparative Reproduction (100%)
Spring 2002: 17 students
Spring 2003: 26 students
Spring 2004: 14 students
Spring 2005: 22 students
Spring 2006: 23 students
Spring 2011: 25 students
Spring 2013: 15 students
- EPOB 6300. Graduate Seminar in Organismic Biology (50%)
Fall 2002: 5 students
- IPHY 2010R. Seminar on Human Reproduction (100%)
Fall 2018: 17 students
- IPHY 3410. Human Anatomy (100%)
Fall 2004: 196 students
Fall 2005: 206 students
Fall 2006: 450 students total in 2 sections
Fall 2007: 210 students
- IPHY 4440. Endocrinology (100%)
Spring 2009: 52 students
Spring 2010: 92 students
Spring 2011: 98 students
Spring 2012: 97 students
Spring 2013: 131 students
Spring 2014: 131 students
Spring 2015: 136 students
Fall 2015: 149 students
Fall 2016: 120 students
Fall 2017: 113 students
Spring 2018: 90 students
Fall 2018: 105 students
Fall 2019: 140 students

- IPHY 5100. IPHY Colloquium (100%)
Spring 2009: 9 students
- IPHY 5400. Graduate Endocrinology (100%)
Spring 2010: 5 students
Spring 2012: 15 students
- IPHY 6830. Professional Skills for the Research Scientists (50%)
Fall 2019: 18 students

Guest Lectures:

- EPOB 2060. Cell and Integrative Physiology
Spring 2001: 1.25-hour lecture
- NRSC 5110. Neuroscience Graduate Core
Spring 2003: 2.5-hour lecture
Spring 2004: 2.5-hour lecture
Spring 2005: 2.5-hour lecture
Spring 2006: 2.5-hour lecture
Spring 2007: 2.5-hour lecture
Spring 2010: 2.5-hour lecture
Spring 2011: 2.5-hour lecture
Spring 2012: 2.5-hour lecture
Spring 2013: 2.5-hour lecture
Spring 2014: 2.5-hour lecture
Spring 2015: 2.5-hour lecture
Spring 2016: 2.5-hour lecture
Spring 2017: 2.5-hour lecture
Spring 2018: 2.5-hour lecture
Spring 2019: 2.5-hour lecture
- IPHY 6830, Professional Skills for the Research Scientist
Fall 2009: 50-minute lecture
Fall 2011: 50-minute lecture
Fall 2013: 45-minute lecture
Fall 2015: 45-minute lecture

Participation in Teaching Improvement Programs:

- Endocrinology curriculum evaluation with Science Education Initiatives (2009-2010).
- Human Anatomy curriculum evaluation with Science Education Initiatives (2007-2008).
- Participation in a 3-week FTEP workshop: "Are your students learning the main concepts? Defining learning goals and assessing as you go." Feb. 2, 9, and 16, 2007.
- Participation in FTEP Symposium: "Revitalizing Your Class Through Research Based Innovation", Oct. 14, 2003.
- Weekly teaching performance workshop with Lee Potts (Professor Emeritus of Theatre and Dance), Fall semester, 2000.

XII. TRAINEES

Postdoctoral Fellows:

- Janet Casagrand, Ph.D. (2001-2002)

- Current position: Senior Instructor, Department of Integrative Physiology, University of Colorado Boulder
- Wilson Chung, Ph.D. (2006-2010)
Current position: Associate Professor, Department of Biological Sciences, Kent State University
- Cynthia Dela Cruz (2018-present)
- Faye Doherty, Ph.D. (2012-2013)
Current position: IHC Lab Director, HistoTox Labs, Inc.
- Scott Kavanaugh, Ph.D. (2009-2016)
Current position: Deceased
- Tammy Maldonado, Ph.D. (2000-2001)
Current position: Instructor, Department of Integrative Physiology, University of Colorado Boulder
- Johanna Rochester, Ph.D. (2009-2012)
Current position: Research Scientist, The Endocrine Disruptor Exchange
- Biao Sun, Ph.D. (2009-2011)
Current position: Research Associate, University of Queensland, Australia.
- Xin Dai, Ph.D. (2015-2017; International Research Scholar)
Current position: Associate Professor, Yangzhou University, People's Republic of China
- Lihong Zhang, Ph.D. (1998-1999)
Current position: Associate Professor, Sun Yat-Sen University, People's Republic of China

Graduate Students-Primary Advisor:

- Tyler Akonom (M.S., 2018-present)
- Nathan Anderson (M.S., 2018-present)
- Margaret Ashton (M.S., 2004)
Current position: Radiation Safety Officer, University of Colorado
- Samantha Bonelli (M.S., Spring 2017)
Current position: Professional Research Assistant, University of Colorado
- Leah Brooks (M.S., 2009; Ph.D., 2014)
Current position: Medical Affairs Director, Mallinckrodt Pharmaceuticals
- Jason Cavolina (M.S., 1999)
Current position: Pharmacist, East Hampton, NY
- Jessenia Cruz (M.S., 2017)
- John Gill (Ph.D., 2005)
Current position: Director of Research, Audion Therapeutics
- Mai Hashimoto (M.S., 2004)
Current position: Occupational health therapist, Fort Collins, CO
- Joshua Johnson (M.S., 2014)
Current position: Research Associate, Premier Laboratory
- Lisa Jung (M.S., 2013)
Current position: Chief Business Development Officer, Manhattan
- Kelle Karp (M.S., 2007)
Current position: Environmental Specialist, Boulder Office of Environmental Affairs
- Anthony Martillotti (M.S. 2018)
- Ann Miller (B.A./M.S., 2015)
- Sarah Moyle (M.S., 2009)
Current position: Ph.D. student in Physiology, University of Bern
- Toni Pak (Ph.D., 2002)

- Current position: Professor, Loyola University Medical School
- Hector Postigo (M.S., 1999)
Current position: Associate Professor, Temple University
- Sarah Ramelli (M.S., 2014)
Current position: Professional Research Assistant, Oregon Health and Science University
- Kevin Wright (M.S., 2013)
Current position: Owner and manager of monarch butterfly breeding farm
- Hugh Zhang (M.S., 2019)
- Wei Zhang (M.S., 2011)
Current position: Professional Research Assistant, University of Colorado Anschutz Medical Campus

Graduate Students-Committee Member:

- Ashley Bolden (M.S., 2009)
- Lida Beninson (Ph.D., 2013)
- Lauren Chun (Ph.D., 2017; Dept. of PSYC)
- Craig Emter (Ph.D., 2006)
- James Hassell (Ph.D., 2019)
- Steven Hobbs (Ph.D., 2007)
- Michaela Howell (Ph.D., 2013; Dept. of Anthropology)
- Barbekka Hurtt (Ph.D., 2002)
- Christopher Jung (Ph.D., 2009)
- Phaivit Laphyai (current Ph.D. student, Mahidol University, Thailand)
- Elena Lopez (Ph.D., 2008)
- Sarah Kennedy (Ph.D., 2005)
- Evan Paul (Ph.D., 2014)
- Anne Pierce (current Ph.D. student; Dept. of PSYC)
- Angela Peace (M.A., 2002)
- Ann Petersen (Ph.D., 2008)
- Graeme Roch (Ph.D., 2011; University of Victoria, Canada)
- Chris Stamper (Ph.D., 2018)
- Ellen Stothard (Ph.D., 2017)
- Alan Vajda (M.A., 2002; Ph.D., 2006)
- Jamie Voyles (M.S., 2005)
- Jennifer Wilking (Ph.D., 2009; Dept. of PSYC)

Undergraduate Students-Primary Advisor: (Honors thesis students are underlined)

- Alexa Ary (Independent study, Spring 2015; NIH/HHMI fellowship, Fall 2015, Independent study, Spring 2016; UROP, Fall 2016; Honor's thesis, Fall 2016)
- Diana Arroyo (SMART program, Summer 2015)
- Madeline Basse (Independent study, Spring 2011-2012)
- Rene Begay (SMART program, Summer 2011)
- Rebecca Bolen (Independent study, Fall 2017-Spring 2018, Spring 2019; UROP, Fall 2018; Honors thesis, Fall 2018-Spring 2019)
- Samantha Bonelli (BURST, Summer 2014; NIH/HHMI fellowship, 2014-2015)
- Amanda Brown (Independent study, Fall 2018-Spring 2019; Honors thesis, Fall 2019-Spring 2020)
- Jason Browne (SMART program, Summer 2010)
- Cori Burns (Independent study, 2000-2001)

- Grace Clarke (Independent study, Fall 2019)
- Laura Chu (SMART program, Summer 2001; UROP, 2002; Honor's thesis, 2002-2003)
- Jane Chui (UROP, Fall 2016, Independent study, Fall 2017-Spring 2018)
- Stacy Christopher (SMART program, Summer 2012)
- Michaela Deck (Independent study, Spring 2018, Spring 2019; UROP, Fall 2018)
- Arrianna Diaz (Independent study, Spring 2017)
- Nina Donner (Independent research, 2003)
- Rachel Ducey (Independent study, Fall 2014, Spring 2015)
- Courtney Enix (Independent study, Fall 2010; UROP, Spring 2011; NIH/HHMI fellowship, 2011-2012)
- Rosemary Eppinger (Independent study, UROP & NSF REU, Spring & Summer 2009; NIH/HHMI fellowship, 2010-2011)
- Ricardo Esquivias (SMART program, Summer 2008)
- Sarah Flood (Independent study, Spring 2016; UROP and Everson Scholarship, Fall 2016)
- Katie Fleagle (UROP, 2007)
- Laura Gorsuch (UROP, 2006-2007)
- Spencer Haddy (Independent research, Summer 2019)
- Mai Hashimoto (Independent research, 2000-2001)
- Reva Hawkins (SMART program, Summer 2003)
- Dan Heppie (Independent research, Spring 2002)
- Cassandra Horton (Independent research, Fall 2018-Spring 2019; Honors thesis, Fall 2019-Spring 2020)
- Clara Hunt (UROP and NSF REU, 2009)
- Graham Ives (BURST, 2012-2013)
- Katelyn Jewell (Independent study, Spring 2019; UROP, Summer 2019)
- Lisa Jung (Independent study, Summer 2008-2009)
- Sandra Kalavity (Independent study, Fall 2015-Fall 2016)
- Ann Kessler (Independent research & UROP, 2001-2002)
- Stephanie King (Independent study & UROP, 2010)
- Andy Le (Independent study, Spring 2014 & Fall 2015; UROP, Summer-Fall 2014; UROP, Spring 2015; Independent study, Fall 2015)
- Duyt Le (Independent research, 2009)
- Ashly Leder (Independent research & UROP, 2004; Honor's thesis, 2004-2005)
- Pierce Lewien (UROP, Fall 2014, Spring 2015; Independent study, Fall 2015, Spring 2016)
- Nadeau Lyn (SMART program, Summer 2009)
- Jinno Magno (UROP, Fall 2011-2012)
- Olga Mallett (Independent research & UROP, 2005-2006)
- Tynesha Matthews (NIH/HHMI fellowship, 2007-2009)
- Ann Miller (UROP, 2012-2013)
- Arturo Montano (NIH/HHMI fellowship, 2007-2008)
- Cindy Nguyen (Independent study, Summer 2013-Spring 2014)
- Schasny Osteroo (Independent study, Fall 2019)
- Heide Pals (Independent study, Spring 2012; BURST, Summer 2012; UROP, 2012-2013)
- Levy Reyes (SMART program, Summer 2004, 2005)
- Antonia Rodriguez (Independent research, Spring & Fall 2015)
- Samuel Rich (UROP, Summer 2010-2011)
- Jessenia Robles (SMART program, Summer 2014)

- Natalie Rubio (UROP, Fall 2013; Independent research, Spring 2014)
- Alicia Sanchez (SMART program, Summer 2013)
- Katherine Schott (UROP, 2004)
- Emily Shipley (Independent study, Spring 2011; UROP, Fall 2011)
- Epiphani Simmons, SMART program, Summer 2016)
- Kyla Simpson (Independent research & UROP, 2001-2002; Honor's thesis, 2003-2004)
- Natalie Shelden (Independent study, Spring 2020)
- Alexandra Strauss (Independent study, Spring 2020)
- Stephanie Summers (Independent study, 2003)
- Brooke Tata (UROP & NSF REU, 2009-2010; Honor's thesis, 2009-2010)
- Tate Vernon (Independent study, Spring 2015; UROP, Summer 2015, Fall 2015)
- Katie Wahr (Independent research, 2004)
- DeNita Wilson (SMART program, Summer 2000)
- Katelyn Wisniewski (Independent study, Fall 2017-Spring 2018)
- Rachel Woolaver (Independent study and UROP, 2012-2013)
- Hugh Zhang (BSI Scholar Fellowship, Fall 2017-Spring 2018; UROP, Summer 2018)
- Matt Ziegler (Independent research, 2001-2002)

Undergraduate Students-Honors Thesis Committee Member:

- Ann Marie Scholl (Ecology and Evolutionary Biology, Spring 2004)
- Scott Vogel (Ecology and Evolutionary Biology, Spring 2006)
- Jeanne Doyle (Psychology, Spring 2008)
- Blakely Markham (Anthropology, Spring 2008)
- Alexandra Rodriguez (Ecology and Evolutionary Biology, Spring 2013)
- Renata Daniels (Psychology and Neuroscience, Spring 2018)

High School Students Mentored:

- Dessa Clemenson (Monarch High School, Boulder, Fall 2013-Spring 2014)
- Rachel Ducey (Monarch High School, Boulder, Fall 2013-Spring 2014)

Research Honors/Awards Received by Trainees:

i. Undergraduate students

- Alexa Ary
-Honor's thesis: Summa Cum Laude, 2016
- Rebecca Bolen
-Honor's thesis: Summa Cum Laude, 2019
- Laura Chu
-Honor's thesis: Magna Cum Laude, 2003
- Rosemary Eppinger
-Sigma Xi Undergraduate Research Award, 2011
- Courtney Enix
-Undergraduate Poster Award, Front Range Neuroscience Meeting, 2011
-Sigma Xi Undergraduate Research Award, 2012
- Stephanie King
-Undergraduate Poster Award, Front Range Neuroscience Meeting, 2010
- Ashly Leder

- Honor's thesis: Magna Cum Laude, 2005
- Tynesha Matthews
 - Undergraduate Poster Award, Front Range Neuroscience Meeting, 2009
- Kyla Simpson
 - Honor's thesis: Cum Laude, 2004
- Brooke Tata
 - Honor's thesis: Summa Cum Laude, 2010

ii. Graduate students:

- Leah Brooks
 - The Endocrine Society Graduate Summer Fellowship, 2009
 - Sigma Xi Grant-in-Aid, 2012
- John Gill
 - The Endocrine Society Travel Award, 2004
 - NIH Predoctoral Individual NRSA, 2004-2005
- Lisa Jung
 - Honorable Mention, NASCE Poster Award, 2011
 - NSF EAPSI Fellowship, 2012
- Sarah Moyle
 - The Endocrine Society Poster Award, 2008
- Annie Miller
 - The Front Range Neuroscience Meeting Poster Award, 2017
 - NIH predoctoral NRSA (funding range, declined), 2019

iii. Postdoctoral fellows:

- Wilson Chung,
 - NIH K99 Pathway to Independence Award, 2009-2011
- Scott Kavanaugh
 - Mirus Research Award, 2011
- Johanna Rochester
 - Hot Topic in Neuroscience, Society for Neuroscience, 2009
 - Oral Presentation Award, Front Range Neuroscience Meeting, 2010
 - NIH Postdoctoral Individual NRSA, 2010-2013