

CURRICULUM VITAE

JENNIFER WOOTTON HILL, Ph.D.

Associate Professor

Dept. of Physiology and Pharmacology and Dept. of Obstetrics-Gynecology
U of Toledo College of Medicine and Life Sciences
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I. PERSONAL INFORMATION

JENNIFER ELLEN WOOTTON HILL

3435 Brantford Rd
Ottawa Hills, OH 43606
Home: (419) 690 4143
Cell: (419) 764 5142

EDUCATION:

B.A. in Biology (Honors), WILLIAMS COLLEGE, Williamstown, MA. June 1997

Thesis: *Androgen levels and vocal plasticity in the adult male zebra finch*, Dr. Heather Williams advisor, Department of Biology.

Ph.D. in Neuroscience, NORTHWESTERN UNIVERSITY, Evanston, IL. June 2003

Dissertation: *Neuropeptide-Y Control of Pituitary Hormone Release; Multifold Actions in the Service of Steroid Feedback*, Dr. Jon E. Levine advisor, Department of Neurobiology and Physiology.

PRE AND POSTDOCTORAL FELLOWSHIPS:

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|-----------|--|
| 1996-1997 | Undergraduate Fellow
WILLIAMS COLLEGE (Williamstown MA)
Department of Biology
Neuroanatomical control of avian song production, Dr. Heather Williams advisor
ESSEL FOUNDATION RESEARCH FELLOWSHIP |
| 1999-2003 | Predoctoral Trainee
NORTHWESTERN UNIVERSITY (Evanston IL)
Department of Physiology
Neuroendocrinology, Dr. Jon E. Levine advisor
NIH T32 TRAINING GRANT |
| 2003-2006 | Postdoctoral Fellow
HARVARD MEDICAL SCHOOL & BETH ISRAEL DEACONESS MEDICAL CENTER (Boston MA)
Department of Endocrinology and Metabolism
Neurobiology of obesity, Dr. Joel K Elmquist advisor
NIDDK F32 NRSA |
| 2006-2007 | Postdoctoral Trainee
UT SOUTHWESTERN MEDICAL CENTER (Dallas TX)
Department of Internal Medicine, Division of Hypothalamic Research
Neurobiology of obesity, Dr. Joel K Elmquist advisor
NIDDK F32 NRSA |

EMPLOYMENT:

- 1993 Wildlife Rescue, Palo Alto CA
Veterinary Assistant
Part-time, volunteer
- 1994 Marine Science Institute, Redwood City CA
Teaching Intern
Part-time, volunteer
- 1994-1995 Williams College, Department of Biology
Research Assistant, laboratory of Dr. Heather Williams
Part-time, volunteer
- 1995 Williams College, Department of Biology
Effects of habitat fragmentation on avian thermal stress
Research Assistant, laboratory of Dr. Daniel Clemens
Full-time, salaried
- 1997 NASA/Lockheed, Space Biology Group
Effect of 0-gravity on physiological systems
Assistant Scientist, Dr. Muriel Ross supervisor
Full-time, salaried
- 1997 Northwestern University, Department of Neurobiology and Physiology
Circadian and seasonal rhythms in reproduction
Predoctoral Laboratory Assistant, laboratory of Dr. Fred W. Turek
Part-time, stipend
- 1998 Northwestern University Feinberg School of Medicine, Lurie Cancer Center
Steroid effects on breast cancer cells
Predoctoral Laboratory Assistant, laboratory of Dr. V. Craig Jordan
Part-time, stipend
- 1998-1999 Northwestern University, Department of Molecular Biosciences
Teaching Assistant, courses in:
Vertebrate Endocrinology
Human Reproduction
- 2000 Northwestern University
Tutor for Undergraduate Science and Engineering Synthesis Program
Part-time, stipend

Faculty Positions

- 2007-2009 UT SOUTHWESTERN MEDICAL CENTER, Dallas TX
Department of Internal Medicine, Division of Hypothalamic Research
Assistant Instructor, research track
Full-time, salaried
- 2009-2015 UNIVERSITY OF TOLEDO, Toledo OH
College of Medicine, Department of Physiology and Pharmacology,
Center for Diabetes and Endocrine Research
Assistant Professor, tenure eligible Academic Basic Scientist Track
Full-time, salaried

- 2009-2015 UNIVERSITY OF TOLEDO, Toledo OH
College of Medicine, Department of Obstetrics and Gynecology
Assistant Professor, tenure eligible Academic Basic Scientist Track
Joint appointment
- 2015-2016 UNIVERSITY OF TOLEDO, Toledo OH
College of Medicine, Department of Physiology and Pharmacology,
Center for Diabetes and Endocrine Research
Associate Professor, tenure eligible Academic Basic Scientist Track
Full-time, salaried
- 2015-2016 UNIVERSITY OF TOLEDO, Toledo OH
College of Medicine, Department of Obstetrics and Gynecology
Associate Professor, tenure eligible Academic Basic Scientist Track
Joint appointment

AWARDS AND COMMENDATIONS:

ACHIEVEMENT AWARD FOR MATH AND SCIENCE, BANK OF AMERICA, 1993.

INDUCTED, THE CUM LAUDE SOCIETY, 1993.

ELECTED AS MEMBER, SIGMA XI SCIENTIFIC RESEARCH SOCIETY, 1997
For research achievement.

COMPETITIVE TRAVEL GRANT, OFFICE OF THE VICE PRESIDENT FOR RESEARCH, NORTHWESTERN UNIVERSITY, 2002.

NIH LOAN REPAYMENT PROGRAM AWARD IN FERTILITY AND CONTRACEPTION RESEARCH,
July 2007, 2009, & 2011
Supports promising careers in fertility-related academic research by repaying the researcher's college loans.

PROMOTION AND TENURE TRAVEL AWARD, THE ENDOCRINE SOCIETY, June 2012
For attendance at How to Secure Promotion and Tenure Workshop

UNDERGRADUATE RESEARCH RECOGNITION AWARD, May 2012
To acknowledge dedication in advancing Undergraduate Research at the University of Toledo

EARLY INVESTIGATOR AWARD, THE ENDOCRINE SOCIETY, June 2013
International award for early career investigators in recognition of their accomplishments in endocrine research.

THEODOSIOU YOUNG INVESTIGATOR AWARD, SIGMA XI, August 2013

DEAN'S AWARD FOR MENTORING, UNIVERSITY OF TOLEDO COLLEGE OF MEDICINE AND LIFE SCIENCES, 2014

II. SERVICE

UNIVERSITY COMMITTEES:

Core Facility Workgroup
Purpose to identify procedures to improve core facility operations and availability

at UT. Chaired by Elsa Nadler.
2014

University of Toledo Faculty Senate Committee on Faculty Affairs
Member, 2014-present

University of Toledo Graduate Council Curriculum Committee
Member, 2015-present

COLLEGE COMMITTEES:

College of Medicine Council
Departmental Representative, 2009-present
Secretary, 2012-2014
Member, Elections Committee, 2009
Chair, Elections Committee, 2012-2014
Chair, Committee on Faculty Workload Metrics, April 2014- July 2015

Liaison Committee on Medical Education (LCME) Visit,
Junior faculty representative, May 1, 2013

Council of Biomedical Graduate Students
Faculty Advisor, 2015-present

Medical School Admissions Committee
Member, 2015-present
Participant in Annual Curriculum Retreat, October 27, 2015

Neuroscience Department Chair Search Committee
Member, 2015-present

Selection Committee for Dean's Award for Graduate Mentoring
Member, November 2015

Curriculum Task Force: Reproductive Medicine
Member, 2016-present

Research Council
Member, 2016-present
deArce proposal reviewer, Spring 2016

DEPARTMENTAL/CENTER COMMITTEES:

Center for Diabetes and Endocrine Research
Steering Committee Member 2009-present
Journal club organizer, September 2011-present
Data club organizer, September 2012-present
Steering Committee Chair, 2012-present

Department of Physiology & Pharmacology
Seminar series organizer, September 2015-2016

Graduate PhD track in Physiology and Pharmacology Admissions Committee
Chair, 2015-present
Member, 2014-present

Graduate PhD track in Neurosciences and Neurological Disorders Steering Committee
Member, 2015-present

Physiology and Pharmacology Faculty Search Committee
Member, 2015-present

Graduate PhD track in Physiology and Pharmacology Curriculum Committee
Member, 2015-present

OTHER SERVICE:

Annual Pharmacology Research Colloquium
Judge, 2010 (Michigan State University)
Judge, June 2011 (University of Toledo)
Judge, June 2013 (Wayne State)

University of Toledo Medical School Applicant Interviewer (1 interview per week during school year)
2011-present

University of Toledo Graduate Research forum
Judge, 2010
Judge, 2012
Judge, 2014
Judge, 2016

The UT Biomarker Discovery & Translational Bioscience Center
Supporting Member, 2012-present

GradStairs CVMD Student Forum
Faculty Advisor, 2015-present

PROFESSIONAL SOCIETY MEMBERSHIP AND SERVICE:

Sigma Xi
Associate Member, 1997-present

Center for Reproductive Science at Northwestern University
Member 1998-2003
Chair of organizing committee for 23rd Annual Minisymposium on Reproductive Biology,
October 2002

Moderator for 23rd Annual Minisymposium on Reproductive Biology, October 2001

Endocrine Society
Associate Member, 2003-present

Symposium chair (by invitation). Endocrine Society annual meeting June 2011 (*Molecular Mechanisms Underlying Coordinated Control of Energy Balance*)

Invited commentator for clinical practice guideline on the diagnosis and treatment of Polycystic Ovary Syndrome, February 2013

Invited commentator for clinical practice guideline on The Adverse Health Consequences of the Use of Performance Enhancing Drugs by Recreational Weightlifters and Athletes, February 2013

Society for Neuroscience

Member 2003-present

Council on Undergraduate Research

UT Institutional Membership

Reviewer for Proceedings of the National Conference on Undergraduate Research, 2010

American Diabetes Association

Member, 2010-present

Volunteer, ADA Diabetes Walk, October 2009

Abstract Reviewer, 75th Scientific Session, January 2015

Michigan Diabetes Research Center

Member, 2011-present

Association for Women in Science

Dedicated to increasing the number of women obtaining degrees in science and technology.

Member, 2015-present

Reviewer for Graduate Women in Science Fellowship applications, March 2016

COMMUNITY SERVICE AND ORGANIZATIONS:

Ruhi Institute (Curriculum for education and community development)

Course facilitator, 2008-present

Character Classes, ages 4-8, Ottawa Hills Community Center

Co-teacher (biweekly), 2012-2013

Junior Youth Empowerment Program, McComb

Animator (biweekly), 2012-present

Baha'i Summer Schools

Indiana

Children's class teacher, 2013 & 2015

Illinois

Nursery volunteer, 2014

Beach House Family Shelter, Toledo

Volunteer (semi-annually), 2014

Lucas County Bridges Out of Poverty Steering Committee, Toledo

Meeting attendee, November 2014

United Way of Greater Toledo

Oneida garden volunteer (biweekly), 2014

Family Promise of Greater Toledo, Interfaith Hospitality Network

Volunteer (as needed), 2014-present

Multifaith Council of Northwest Ohio, Women's Group

Founding member, 2014-present

Education Under Fire, national campaign
 Toledo organizer
 Film showing and panel discussion on UT main campus, February 2015

Preschool character class, Ypsilante Baha'i Center
 Teacher (biweekly), 2014-2015

Ronald McDonald House, Toledo
 Volunteer (as needed), 2014-present

Food for Thought, Toledo
 Volunteer (semi-annually), 2015
 "March is Hungry" fundraising dinner organizer, 2016

Water for Ishmael American School, Toledo
 ESL teacher (3h/wk), January 2016-present

III. EDUCATION ACTIVITIES

DOCTOR OF MEDICINE (MD) PROGRAM:

Clinical Decision Making (Block 4/5)

INDI 778

Second year medical students, ~ 12
 University of Toledo College of Medicine and Life Sciences

Small group facilitation:

- Medical Ethics (6 hr.) 2010-2016
 August-October, yearly
- Clinical Reasoning (32 hr.) 2013-2015
 September-April, yearly

Clinical Decision Making (Block 2)

INDI 784

First year medical students, ~ 12
 September-November, yearly
 University of Toledo College of Medicine and Life Sciences

Small group facilitation:

- Medical Ethics (6 hr.) 2012-2014

Organ Systems (Block 5)

INDI 780

Second year medical students, ~180
 November-April, yearly
 University of Toledo College of Medicine and Life Sciences

Lectures:

- Local Anaesthetics (1 hr.) Feb. 2014
- Parkinsons Drugs (1 hr.) March 2014
- Reproductive Ontogeny (2 hr.) April 2014-2016
- Pregnancy and Lactation (2 hr.) April 2015-2016

Human Structure and Development (Block 2)

ANAT679

First year medical students, ~180
 November-March, yearly

University of Toledo College of Medicine and Life Sciences

Lectures:

- Female Reproductive System (2 hr.) Jan 2015-2016
- Male Reproductive System (2 hr.) Jan 2015-2016
- Development of Reproductive Systems (2 hr.) Jan 2015-2016

PHYSICIAN AND PATHOLOGY ASSISTANT (MSBS-PA AND MSBS ASSISTANT IN PATHOLOGY) PROGRAMS:

Physiology for Physician Assistants

PHYS 5050

First year PA students and Pathologists Assistant program students, ~ 50

September-December, yearly

University of Toledo College of Medicine and Life Sciences

Lectures:

- Reproductive Endocrinology in the Male (2 hr.) 2012-present
- Reproductive Endocrinology in the Female (2 hr.) 2012-present

MASTER OF MEDICAL SCIENCE (MSBS-MS) PROGRAM:

On Being a Scientist

INDI 6020/8020

First year MSBS and Ph.D. students (all programs), ~80

January-May, yearly

University of Toledo College of Medicine and Life Sciences

Lectures:

- Mentoring/Trainee Relationships and Case Studies (1.5 hr.) 2011

Human Physiology

INDI 5250

MSBS students, ~ 65

September-December, yearly

University of Toledo College of Medicine and Life Sciences

Lectures:

- Reproductive Endocrinology in the Male (2 hr.) 2011-present
- Reproductive Endocrinology in the Female (2 hr.) 2011-present
- Endocrinology I (2 hr.) 2013-present
- Endocrinology II (2 hr.) 2013-present

GRADUATE (PHD) PROGRAM:

Seminar series "Introduction to Biomedical Research"

BMSP 6330/8330

First year Ph.D. and MS students (all tracks), ~10-20

Fall semester, yearly

University of Toledo College of Medicine and Life Sciences

Seminar:

- Fertility and Energy Homeostasis (45 min) 2009-2015

Advanced Topics in Cardiovascular and Metabolic Disease

CVMD 6500/8500

Second year Ph.D. students (CVMD students), ~5

August-December, yearly

University of Toledo College of Medicine and Life Sciences

Lectures:

CNS Control of Metabolism (2 hr.)	2010-2016
How Starvation Inhibits Fertility (2 hr.)	2016

Systems Pathophysiology II

BMSP 6320/8320

First year Ph.D. students

April-May, yearly

University of Toledo College of Medicine and Life Sciences

Lectures:

Pituitary Function (2 hr., biannually)	2011-2015
NND track students, elective for others, ~ 3	
Regulation of energy balance by the CNS (2 hr.)	2011-2016
CVMD track students, elective for others, ~6	

Systems Pathophysiology I

BMSP 6310/8310

First year Ph.D. students (all tracks), ~15

January-March, yearly

University of Toledo College of Medicine and Life Sciences

Lectures:

Reproductive Endocrinology (2 hr.)	2011-2016
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Journal Paper Review

CVMD6600/8600

CVMD track Ph.D. students in CeDER (required) and others, ~20

September-July, yearly

University of Toledo College of Medicine and Life Sciences

Presentations organized weekly:

2012-2016

Grant Writing

BMSP6250/8250

Second year Ph.D. students (required for CVMD track, elective for others), ~8

January-May, yearly

University of Toledo College of Medicine and Life Sciences

Lectures:

Significance Section (2 hr.)	2013-2016
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Workshops:

Approach Section Workshop (2 hr.)	2011-2016
Research Strategy Section Workshop (2 hr.)	2014

Scientific Communication Skills and Career Goals

CABP 6250/8250

Advanced Ph.D. students (elective, all tracks), ~8

January-May, yearly

University of Toledo College of Medicine and Life Sciences

Mixed lecture and active learning:

Effective Scientific Writing I (2 hr.)	2015-2016
Effective Scientific Writing II (2 hr.)	2015-2016

CURRICULUM DEVELOPMENT:

Assisted Dr. Kandace Williams with design and implementation of new elective graduate course in 2015: CABP 6250/8250 Scientific Communication Skills and Career Goals for Spring 2015 (2 credits). The

goals of this course are to enhance scientific communication skills at all levels and to develop knowledge of the numerous scientific career options available to basic and physician scientists, including tenure track academic research. Skills taught include oral communication, PowerPoint presentation, teaching, poster presentation and scientific peer review, scientific writing, writing for lay audiences, and interviewing. This course prepares our trainees for enhanced opportunities in science communication, leadership, and scholarship by the use of innovative educational approaches. Lecturing is minimized, replaced by hands-on experience with teaching tools (Webcam, Echo360, Blackboard, LectureTools) and student presentations, writing, and practice interviews critiqued by peers and guest experts.

ENHANCEMENT OF TEACHING AND PROFESSIONAL SKILLS:

Preparing Future Faculty Program, Northwestern University
2001-2002

Effective Teachers Series, UT Southwestern Medical Center
2006-2007

UT Teaching Workshop: Faculty Development for Basic Science Faculty.
June 27th-30th 2011

UT Speed Mentoring Day (College of Medicine and Life Sciences, UT IDEAL)
April 4, 2012

Endocrine Society "How to Secure Promotion and Tenure Workshop"
June 2012

New Neuroscience Faculty Conference, Cold Spring Harbor Laboratory
(co-hosted by NIMH, NINDS, and Cold Spring Harbor)
March 19, 2012

To Tenure and Beyond: Building an Intentional Career in STEM, (co-sponsored by UT and BGSU)
August-November, 2012

Junior Faculty Mentoring Sessions for the College of Medicine
Research Advisory Council (Coordinated/facilitated by Dr. Akira Takashima)
2012-present

Tech Talks, Green Screen Session, University Teaching Centers
January 27th, 2014

COM Academy of Educators Educational Symposium,
March 28th, 2014

Faculty Development Session on interactive teaching,
April 9th, 2014

LectureTools Workshop,
August 2014

Evidence-Based Teaching in Higher Education: Strategies to Improve Student Learning (Webinar)
February 25, 2016

ADVISING/MENTORING OF PHD STUDENTS:

Doctoral Students (Major Advisor)

Xiaoliang Qiu, Ph.D. Student

Ph.D. program, Cardiovascular and Metabolic Disease Track

Department of Physiology and Pharmacology

June 2010- June 2013 (Ph.D. degree obtained)

Residency in Internal Medicine at Marshall University

- *Publications:* **Qiu, X.**, Dowling, A., Marino J., Faulkner L., Brüning, J., Elias, CF, Bryant B., Hill, JW Delayed Puberty but Normal Fertility in Mice with Selective Deletion of Insulin Receptor from Kiss1 Cells, *Endocrinology*. Mar;154(3):1337-48 2013 PMID: 23392256
- *Publication:* Dowling AR, Nedorezov LB, **Qiu X**, Marino JS, Hill JW. Genetic factors modulate the impact of pubertal androgen excess on insulin sensitivity and fertility. *PLoS One*. Nov 20;8(11):e79849. 2013 PMID: 24278193
- *Publication:* **Qiu X**, Dao H, Heston A, Garcia KM, Sangal A, Wang M, Dowling, AR, Faulkner L, Molitor SC, Elias CF, Hill JW. Insulin and leptin signaling interact in the Kiss1 neuron during the peripubertal period. *Plos One* May 6;10(5):e0121974 2015 PMID: 25946091

Latrice Faulkner, Ph.D. Student

Ph.D. program, Cardiovascular and Metabolic Disease Track

Department of Physiology and Pharmacology

June 2011-present

- *Publication:* Xu Y, **Faulkner L.**, Hill, JW. Cross-talk between metabolism and reproduction: The Role of POMC and SF-1 Neurons. (Invited Review) *Frontiers in Systems and Translational Endocrinology* January 4, 2012
- KEYSTONE SYMPOSIA UNDERREPRESENTED MINORITY SCHOLARSHIP, Genetic and Molecular Basis of Obesity and Body Weight Regulation, Santa Fe, New Mexico Jan/Feb 2012
- ENDOCRINE SOCIETY MINORITY TRAVEL AND TRAINEE DAY AWARD, Houston, Texas. Presented research in the Presidential Poster Competition, the Minority Mentoring and Poster Reception, and a general conference session, June 2012
- Endocrine Society Future Leaders Advancing Research in Endocrinology Career Development Workshop Travel Award (FLARE Scholar), San Diego California, January 2013
- National Institute of General Medical Sciences (NIGMS) Ancillary Training Program Scholarship for Keystone Symposium "Neuronal Control of Appetite, Metabolism" and Weight Meeting in Fairmont Banff Springs, Banff, Alberta, Canada, March 2013.
- NIH Summer Student Intramural Research Training Award (IRTA) Fellowship-NICHD; May-July 2013.
- *Publication:* Qiu, X., Dowling, A., Marino J., **Faulkner L.**, Brüning, J., Elias, CF, Bryant B., Hill, JW Delayed Puberty but Normal Fertility in Mice with Selective Deletion of Insulin Receptor from Kiss1 Cells, *Endocrinology*. Mar;154(3):1337-48 2013 PMID: 23392256
- Predoctoral Grant Award; F31-National Institute of Health Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research, 2013-2015 (PI: Latrice Faulkner)
- National Institute of General Medical Sciences (NIGMS) Ancillary Training Program Scholarship for Keystone Obesity: A Multisystems Perspective Meeting in Vancouver, British Columbia, Canada, 2014.
- National Institute of General Medical Sciences (NIGMS) Ancillary Training Program Scholarship for Keystone Neural Control of Metabolic Physiology and Diseases Meeting in Snowbird, Utah, 2015.
- Presidential Poster Competition winner, Endocrine Society annual meeting in San Diego, March 2015
- *Publication:* **Faulkner F.**, Dowling A, Stuart R, Nillni E, Hill J. Reduced melanocortin production causes sexual dysfunction in male mice with POMC neuronal insulin and leptin insensitivity. *Endocrinology*. Apr;156(4):1372-85 2015 PMID: 25590244
- *Publication:* Qiu X, Dao H, Heston A, Garcia KM, Sangal A, Wang M, Dowling, AR, **Faulkner L**, Molitor SC, Elias CF, Hill JW. Insulin and leptin signaling interact in the Kiss1 neuron during the peripubertal period. *Plos One* May 6;10(5):e0121974 2015 PMID: 25946091
- Heinrich G, Russo L, Castaneda T, Pfeiffer V, Ghadieh H, Ghanem S, Wu J, **Faulkner L**, Ergun S, Hill J, and Najjar S. Leptin Resistance Contributes to Obesity in Mice with Null Mutation of

Carcinoembryonic Antigen Cell Adhesion Molecule 1. Journal of Biological Chemistry
(Accepted)

Mengjie Wang, Ph.D. Student

Ph.D. program, Cardiovascular and Metabolic Disease Track
Department of Physiology and Pharmacology
2014-present

- Endocrine Society Outstanding Abstract Award “IGF-1 Receptors in Leptin Responsive Neurons Control Body Weight, Growth and Pubertal Development” Endocrine Society annual meeting in Boston, April 2016
- *Publication: Wang M, Zhang Y, Lan D, Hill JW. The Efficacy of GnRHa Alone or in Combination with rhGH for the Treatment of Children with Central Precocious Puberty: A Systematic Review and Meta-Analysis. Scientific Reports (Accepted)*

Iyad Manaserh, Ph.D. Student

Ph.D. program, Cardiovascular and Metabolic Disease Track
Department of Physiology and Pharmacology
2015-present

Erin Semple, M.D., Ph.D. Student

M.D./Ph.D. program, Neurosciences and Neurological Disorders Track
Department of Neurosciences
2015-present

- *Publication: Blaker, AL, Mitchell CM, Semple, EA. Identifying the Role of Novel Protein Kinase C Isoforms in Mediating Paclitaxel-Induced Peripheral Neuropathy. The Journal of Neuroscience, July 15, 2015 35(28):10101-10102*

Graduate Student Advisory Committee Member

Sumona Ghosh Lester

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Sonia Najjar, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
2009-2012 (Ph.D. degree obtained)
Currently a science teacher in the Cleveland area.

Kelly Ledford

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Sonia Najjar, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
March 2010: Graduate Faculty Representative during Thesis Defense

Thomas Bowman

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Sonia Najjar, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
March 2010: Graduate Faculty Representative during Thesis Defense

Payal Patel

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Sonia Najjar, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
July 2010: Graduate Faculty Representative during Thesis Defense

Anita Sexena

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Dr. Robert Wang

Department of Physiology and Pharmacology (CVMD Track)
June 2010: Graduate Faculty Representative during Thesis Defense

Garrett Heinrich

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Sonia Najjar, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
July 2010: Graduate Faculty Representative during Thesis Defense

Laura Halpin

University of Toledo College of Medicine and Life Sciences M.D/Ph.D. program
Major advisor: Brian Yamamoto, Ph.D.
Department of Neurosciences (NND Track)
June 2013: Graduate Faculty Representative during Thesis Defense

Harshal Waghulde

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Bina Joe, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
2013-current

Simona Ghanem

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Sonia Najjar, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
2013-current

Prabhatchandra Dube

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Guillermo Vazquez, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
June 2014-current

Hilda Gadieh

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Sonia Najjar, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
2015-present

Saja Khuder

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Sonia Najjar, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
2015-2016

Youjie Zhang

University of Toledo College of Medicine and Life Sciences Ph.D. program
Major advisor: Bina Joe, Ph.D.
Department of Physiology and Pharmacology (CVMD Track)
2015-current

Lilli Fishman

University of Toledo College of Natural Sciences and Mathematics
Major advisor: Tomer Avidor-Reiss, Ph.D.
Department of Biology, Cell and Molecular Biology Ph.D. program
2015-current

Ph.D. Student Program Rotations (BMSP 639/839; 3 credit hours)**Xiaoliang Qiu**

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Winter 2009

Ying Nie

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Fall 2010

Latrice Faulkner

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Winter 2010

Shuhao Qiu

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Spring 2011

Yongheng Wang

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Fall 2012

Kristen Robinson

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Spring 2013

Mengjie Wang

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Fall 2013

Carmen Marie Mitchell

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Spring 2014

Amit Chougule

Ph.D. program 1st year graduate student at UT College of Medicine and Life Sciences
Winter 2016

ADVISING/MENTORING OF MEDICAL STUDENTS:**Research in Biomedical Science: M. D. Program 4th Year Elective (INDI 726; 12 credit hours)****Julie Morrison (Major Advisor)**

Medical student UT College of Medicine and Life Sciences

April-May 2012

Currently a resident in the Baylor Family Medicine Residency Program in Garland, TX

Medical Student Summer Research (INDI 5050; 10 credit hours)**Jeff Iler (Major Advisor)**

Medical student UT College of Medicine and Life Sciences

May-Aug. 2010

Currently a resident in adult psychiatry at Dartmouth's Geisel School of Medicine in Lebanon, NH.

- *Publication:* Marino JS, Iler J, Dowling AR, Chua S, Bruning JC, Coppari R, Hill JW. Adipocyte Dysfunction in a Mouse Model of Polycystic Ovary Syndrome (PCOS): Evidence of Adipocyte Hypertrophy and Tissue-Specific Inflammation. PLoS One. 2012;7(10):e48643. PMID: 23119079

Jasmin Darling (*Major Advisor*)

Medical student UT College of Medicine and Life Sciences

May-Aug. 2011

Currently a resident in pediatrics at Tufts Medical Center in Boston, MA.

Dana Doctor (*Major Advisor*)

Medical student UT College of Medicine and Life Sciences

May-Aug. 2013

Currently a 4th year medical student at UT College of Medicine and Life Sciences**Amelia Heston** (*Major Advisor*)

Medical student UT College of Medicine and Life Sciences

May-Aug. 2014

Currently a 3rd year medical student at UT College of Medicine and Life Sciences**Michael Stauber** (*Major Advisor*)

Medical student UT College of Medicine and Life Sciences

May-Aug. 2014

Currently a 3rd year medical student at UT College of Medicine and Life Sciences**Patrick Sullivan** (*Major Advisor*)

Medical student UT College of Medicine and Life Sciences

May-Aug. 2015

Currently a 2nd year medical student at UT College of Medicine and Life Sciences**Gage Trott** (*Major Advisor*)

Medical student UT College of Medicine and Life Sciences

May-Aug. 2015

Currently a 2nd year medical student at UT College of Medicine and Life Sciences**Medical Student Continuing Research****Alisha Sangal** (*Major Advisor*)1st year medical student at UT College of Medicine and Life Sciences

Sept. 2015-present

Continuing her undergraduate research in my laboratory.

Gage Trott (*Major Advisor*)2nd year medical student at UT College of Medicine and Life Sciences

Sept. 2015-present

Continuing his summer research project in my laboratory.

ADVISING/MENTORING OF MASTERS STUDENTS:**MSBS-MS Scholarly Projects (INDI 6980; 9 credit hours)****Sai Gadde** (*Co-Advisor with Dr. David Giovannucci*)

MSBS-MS student UT College of Medicine and Life Sciences

Jan.-Aug. 2011

Currently a third year medical student at UT College of Medicine and Life Science

Gage L Trott (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Jan.-Aug. 2014

Currently a first year medical student at UT College of Medicine and Life Science, continues to volunteer in lab 10 hours/wk

Bradley Marchese (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Jan.-Aug. 2014

Currently a first year medical student at UT College of Medicine and Life Science

Kaitlyn M Garcia (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Jan.-Aug. 2014

Currently a first year medical student at UT College of Medicine and Life Science

Smit Kiran Shah (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Jan.-Aug. 2014

Currently a first year medical student at UT College of Medicine and Life Science

Julia L Shreve (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Jan.-Aug. 2014

Currently a first year medical student at UT College of Medicine and Life Science

Firas Shalabi (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Jan.-Aug. 2015

Accepted as a medical student at UT College of Medicine and Life Sciences for September 2016

Jieshen Wu (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Jan.-Oct. 2015

Accepted as a medical student at UT College of Medicine and Life Sciences for September 2016

Emily Maly (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Nov. 2015.-present

Yetunde Badmus (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Nov. 2015.-present

Shokufeh Nourollahi (*Major Advisor*)

MSBS-MS student UT College of Medicine and Life Sciences

Nov. 2015.-present

MSBS-Bioinformatics Thesis Projects (BIPG6990; 6 credit hours)

Brian Howard (*Major Advisor*)

Student in MSBS Program in Bioinformatics

June-Aug. 2010

OTHER ADVISING/MENTORING:

Postdoctoral Trainees (Major Advisor)

Joseph Marino, Ph.D.

Department of Physiology and Pharmacology

2009-2013

Currently tenure-track faculty member at UNC Charlotte

- *Publication:* Patel PR, Ramakrishnan SK, Kaw MK, Raphael CK, Ghosh S, **Marino JS**, Heinrich G, Lee SJ, Bourey RE, Hill JW, Jung DY, Morgan DA, Kim JK, Rahmouni SK, Najjar SM. Increased Metabolic Rate and Insulin Sensitivity in Male Mice Lacking the Carcinoembryonic Antigen-Related Cell Adhesion Molecule 2. *Diabetologia*. Dec 11. 2011 PMID: 22159884
- *Publication:* **Marino JS**, Xu Y, Hill JW. Central insulin and leptin-mediated autonomic control of glucose homeostasis. *Trends Endocrinol Metab*. Apr 12. 2011
- ENDOCRINE SOCIETY TRAVEL AWARD AND CAREER WORKSHOP SCHOLARSHIP, June 2012
- *Publication:* **Marino JS**, Iler J, Dowling AR, Chua S, Bruning JC, Coppari R, Hill JW. Adipocyte Dysfunction in a Mouse Model of Polycystic Ovary Syndrome (PCOS): Evidence of Adipocyte Hypertrophy and Tissue-Specific Inflammation. *PLoS One*.;7(10):e48643. 2012 PMID: 23119079
- *Publication:* **Marino JS**, Peterson SJ, Li M, Vanella L, Sodhi K, Hill JW, Abraham NG. ApoA-1 mimetic restores adiponectin expression and insulin sensitivity independent of changes in body weight in female obese mice. *Nutrition and Diabetes*. March 2, e33. 2012 PMID: 23169576
- *Publication:* Qiu, X., Dowling, A., **Marino J**, Faulkner L., Brüning, J., Elias, CF, Bryant B., Hill, JW Delayed Puberty but Normal Fertility in Mice with Selective Deletion of Insulin Receptor from Kiss1 Cells, *Endocrinology*. Mar;154(3):1337-48 2013 PMID: 23392256
- *Publication:* **Marino JS**, Hinds TD Jr, Potter RA, Ondrus E, Onion JL, Dowling A, McLoughlin TJ, Sanchez ER, Hill JW. Suppression of protein kinase C theta contributes to enhanced myogenesis in vitro via IRS1 and ERK1/2 phosphorylation. *BMC Cell Biol*. Sep 21;14:39. 2013 PMID: 24053798
- *Publication:* Dowling AR, Nedorezov LB, Qiu X, **Marino JS**, Hill JW. Genetic factors modulate the impact of pubertal androgen excess on insulin sensitivity and fertility. *PLoS One*. Nov 20;8(11):e79849. 2013 PMID: 24278193
- *Publication:* Stechschulte LA, Wuescher L, **Marino JS**, Hill JW, Eng C, Hinds TD Jr. Glucocorticoid Receptor β Stimulates Akt1 Growth Pathway by Attenuation of PTEN. *J Biol Chem*. May 9. [Epub ahead of print] 2014 PMID: 24817119

Abigail Dowling, M.D.

Department of Physiology and Pharmacology

2010-2013

Currently a postdoctoral fellow at Cornell University

- CHAIR, Oral Session "Female Reproduction: Focus on the Ovary" Endocrine Meeting 2012
- *Publication:* Marino JS, Iler J, **Dowling AR**, Chua S, Bruning JC, Coppari R, Hill JW. Adipocyte Dysfunction in a Mouse Model of Polycystic Ovary Syndrome (PCOS): Evidence of Adipocyte Hypertrophy and Tissue-Specific Inflammation. *PLoS One*.;7(10):e48643. 2012 PMID: 23119079
- *Publication:* Qiu, X., **Dowling, A.**, Marino J., Faulkner L., Brüning, J., Elias, CF, Bryant B., Hill, JW Delayed Puberty but Normal Fertility in Mice with Selective Deletion of Insulin Receptor from Kiss1 Cells, *Endocrinology*. Mar;154(3):1337-48 2013 PMID: 23392256
- *Publication:* Marino JS, Hinds TD Jr, Potter RA, Ondrus E, Onion JL, **Dowling A**, McLoughlin TJ, Sanchez ER, Hill JW. Suppression of protein kinase C theta contributes to enhanced myogenesis in vitro via IRS1 and ERK1/2 phosphorylation. *BMC Cell Biol*. Sep 21;14:39. 2013 PMID: 24053798
- *Publication:* **Dowling AR**, Nedorezov LB, Qiu X, Marino JS, Hill JW. Genetic factors modulate the impact of pubertal androgen excess on insulin sensitivity and fertility. *PLoS One*. Nov 20;8(11):e79849. 2013 PMID: 24278193
- *Publication:* Makani V, Sultana R, Sie KS, Orjiako D, Tatangelo M, **Dowling A**, Cai J, Pierce W, Butterfield DA, Hill J, Park J. Annexin A1 Complex Mediates Oxytocin Vesicle Transport. *J Neuroendocrinol*. Oct 3. 2013 PMID: 24118254

- *Publication:* Faulkner F, **Dowling A**, Stuart R, Nillni E, Hill J. Reduced melanocortin production causes sexual dysfunction in male mice with POMC neuronal insulin and leptin insensitivity. *Endocrinology*. Apr;156(4):1372-85 2015 PMID: 25590244
- *Publication:* Qiu X, Dao H, Heston A, Garcia KM, Sangal A, Wang M, **Dowling, AR**, Faulkner L, Molitor SC, Elias CF, Hill JW. Insulin and leptin signaling interact in the Kiss1 neuron during the peripubertal period. *Plos One* May 6;10(5):e0121974 2015 PMID: 25946091

Undergraduate Trainees

UT Students (BIOL 4910; 6 credit hours)

Laura Nedorezov (*Major Advisor for Honors Thesis*)

Honors College student at the University of Toledo

Bioengineering major

June 2010-Aug. 2012

Currently a 3rd year medical student at UT College of Medicine and Life Sciences

- SULLIVAN HONORS FELLOWSHIP, April, 2011
- TRAVEL AWARD National Conference on Undergraduate Research 2011
- Selected to present for Posters at the Capitol: Undergraduate Research in Northwest Ohio at the Ohio Statehouse, April 2011
- Undergraduate Research Recognition Award, University of Toledo, May 2012 (Presented to both trainee and mentor.)
- *Publication:* Dowling AR, **Nedorezov LB**, Qiu X, Marino JS, Hill JW. Genetic factors modulate the impact of pubertal androgen excess on insulin sensitivity and fertility. *PLoS One*. 2013 Nov 20;8(11):e79849. PMID: 24278193

Christopher Jennings (*Major Advisor for Summer Research*)

Undergraduate student at the University of Toledo

June 2012-Aug. 2012

Alisha Sangal (*Major Advisor for Honors Thesis*)

Combined Baccalaureate/MD program and Honors College student at the University of Toledo

Psychology major

June 2013-Aug. 2015

Currently a 1st year medical student at UT College of Medicine and Life Sciences

- USRCAP RESEARCH FELLOWSHIP, Summer 2014
- USRCAP RESEARCH FELLOWSHIP, Summer 2015
- *Oral Presentation:* Treating Polycystic Ovarian Syndrome with Anti-Inflammatory Therapy. **Sangal, A.**, Shah S.K., Garcia, K.M., Faulkner, L.D., Wang M., Hill J.W. University of Toledo Department of Biological Sciences 20th Annual Undergraduate Research Symposium, April 2015. First place award.
- CURS glass award for NW Ohio Undergraduate Symposium for Research and Scholarship, May 2015

Amy Custer (*Major Advisor for Summer Research*)

Combined Baccalaureate/MD program student at the University of Toledo

Biology major

June 2015-Aug. 2015

Currently a 1st year medical student at UT College of Medicine and Life Sciences

Non-UT Students

Omar Elmadhoun

Undergraduate Student at the University of Michigan

BS Program in Biochemistry

June-Aug. 2010

Currently Student a 3rd year student at Wayne State University School of Medicine

Laura Mueller

DAAD (German Academic Exchange Service) Undergraduate Student
June -Aug. 2010

Benjamin Bryant

Undergraduate Student at Carnegie Mellon
June-Aug. 2012

Currently an incoming UTMC medical student for 2016

- *Publication:* Qiu, X., Dowling, A., Marino J., Faulkner L., Brüning, J., Elias, CF, **Bryant B.**, Hill, JW
Delayed Puberty but Normal Fertility in Mice with Selective Deletion of Insulin Receptor from
Kiss1 Cells, *Endocrinology*. 2013 Mar;154(3):1337-48 PMID: 23392256

Highschool Trainees**Syifa Sjah**

Highschool Student
June-Aug. 2012

III. SCHOLARSHIP**EDITORIAL BOARDS**

Frontiers in Systems and Translational Endocrinology
Guest Associate Editor
2011-present

American Journal of Physiology Endocrinology and Metabolism
Editorial Board Member
2015-present

JOURNAL PEER REVIEW

Endocrine (2010-present)

Cell & Tissue Research (2010-present)

Reproductive Sciences (2010-present)

Obesity (2010-present)

Experimental and Clinical Endocrinology & Diabetes (2011-present)

Frontiers in Neuroendocrinology (2011 – present)

Neuropeptides (2011-present)

Cell Metabolism (2012-present)

Reproductive Sciences (2012-present)

Endocrinology (2013-present)

Neuroendocrinology (2013-present)

BBA Molecular Basis of Disease (2013-present)

Journal of Endocrinology (2013-present)

AJP: Regulatory, Integrative and Comparative Physiology (2014-present)

International Journal of Fertility and Sterility (2014-present)

Physiological Genomics (2014-present)

PLoS One (2014-present)

Molecular and Cellular Endocrinology (2015-present)

Cardiovascular Diabetology (2015-present)

Reproduction (2015-present)

STUDY SECTIONS & REVIEW PANELS

National Institutes of Health (NIH)

NICHD Fertility and Infertility Branch
SCCPIR U54 Panel
Mail Reviewer
March 2013

National Science Foundation (NSF)

Neural Systems Cluster (BIO/IOS)
Mail Reviewer
October 2014

American Diabetes Association (ADA)

75th Scientific Session
Abstract Reviewer
January 2015

National Institutes of Health (NIH)

Molecular, Cellular, and Developmental Neuroscience Study Section (MDCN-R 86)
R15 AREA Applications Panel
Phone Reviewer
March 2015 meeting

INVITED LECTURES, SEMINARS, SYMPOSIA, AND VISITING PROFESSORSHIPS:

“The Role of Insulin and Leptin Signaling in Hypothalamic POMC neurons”
Department of Physiology
University of Alabama at Birmingham,
June 2008

“The Role of Insulin and Leptin Signaling in Hypothalamic POMC neurons”
Department of Human Nutrition, Foods and Exercise
Virginia Polytechnic Institute and State University
September 2008

“The Role of Insulin and Leptin Signaling in Hypothalamic POMC Neurons”
Department of Neuroscience

University of Toledo
October 2009

“The Role of Insulin and Leptin Signaling in Hypothalamic POMC Neurons”
Department of Chemistry
University of Toledo
October 2009

“A Short Introduction to Obesity and Diabetes Research”
Diabetes Update: The Big Game
Regional conference involving Ohio State, University of Michigan, and UT
CME credit available
Toledo OH
November 2009

“PCOS: New Insights and Treatments”
Symposium on Diabetes in Women: Energy Balance, Osteoporosis, and Polycystic Ovarian Syndrome
Regional conference involving Ohio State, University of Michigan, and UT
CME credit available
Toledo OH
May 2011

“Insulin Signaling through Kisspeptin Neurons”
Van der Kloot Symposium
SUNY Stony Brook
October 2013

“Of Mice and Men: Reproductive Effects of Disrupted Melanocortin Signaling Accompanying the Metabolic Syndrome”
Department of Biological Sciences
University of Toledo
October 2014

“Energy Balance and Reproduction”
Michigan Diabetes Research Center MOLESS meeting
University of Michigan
August 2015

“The Role of Melanocortins in Regulating Libido and Reproductive Capacity.”
Michigan Diabetes Research Center Annual Diabetes Symposium
University of Michigan
March 2016

OTHER SEMINARS:

“Kisspeptin in reproduction and metabolism”
Faculty Forum: UT Center for Diabetes and Endocrine Research
January 2010

“Of Mice and Men”
Departmental Seminar
University of Toledo
May 2012

INVITED PRESENTATIONS AT NATIONAL AND INTERNATIONAL MEETINGS:

“POMC-targeted deletion of PI3K regulatory subunit p85alpha in mice lacking p85beta”
 15 minute talk
 Society for Neuroscience meeting, Washington DC
 October 2005

“Reproductive Effects of Disrupted Melanocortin Signaling Accompanying the Metabolic Syndrome”
 20 minute talk
 2nd International Conference on Endocrinology, Chicago, IL
 October 2014

“Energy Balance Hormones That Regulate Libido and Reproductive Capacity.”
 30 minute talk
 Endocrine Society Annual Meeting, Boston MA
 April 2016 (upcoming)

MAJOR RESEARCH INTERESTS:

Obesity is increasing in prevalence across all sectors of society, and with it a constellation of associated disorders. The melanocortin system of the hypothalamus is a critical neural system underlying the control of body weight. In addition, the melanocortin system may underlie the development of the comorbidities of obesity, including hypertension, type 2 diabetes, and infertility.

My laboratory's interests lie in understanding hypothalamic homeostatic mechanisms controlling body weight and fertility and the interactions between these two systems. The brain blocks reproduction in animals under metabolic stress; anorexia, cachexia, and excessive exercise suppress reproductive cyclicity in humans and with it the estrogen release essential for bone health. This blockade can involve a direct action on neuroendocrine circuits controlling fertility. Within the hypothalamus, energy deficits suppress gonadotropin-releasing hormone release from a sub-population of neurons that maintain fertility. We are therefore investigating how neuroendocrine circuits perceive circulating markers of energy deficits such as low insulin, leptin, and IGF-1 levels. These studies may also shed light on the hypothalamic neuroendocrine dysfunction present in obese and insulin resistant patients with polycystic ovary syndrome.

Metabolic stress can also block the behavioral and physiological responses permitting copulation. Similarly, men and women with obesity and diabetes are at greater risk for low libido or hypoactive sexual desire disorder. Men with metabolic syndrome also frequently exhibit erectile dysfunction that does not respond to standard treatments. We are therefore examining the role of the melanocortin system in control of libido and erectile function. Drugs targeting melanocortin receptors have been plagued by problematic side effects, including undesirable increases in sympathetic nervous system activity, heart rate and blood pressure. Circumnavigating this roadblock will require a clearer picture of the precise neural circuits that mediate the reproductive actions of melanocortins. Ultimately, a more complete understanding of melanocortin pathways and their myriad functions should allow treatments tailored for the mix of metabolic disorders in the individual patient.

PAST RESEARCH SUPPORT AND TRAINING GRANTS:

5T32HD007068-23 “Training Program in Reproductive Biology”
 National Institutes of Health
 05/01-04/03
 Direct Costs: \$231,655/yr
 PI: Dr. Jon E Levine, Department of Biology, Northwestern University
 Role: Trainee

F32 DK066972 “Hypothalamic leptin and insulin signaling”
 National Institutes of Health
 03/04-02/07
 Direct Costs: \$50,428/yr

Department of Internal Medicine, University of Texas Southwestern at Dallas (transferred from BIDMC)
 Role: Principal Investigator

K99/R00HD056491 “Hypothalamic leptin and insulin signals aligning metabolic state and fertility”
 National Institutes of Health
 07/01/2008-06/30/2013
 Direct Costs: \$164,559/yr
 Department of Physiology and Pharmacology, University of Toledo (transferred from UTSW)
 Role: Principal Investigator

R21 HD071529 “Inflammatory triggers of polycystic ovarian syndrome”
 National Institutes of Health
 04/01/2012-03/31/2014
 Direct Costs: 125,000/yr
 Department of Physiology and Pharmacology, University of Toledo
 Role: Principal Investigator

“POMC neuronal control of hepatic cholesterol turnover”
 University of Toledo DeArce-Koch Memorial Endowment Fund
 07/2012-07/2013
 Direct Costs: \$20,000
 Department of Physiology and Pharmacology, University of Toledo
 Role: Principal Investigator

“Inflammatory processes driving insulin resistance in polycystic ovary syndrome”
 National Institutes of Health (P30DK092926:5556) &
 Michigan Diabetes Research and Training Center Pilot & Feasibility Study Grants Program
 01/2014-6/2015
 Direct Costs: \$54,000
 Department of Physiology and Pharmacology, University of Toledo
 Role: Principal Investigator

CURRENT RESEARCH SUPPORT:

“Intergenerational obesity resulting from lactational impairment”
 National Institutes of Health (P30DK092926:5556) &
 Michigan Diabetes Research and Training Center Pilot & Feasibility Study Grants Program
 01/2016-12/2016
 Direct Costs: \$10,000
 Department of Physiology and Pharmacology, University of Toledo
 Role: Principal Investigator

R01 HD081792 “Defective melanocortin signaling underlying T2D-associated erectile dysfunction”
 National Institutes of Health
 04/01/2015-03/31/2020
 Direct Costs: \$260,000/yr (40% effort)
 Department of Physiology and Pharmacology, University of Toledo
 Role: Principal Investigator

F31-HD-75608-02 “Simultaneous insulin and leptin signaling in POMC neurons promotes fertility”
 National Institutes of Health
 01/01/2013 – 02/28/16
 Direct Costs: \$42,676/yr
 PI: Latrice Faulkner, Graduate Student in Department of Physiology and Pharmacology, U of Toledo
 Role: Sponsor

PENDING RESEARCH SUPPORT & PLANNED APPLICATIONS:

F30 “The role of the melanocortin 4 receptor in the paraventricular nucleus in regulating female sexual behavior”

National Institutes of Health

06/01/2016 – 05/31/19

Direct Costs: \$42,676/yr

PI: Erin Semple, MD/PhD Student in Department of Physiology and Pharmacology, U of Toledo

Role: Sponsor

Planned new R01 to be submitted to NIDDK 2/2017: “Intergenerational obesity resulting from lactational impairment”

Planned new R01 to be submitted to NICHD 6/2017: “Infertility due to neuronal and astrocyte insulin resistance”

Competitive renewal of R01 HD081792 planned for 1/2018: “Defective melanocortin signaling underlying T2D-associated erectile dysfunction”

BIBLIOGRAPHY:**Articles Published in Scientific Journals**

Xu M, Urban JH, **Hill JW**, Levine JE. Regulation of hypothalamic neuropeptide YY1 receptor gene expression during the estrous cycle: role of progesterone receptors. *Endocrinology*. Sep;141(9): 3319-27, 2000

Xu M, **Hill JW**, Levine JE. Attenuation of luteinizing hormone surges in neuropeptide Y knockout mice. *Neuroendocrinology*. Nov; 72(5): 263-71, 2000

Hill JW, Xu M, Levine JE. Revisiting the reproductive functions of neuropeptide Y. *Current Opinion in Endocrinology, Diabetes, and Obesity*. 9:203-214, 2002

Hill JW, Levine JE. Abnormal response of the neuropeptide Y-deficient mouse reproductive axis to food deprivation but not lactation. *Endocrinology*. 144(5):1780-6, 2003

Williams H, Connor DM, **Hill JW**. Testosterone decreases the potential for song plasticity in adult male zebra finches. *Horm Behav*. Dec;44(5):402-12, 2003

Hill JW, Urban JH, Xu M, Levine JE. Estrogen Induces Neuropeptide Y (NPY) Y1 Receptor Gene Expression and Responsiveness to NPY in Gonadotrope-Enriched Pituitary Cell Cultures. *Endocrinology*. May;145(5):2283-90, 2004

Hill JW. Leptin, Insulin, AND PTEN: Divergent effects on hypothalamic neurons explained? *Cellscience Reviews*. 3(2) 42-51, 2006

Hill JW, Williams KW, Ye C, Luo J, Balthasar N, Coppari R, Cowley MA, Cantley LC, Lowell BB, Elmquist JK. Acute effects of leptin require PI3K signaling in hypothalamic proopiomelanocortin neurons in mice. *J Clin Invest*. May 1;118(5):1796-1805, 2008

Hill JW, Elmquist JK, Elias CF. Hypothalamic pathways linking energy balance and reproduction. *Am J Physiol Endocrinol Metab*. May;294(5):E827-32. Epub 2008 Feb 19, 2008

Fukuda M, Jones JE, Olson D, **Hill J**, Lee CE, Gautron L, Choi M, Zigman JM, Lowell BB, Elmquist JK. Monitoring FoxO1 localization in chemically identified neurons. *J Neurosci*. Dec 10;28(50):13640-8. PMID: 19074037, 2008

Hill JW, Yong X, Preitner F, Fukuda M, Cho Y, Luo J, Balthasar N, Coppari R, Cantley LC, Kahn B, Zhao JJ, Elmquist JK. Phosphatidyl Inositol 3-Kinase Signaling in Hypothalamic Proopiomelanocortin Neurons Contributes to the Regulation of Glucose Homeostasis. *Endocrinology*. Nov;150(11):4874-82, 2009

Hill JW. Gene Expression and the Control of Food Intake by Hypothalamic POMC/CART Neurons. *The Open Neuroendocrinology Journal*, (Invited Review) 3;21-27, 2010

Hill JW, Elias CF, Fukuda M, Williams KW, Berglund ED, Holland WL, Cho Y, Chuang J, Xu Y, Choi M, Lauzon D, Lee CE, Coppari R, Richardson JA, Zigman JM, Chua S, Scherer PE, Lowell BB, Bruning JC, Elmquist JK. Direct Insulin and Leptin Action in Pro-opiomelanocortin Neurons is Required for Normal Glucose Homeostasis and Fertility. *Cell Metabolism*. Apr 7;11(4):286-97, 2010 PMID: 20374961

Xu Y, **Hill JW** (joint first author), Fukuda M, Gautron L, Sohn J, Kim K, Lee CE, Choi MJ, Lauzon D, Dhillon H, Lowell BB, Zigman JM, Zhao JJ, Elmquist JK. PI3K signalling in the ventromedial hypothalamus is required for normal energy homeostasis. *Cell Metabolism*. July 4;12(1), 88-95, 2010 PMID: 20620998

Marino JS, Xu Y, **Hill JW**. Central insulin and leptin-mediated autonomic control of glucose homeostasis. *Trends Endocrinol Metab*. Apr 12, 2011

Patel PR, Ramakrishnan SK, Kaw MK, Raphael CK, Ghosh S, Marino JS, Heinrich G, Lee SJ, Bourey RE, **Hill JW**, Jung DY, Morgan DA, Kim JK, Rahmouni SK, Najjar SM. Increased Metabolic Rate and Insulin Sensitivity in Male Mice Lacking the Carcinoembryonic Antigen-Related Cell Adhesion Molecule 2. *Diabetologia*. Dec 11, 2011 PMID: 22159884

Xu Y, Faulkner L., **Hill JW**. Cross-talk between metabolism and reproduction: The Role of POMC and SF-1 Neurons. (Invited Review) *Frontiers in Systems and Translational Endocrinology* January 4, 2012

Marino JS, Peterson SJ, Li M, Vanella L, Sodhi K, **Hill JW**, Abraham NG. ApoA-1 mimetic restores adiponectin expression and insulin sensitivity independent of changes in body weight in female obese mice. *Nutrition and Diabetes*. March 2, e33, 2012 PMID: 23169576

Marino JS, Iler J, Dowling AR, Chua S, Bruning JC, Coppari R, **Hill JW**. Adipocyte Dysfunction in a Mouse Model of Polycystic Ovary Syndrome (PCOS): Evidence of Adipocyte Hypertrophy and Tissue-Specific Inflammation. *PLoS One*. 7(10):e48643, 2012 PMID: 23119079

Hill, JW. PVH Pathways Controlling Energy Homeostasis. (Invited Review) *Indian Journal of Endocrinology and Metabolism*. Dec;16 (Suppl 3):S627-36, 2012 PMID: 23565499

Qiu, X., Dowling, A., Marino J., Faulkner L., Brüning, J., Elias, CF, Bryant B., **Hill, JW**. Delayed Puberty but Normal Fertility in Mice with Selective Deletion of Insulin Receptor from Kiss1 Cells, *Endocrinology*. Mar;154(3):1337-48, 2013 PMID: 23392256

Hill, JW, Alreja M., Elias CF. From precocious puberty to infertility: metabolic control of the reproductive function (invited review) *Frontiers in Systems and Translational Endocrinology*. March 2013 PMID: 23565110

Marino JS, Hinds TD Jr, Potter RA, Ondrus E, Onion JL, Dowling A, McLoughlin TJ, Sanchez ER, **Hill JW**. Suppression of protein kinase C theta contributes to enhanced myogenesis in vitro via IRS1 and ERK1/2 phosphorylation. *BMC Cell Biol*. Sep 21;14:39, 2013 PMID: 24053798

Makani V, Sultana R, Sie KS, Orjiako D, Tatangelo M, Dowling A, Cai J, Pierce W, Butterfield DA, **Hill J**, Park J. Annexin A1 Complex Mediates Oxytocin Vesicle Transport. *J Neuroendocrinol*. Oct 3, 2013 PMID: 24118254

Dowling AR, Nedorezov LB, Qiu X, Marino JS, **Hill JW**. Genetic factors modulate the impact of pubertal androgen excess on insulin sensitivity and fertility. *PLoS One*. Nov 20;8(11):e79849, 2013 PMID: 24278193

Stechschulte LA, Wuescher L, Marino JS, **Hill JW**, Eng C, Hinds TD Jr. Glucocorticoid Receptor β Stimulates Akt1 Growth Pathway by Attenuation of PTEN. *J Biol Chem*. 289; 25; 17885-17894 June 20. 2014 PMID: 24817119

Faulkner LD, Dowling AR, Stuart RC, Nillni EA, **Hill JW**. Reduced melanocortin production causes sexual dysfunction in male mice with POMC neuronal insulin and leptin insensitivity. *Endocrinology*. Apr;156(4):1372-85, 2015 PMID: 25590244

Qiu X, Dao H, Heston A, Garcia KM, Sangal A, Wang M, Dowling, AR, Faulkner L, Molitor SC, Elias CF, **Hill JW**. Insulin and leptin signaling interact in the Kiss1 neuron during the peripubertal period. *Plos One* May 6;10(5):e0121974, 2015 PMID: 25946091

Heinrich G, Russo L, Castaneda T, Pfeiffer V, Ghadieh H, Ghanem S, Wu J, Faulkner L, Ergun S, **Hill J**, and Najjar S. Leptin Resistance Contributes to Obesity in Mice with Null Mutation of Carcinoembryonic Antigen Cell Adhesion Molecule 1. *Journal of Biological Chemistry* (Accepted)

Wang M, Zhang Y, Lan D, **Hill JW**. The Efficacy of GnRHa Alone or in Combination with rhGH for the Treatment of Children with Central Precocious Puberty: A Systematic Review and Meta-Analysis. *Scientific Reports* (Accepted)

Material Submitted for Publication

Hill JW and Faulkner LD. The Role of the Melanocortin System in Metabolic Disease: New Developments and Advances. (Invited Review) *Submitted to Frontiers in Endocrinology*

Edited Books or Special Volumes of a Journal

"From precocious puberty to infertility: metabolic control of the reproductive function."
Special Topic Co-Editor
Frontiers in Endocrinology and Metabolism
2011

Published abstracts

A Comparison of the Effects of Deafening and Vocal Disruption on the Stability of Crystallized Song. By: H. Williams, F.M. Mullins, **J.E. Danforth** (maiden name).
Conference: Annual Meeting of the Society for Neuroscience 1997.
Society for Neuroscience Abstracts, 23:796 (311.8) Published: 1997

Neuropeptide Y (NPY) null mutant mice exhibit attenuated luteinizing hormone surges
By: Xu, M.; **Hill, J. W.**; Schwartz, N. B.; Levine, J. E.
Conference: 29th Annual Meeting of the Society for Neuroscience. Location: Miami Beach, Florida, USA
Society for Neuroscience Abstracts Volume: 25 Issue: 1-2 Pages: 797 Published: 1999

Tissue-specific regulation of neuropeptide Y1 receptor gene expression by estrogen
By: **Hill, J. W.**; Xu, M.; Potempa, A.; Levine, J. E.
Conference: 30th Annual Meeting of the Society of Neuroscience Location: New Orleans, LA, USA Date:
Society for Neuroscience Abstracts Volume: 26 Issue: 1-2 Pages: Abstract No.-541.8 Published: 2000

Neuropeptide Y potentiates GnRH-induced LH release from LbetaT2 cells and gonadotrope-enriched primary pituitary cells
By: **Hill, J. W.**; Xu, M.; Levine, J. E.
Conference: 31st Annual Meeting of the Society for Neuroscience Location: San Diego, California, USA

Society for Neuroscience Abstracts Volume: 27 Issue: 2 Pages: 1661 Published: 2001

Simultaneous deletion of insulin and leptin receptors in POMC neurons

By: **Hill, J.**; Elias, C. F.; Coppari, R.; Balthasar, N.; Bruning, J. C.; Lowell, B. B.; Elmquist, J. K.

Conference: 38th Annual Meeting of the Society-for-Neuroscience Location: Washington, DC, USA Date:

Society for Neuroscience Abstract Viewer and Itinerary Planner Volume: 38 Published: 2008

The reproductive effect of simultaneous deletion of insulin and leptin receptors in POMC neurons

By: **Hill, J.**; Elias, C. F.; Fukuda, M.; Coppari, R.; Lowell, B. B.; Bruning, J. C.; Elmquist, J. K.

Conference: 39th Annual Meeting of the Society-for-Neuroscience Location: Chicago, IL, USA Date:

Society for Neuroscience Abstract Viewer and Itinerary Planner Volume: 39 Published: 2009

The Metabolic Syndrome and Ovarian Dysfunction in Mice.

By: **Hill, Jennifer W.**; Burgess, Angela; Bruning, Jens C.; Lowell, BB; Elmquist, JK; Abraham, NG

Conference: 43rd Annual Meeting of the Society-for-the-Study-of-Reproduction Location: Milwaukee, WI

BIOLOGY OF REPRODUCTION Supplement: S Pages: 176-176 Meeting Abstract: 588 Published: 2010

Evidence Of An Inflammatory State In A Mouse Model Of Polycystic Ovarian Syndrome

By: JS Marino, AR Dowling, X Qiu, L Nedorezov, LFC Mueller, **JW Hill**

Conference: Experimental Biology annual meeting, April 2011

The FASEB Journal. 25:lb535 Published: April 2011

Apo-Lipoprotein-A1 Mimetic Restores Insulin Sensitivity and Attenuates Systemic Inflammation in Female-Obese Mice Independent of Effects on Body Weight

By: Peterson, Stephen J.; Cao, Jian; Li, Ming; Vanella, L; Puri, N; **Hill, J**

Conference: Scientific sessions of High Blood Pressure Research, Location: Orlando, FL

HYPERTENSION Volume: 58 Issue: 5 Pages: E169-E169 Published: NOV 2011

PKCtheta Contributes to Myotube Formation by Regulating Protein Synthesis

By: Marino, Joseph S.; Hinds, Terry; Hoover, Rachael A.; Ondrus, E; Onion, J; Dowling, A; McLoughlin, T; Sanchez, ER; **Hill, JW**

Conference: Joint Annual Meeting of the ASPET/BPS at Experimental Biology (EB) Location: Boston, MA

FASEB JOURNAL Volume: 27 Meeting Abstract: 1152.20 Published: APR 2013

Additional Abstracts Presented at Meetings

Tissue-specific regulation of neuropeptide Y1 receptor gene expression by estrogen. **Hill, J. W.**; Xu, M.; Potempa, A.; Levine, J. E. Poster, Annual Minisymposium on Reproductive Biology, Evanston IL, October 2000

Neuropeptide Y alters GnRH-induced LH release from LbetaT2 cells and gonadotrope enriched primary pituitary cells. **JW Hill** and JE Levine. Poster, Minisymposium on Reproductive Biology, Evanston IL, October 2001

Abnormal response of NPY KO mouse reproductive axis to food-deprivation but not lactation. **JW Hill** and JE Levine. Poster, Annual Meeting of the Endocrine Society. San Francisco CA, June 2002

POMC-targeted deletion of PI3K regulatory subunit p85alpha in mice. **JW Hill** and JK Elmquist. Poster, Keystone Symposium, Keystone CO, October 2004

VMH-targeted deletion of PI3K regulatory subunit p85alpha. **JW Hill** and JK Elmquist. Poster, Annual Meeting of the Endocrine Society. San Diego CA, June 2005

Disruption of PI3K signaling in POMC neurons. **JW Hill** and JK Elmquist. Poster, Keystone Symposium, Keystone CO, January 2007

Reproductive Complications of Obesity and Insulin Resistance: Mechanisms of Ovarian Dysfunction. LB Nedorezov, AR Dowling, JS Marino, X Qiu, **JW Hill** Poster, UT College of Medicine Research Day, March 2010

Sexual Dimorphism in the Diabetic Phenotype of CEACAM2 Knockout Mice. J Marino; L Fedorova; **J Hill**, Poster. Keystone Symposium on Diabetes April, 2010

ApoA-1 Mimetic Treatment of Ovarian Dysfunction In ob Mice. Authors: Jennifer W. Hill, Angela Burgess, Laura B. Nedorezov, Omar Elmadhoun, Abigail Dowling, Joseph Marino, Nader G. Abraham POSTER Society for the Study of Reproduction, Milwaukee, August 2010

Inflammation but Not Dyslipidemia in a Mouse Model of Polycystic Ovarian Syndrome. Authors: JS Marino, AR Dowling, X Qiu, L Nedorezov, LFC Mueller, **JW Hill** POSTER Michigan Metabolomics and Obesity Center 2010 Symposium October 2010

Apolipoprotein A-1 Mimetic Treatment of Ovarian Dysfunction in Two Mouse Models of Polycystic Ovary Syndrome Authors: LB Nedorezov, AR Dowling, JS Marino, X Qiu, **JW Hill** POSTER National Conference on Undergraduate Research March 2011 *Travel Award Winner*.

Evidence of an Inflammatory State in a Mouse Model of Polycystic Ovary Syndrome Authors: JS Marino, AR Dowling, X Qiu, L Nedorezov, LFC Mueller, **JW Hill** POSTER Endocrine Society Annual Meeting June 2011

Apolipoprotein A-1 Mimetic Treatment of Ovarian Dysfunction in Two Mouse Models of Polycystic Ovary Syndrome Authors: LB Nedorezov, AR Dowling, JS Marino, X Qiu, **JW Hill** POSTER Endocrine Society Annual Meeting June 2011

Insulin Action in Kiss1 Neurons and the Regulation of Puberty and Reproduction. Authors: X Qiu, AR Dowling, JS Marino, LB Nedorezov, **JW Hill** POSTER, Endocrine Society Annual Meeting June 2011

Insulin and Leptin Action on Kiss1 Neurons and the Regulation of Puberty and Reproduction. Authors: X. Qiu and **J.W. Hill**, Oral Presentation 39th Annual Pharmacology Research Colloquium, University of Michigan 2011

Leptin Receptors in POMC Neurons Regulate Cholesterol Metabolism. Authors: JS Marino, AR Dowling, X Qiu, L Nedorezov, LFC Mueller, **JW Hill** POSTER: Experimental Biology annual meeting, April 2012 *Travel award winner*.

Simultaneous Insulin and Leptin Signaling in POMC Neurons Promotes Fertility and Metabolic Homeostasis in Male Rodents. Authors: LD Faulkner, AR Dowling, **JW Hill**. Poster, Endocrine Society Annual Meeting 2012 *Travel award winner*.

Insulin and Leptin Action on Kiss1 Neurons and the Regulation of Puberty and Reproduction. Authors: X Qiu, A Dowling, J Marino, L Faulkner, L Nedorezov, **J Hill**. Poster, Endocrine Society Annual Meeting 2012

Effects of Genetic Background on Insulin Resistance and Fertility in a Polycystic Ovarian Syndrome Mouse Model. AR Dowling, LB Nedorezov, JS Marino, X Qiu, **JW Hill**. Poster, Endocrine Society Annual Meeting 2012

Effects of Genetic Background on Insulin Resistance and Fertility in a Polycystic Ovarian Syndrome Mouse Model. AR Dowling, LB Nedorezov, JS Marino, X Qiu, **JW Hill**. Symposium: The developmental origins of disease, University of Michigan October 2012

Leptin and Insulin Signaling in POMC Neurons Mediates Metabolic and Reproductive Homeostasis in male Rodents. Authors: Faulkner LD, Dowling AR, Stuart RC, Nillni EA, **Hill JW**. Poster, Keystone Conference on Neuronal Control of Appetite, Metabolism and Weight, March 2013

Leptin and Insulin Signaling in POMC Neurons Mediates Metabolic and Reproductive Homeostasis in male Rodents. Authors: Faulkner LD, Dowling AR, Stuart RC, Nillni EA, **Hill JW**. Poster, Endocrine Society annual meeting June 2013

Disrupted Melanocortin Signaling Facilitates Type 2 Diabetes Associated Erectile Dysfunction. Authors: L. Faulkner, R. C. Stuart, E. A. Nillni and **J.W. Hill**. Poster, Keystone Conference on Obesity: A Multisystems Perspective January 2014

Reduced melanocortin production underlies impaired mating behavior in males with neuronal insulin and leptin insensitivity. Faulkner L, Dowling A, Stuart RC, Nillni EA, and **Hill JW**. Poster, Michigan Diabetes Research Center Annual Symposium. University of Michigan, April 2014

Disrupted Melanocortin Signaling Facilitates Type 2 Diabetes Associated Erectile Dysfunction. Faulkner LD, Stuart R, Nillni EA and **Hill JW**. Poster, Endocrine Society annual meeting June 2014

The Efficacy of GnRHa Alone or in Combination with rhGH for the Treatment of Chinese Children with Central Precocious Puberty: A Systemic Review and Meta-Analysis. Wang M, Zhang Y, Lan D, **Hill JW**. University of Michigan Department of Obstetrics & Gynecology Anita Payne Lectureship & Poster Day October 2014

Reproductive Effects of Disrupted Melanocortin Signaling Accompanying the Metabolic Syndrome. **Hill JW** ORAL PRESENTATION 2nd International Conference on Endocrinology October 2014

Reduced Melanocortin Production Causes Sexual Dysfunction in Male Mice with Pomc Neuronal Insulin and Leptin Insensitivity. Faulkner LD, Dowling AR, Stuart R, Nillni EA, and **Hill JW**. Poster, Endocrine Society annual meeting March 2015 *Presidential Poster Competition winner*

The Efficacy of Gonadotropin-Releasing Hormone Analogs Alone or in Combination with Recombinant Human Growth Hormone for the Treatment of Chinese Children with Central Precocious Puberty: A Systemic Review and Meta-Analysis. Wang M., Zhang Y., Lan D. and **Hill JW**. Poster, Endocrine Society annual meeting March 2015

The Efficacy and Safety of GnRHa plus rhGH Combined Treatment of Chinese Children with Central Precocious Puberty. Wang M. and **Hill JW**. Poster, Neural Control of Metabolic Physiology and Diseases Keystone Meeting, April 2015

Reduced Melanocortin Production Causes Sexual Dysfunction in Male Mice with Pomc Neuronal Insulin and Leptin Insensitivity. Faulkner LD, Dowling AR, Stuart R, Nillni EA, and **Hill JW**. Poster, Neural Control of Metabolic Physiology and Diseases Keystone Meeting, April 2015

Treating Polycystic Ovarian Syndrome with Anti-Inflammatory Therapy. Sangal, A., Shah S.K., Garcia, K.M., Faulkner, L.D., Wang M., **Hill J.W.** Oral Presentation, University of Toledo Department of Biological Sciences 20th Annual Undergraduate Research Symposium, April 2015. *First place award.*