
BIOGRAPHICAL SKETCH

Provide the following information. **DO NOT EXCEED FOUR PAGES.**

NAME OF SPONSOR (CO-SPONSOR) Tracy L. Bale	POSITION TITLE Associate Professor of Neuroscience		
eRA COMMONS USER NAME TLBALE			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Washington State University	B.S.	1992	Molecular Biology
University of Washington	Ph.D.	1993-1997	Pharmacology/Neurobio
The Salk Institute	Postdoc	1998-2003	Neuroendocrinology

A. Personal Statement – My lab’s research interests are centered on understanding the role of stress dysregulation in disease, and the sex differences that underlie disease vulnerability. We have developed mouse models relevant to neuropsychiatric diseases and obesity to study the interaction of genes and the environment, assessing epigenetic mechanisms involved in sex-specific programming in the brain and other tissues, and the transgenerational effects via germ cell reprogramming. To examine potential mechanisms, we have initiated multiple lines of investigation that will provide insight into the timing and sex specificity of early life events promoting disease susceptibility, the maturation of central pathways during key periods of development, and the epigenetic programming involved in long-term effects following stress experience.

B. Positions and Honors

Positions and Employment

2003-2009 Assistant Professor of Neuroscience, Department of Animal Biology, University of Pennsylvania
2006-2009 Assistant Professor of Neuroscience, Department of Psychiatry, University of Pennsylvania
2008-present Director, Neuroscience Center, School of Veterinary Medicine, University of Pennsylvania
2009-2013 Associate Professor of Neuroscience, Department of Animal Biology, University of Pennsylvania
2009-2013 Associate Professor of Neuroscience, Department of Psychiatry, University of Pennsylvania
2009-2011 Vice Chair, Neuroscience Graduate Group, University of Pennsylvania
2013-present Professor of Neuroscience, Department of Animal Biology, University of Pennsylvania
2013-present Professor of Neuroscience, Department of Psychiatry, University of Pennsylvania

Professional Memberships

1995-present Member, Society for Neuroscience
1998-present Member, Endocrine Society
2008-present Member, Organization for the Study of Sex Differences
2007-2013 Editorial Board, Endocrinology
2008-2011 Editorial Board, Journal of Neuroscience
2011-present Reviewing Editor, Journal of Neuroscience
2007-2011 Editorial Board, Frontiers in Behavioral Neuroscience
2010-2013 Editorial Board, Biology of Sex Differences
2008-2011 Annual Meeting Steering Committee, Endocrine Society
2009-2012 Council, Organization for the Study of Sex Differences
2009-2010 International Advisory Board, The Parental Brain Conference
2009 Organizer, Early Life Programming of Neurodevelopmental Disorders Conference
2009 NIH study section RFA BRAINS, reviewer
2010 NIH study section ZMH1 ERB-L, reviewer

2010 NIH study section ZRG1 IFCN-H, reviewer
 2010 NIH study section ZRG1 MDCN-F, reviewer
 2011 NIH study section RFA, Epigenomics in Neurodevelopment, Chair
 2011 NIH study section NNRS, reviewer
 2013 ZMH1 ERB-M EUREKA grants study section, member
 2013-present Scientific Advisory Board, UC, Irvine Conte Center, Tallie Baram PI
 2013-present Scientific Advisory Board, Vanderbilt Conte Center, Randy Blakely PI
 2013-present Scientific Advisory Board, Mt. Sinai Conte Center, Eric Nestler PI

Honors and Awards

1997 National Science Foundation Young Investigator Award
 2001 American Neuroendocrine Society Fellowship Award
 2002 American College of Neuropsychopharmacology (ACNP) Award
 2003 Frank Beach Award, Outstanding Young Investigator in Behavioral Neuroscience, Society for Behavioral Neuroendocrinology
 2003 McCabe Fellow Award
 2008 Ziskind-Somerfeld Award, most influential paper of the year, Society for Biological Psychiatry
 2008 Career Development Award, for early career achievement and promise, Society for Neuroscience
 2011 Richard E. Weitzman Memorial Award, exceptionally promising young investigator, Endocrine Society Laureate Award
 2012 Medtronic Award, Society for Women's Health Research, outstanding mid-career scientist whose research has led directly to the improvement of women's health

C. Selected peer-reviewed publications (limit 15)

1. Mueller BR and **Bale TL** (2008) Sex-specific epigenetic programming of offspring emotionality following stress early in pregnancy. *Journal of Neuroscience*, 28: 9055-65. PMC2731562
2. Morgan C and **Bale TL** (2011) Early prenatal stress epigenetically programs dysmasculinization in second-generation offspring via the paternal lineage, *Journal of Neuroscience*, 31:11748-55. PMC3164823
3. Gerber AR and **Bale TL** (2012) Antiinflammatory treatment ameliorates HPA stress axis dysfunction in a mouse model of stress sensitivity. *Endocrinology*, 153: 4830-4837. PMC3512021
4. Howerton CL, Morgan CP, Fischer DB, and **Bale TL** (2013) O-GlcNAc transferase (OGT) as a placental biomarker of maternal stress and reprogramming of CNS gene transcription in development. *Proc of the Nat Acad of Sci, USA*, 110:5169-74. PMC3612602
5. Rodgers AB, Morgan CP, Bronson SL, Revello S, and **Bale TL** (2013) Paternal stress exposure alters sperm microRNA content and reprograms offspring HPA stress axis regulation. *Journal of Neuroscience*, in press.
6. McEuen J, Beck S, and **Bale TL** (2008) Failure to mount adaptive responses to stress results in dysregulation and cell death in the midbrain raphe. *Journal of Neuroscience*, 28:8169-77. PMC2551751
7. McEuen JG, Semsar KA, Lim MA and **Bale TL** (2009) Influence of sex and CRF pathways as determinants in 5-HT sensitivity. *Endocrinology*, 150:3709-16. PMC2717884
8. Howerton AR, Roland AV, Fluharty JM, Chen A, Daniels D, Beck SG, and **Bale TL** (2013) Sex differences in the dorsal raphe nucleus contribute to differences in stress responsivity. *Biological Psychiatry*, in press.
9. **Bale TL** (2009) Neuroendocrine and immune influences on the CNS: it's a matter of sex. *Neuron*, 64:13. PMC3198405
10. Dunn G and **Bale TL** (2009) Maternal high fat diet promotes body length increases and insulin insensitivity in 2nd generation mice, *Endocrinology*, 150:4999-5009. PMC2775990
11. **Bale TL**, Baram TZ, Brown AS, Goldstein JM, Insel TR, McCarthy MM, Nemeroff CB, Reyes TM, Simerly RB, Susser ES, and Nestler EJ (2010) Early life programming and neurodevelopmental disorders. *Biological Psychiatry*, 68:314-319. PMC3168778
12. Dunn G and **Bale TL** (2011) Maternal high fat diet programs increased body size in third generation female offspring through the paternal lineage. *Endocrinology*, 152:2228-36. PMC3100614

13. Pankevich DE, Teegarden SL, Hedin AD, and **Bale TL** (2010) Caloric restriction experience reprograms stress and orexigenic pathways and promotes binge eating. *Journal of Neuroscience*, 30:16399-407. PMC3034235
14. Goel N, Plyer KS, Daniels D, **Bale TL** (2011) Androgenic influence on serotonergic activation of the HPA stress axis. *Endocrinology*, 152:2001-10. PMC3075941
15. Halpern CH, Tekriwal A, Santollo J, Keating JG, Wolf JA, Daniels D, and **Bale TL** (2013) Amelioration of binge eating by nucleus accumbens shell deep brain stimulation in mice involves D2 receptor modulation. *Journal of Neuroscience*, 33:7122-9. PMC3703148.

D. Research Support

ACTIVE

R01 MH087597-01 Bale (PI) 7/1/10-6/30/15 2.4 calendar
NIMH

Early pregnancy stress programming of offspring emotionality

The goal of this proposal is to determine the mechanism by which maternal stress early in pregnancy programs stress dysregulation and a feminized phenotype related to sex-biased neuropsychiatric diseases.

Role: PI

R01 MH091258-01 Bale (PI) 6/1/10-5/30/15 2.4 calendar
NIMH

Early gestation as a sensitive period to stress in sex-dependent neurodevelopment

The goal of this proposal is to identify potential biomarkers and determine the involvement of placental inflammation in prenatal stress programming of offspring stress dysregulation.

Role: PI

2 R01 MH073030-06 Bale (PI) 10/1/10-9/30/15 2.4 calendar
NIMH

Actions of CRF on 5-HT pathways in mood regulation

The goal of this proposed continued funding is to determine the involvement of local raphe neuroinflammation in the promotion of stress dysregulation, cell death and maladaptive stress coping behaviors.

Role: PI

P50 SCOR MH099910 Epperson (PI) 7/1/12-6/30/17 2.4 calendar
NIMH/OWHR

Prepubertal stress, windows of risk and sex bias for affective disturbance

The goal of this Center proposal is to determine mechanisms whereby early life and pubertal adversity reprograms the brain for increased stress dysregulation and affective disorder risk.

Role: Center Co-Director; Project 3 PI