

Curriculum Vitae:

February, 2011

Donna J. Toufexis

Citizenship: Canadian and now American

Education

Bachelor of Science (Biology) completed in 1992, Concordia University, Montreal, Que., Canada

Master of Science (Insect Neurobiology) completed in 1994, Concordia University (Dept. of Biology) Montreal, Que., Canada

Doctor of Philosophy (Neuroendocrinology) Granted fall 1999, McGill University (Dept. of Neurology and Neurosurgery) Montreal, Que., Canada

Employment

Currently: Assistant Professor of Psychology at the University of Vermont.
Assistant Research Professor in Psychobiology at the Yerkes National Primate Center.

Relevant Work Experience

January 1992-December 1992 Laboratory Instructor, Department of Biology, Concordia University. Montreal, Que.

January 1993-May 1994 Teaching Assistant, Department of Biology, Concordia University. Montreal, Que.

September 1995- December 1998 Editor, McGill Journal of Medicine, McGill University. Montreal, Que.

December 1999-January 2001 Post-Doctoral Fellow, Center for Studies in Behavioral Neurobiology, Associated with Concordia University. Montreal, Que.

January 2001 –March 2005 Center for Behavioral Neuroscience Post-Doctoral Fellow, Associated with Emory University. Atlanta, Ga.

March 2005-September 2008 Research Associate, Dept of Psychiatry and Behavioral Science, Emory University School of Medicine

Summer 2002 Developed Neuroscience Curriculum for Morris Brown University Psychology Department.

Fall 2002 Taught course "Mind and Brain" Morehouse College, Atlanta, Georgia

Winter 2003 Taught course "Mind and Brain" Morehouse College, Atlanta, Georgia

Fall 2003 Co-taught "Thinking, feeling & sex" Center for Behavioral Neuroscience Graduate course

Fall 2004: Taught Genetics 320 (2nd year undergraduate level) at Spelman College, Atlanta Georgia.

Winter 2005 Co-authored textbook " Anti-Anxiety Drugs" for use in high school science courses. Chelsea House Publishers, Langhorne PA.

Spring 2006 and Spring 2007 Served on the Education Committee for the 10th annual meeting of the Society for Behavioral Neuroscience.

Fall 2007 and Spring 2008 Taught laboratory for Research Methods for the Psychology Department at Spelman College.

Fall 2008 and Winter 2009 Taught Neuroethology (Animal Behavior), Psychology Department University of Vermont.

Winter 2009 and Winter 2010 Taught Hormones and Behavior, Psychology Department University of Vermont.

Mentoring

Summer 2003 Supervised Alexis Hammond then a junior from Spelman College as part of the "Forebrain" summer project sponsored by The Center For Behavioral Neuroscience. Alexis continued to work in the lab throughout her senior year and is a co-author on 2 scientific publications. Alexis is now an M.D./Ph.D. student at Vanderbilt University.

Summer 2005 Supervised Jonathon Diggs Junior at Morehouse College in the "Brain" summer program sponsored by The center for Behavioral Neuroscience.

Summer 2005 Supervised Lauren Daniel now a Freshman at Cornell, in the Institute on Neuroscience summer program for high school students.

Summer 2006 Supervised William Bruns in the Institute on Neuroscience summer program for High School students. William is now at UC San Diego.

Summer 2007 Supervised Ashlee Wimberley and Siddharth Tantia in the Institute on Neuroscience summer program for high school students. Ashlee started at Vanderbilt University in the fall of 2007, and Siddharth started at Georgia Tech in the fall of 2007.

Fall 2008 –present time Supervising Olga Lipatova (Graduate Student in the Psychology Department University of Vermont).

Fall 2010-present time Co Supervising Vincenzo Piraino (Graduate Student in the Psychology Department University of Vermont).

Presentations

March 1998 Noradrenergic differences in the modulation of the acoustic startle reflex in female rats. Douglas Hospital Research Center Research Day, Montreal, Quebec.

Feb 9, 2002 Hormones and emotional behavior in the female rat. Center for Behavioral Neuroscience Annual Retreat. Atlanta, GA

April 20, 2002 Stress hyporesponsiveness during lactation: pituitary mechanisms. Center for Behavioral Neuroscience Spring Symposium: The Maternal Brain. Atlanta, GA.

August 10 2002 Hormones and emotional behavior in the female rat as assessed by the acoustic startle paradigm. Emory and Wake Forest Symposium on Estrogen and Behavior. Emory University, Atlanta, GA.

March 31 2003 Hormones and emotional behavior in the female rat as assessed by the acoustic startle paradigm continued. Emory and Wake Forest Symposium on Estrogen and Behavior. University Of North Carolina at Wake Forest. Wake Forest, N.C.

January 4th to 9th 2004 Gender differences in anxiety: light-enhanced startle in the rat. "Sex and drugs' Conference sponsored by Pharmacology Biochemistry and Behavior Morzine, France.

April 24th 2009 *The Role of Gender, Estrogen and Serotonin in the Inhibition of Fear* Friday Afternoon Colloquium for the Department of Anatomy and Neurobiology, School of Medicine, UVM

February 22nd 2010 *The role of gender, estrogen and serotonin in the inhibition of fear* Biology Department, UVM, Spring Colloquium Series

April 7th 2010 *Gender differences and serotonin effects on emotion in the rat*
Neuroscience and Behavior Spring Seminar Series, UMass Amherst

Awards

Deans Honor List 1992: Concordia University

McGill University Internal Research Fellowship (Competitive Grant, June 1997)

Center for Behavioral Neuroscience Fellowship (January 2001-December 2002)
Renewed for an additional year January 2003.

University Of Wisconsin: Health and Emotions Conference April 18-19, 2002.
Travel Award.

National Science Foundation Travel Award (2004) to attend PBB Conference
“Gender Differences and Drug Abuse” in Morzine, France.

Grants

National Institute on Drug Abuse Grant: Recovery Act Limited Competition: NIH
Challenge Grants in Health and Science Research (RC1)

Sept 2009-Sept 2011: Adolescent brains, nicotine and endogenous prototoxins
\$1,000,000.00 direct funds

P.I. Rae Nishi

Toufexis Role: Co-Investigator

National Institutes of Mental Health RO1 Grant MH081816-01

Jan 2009-Jan 2013: Psychosocial Disruption of estradiol action on behavior
(with primates at Yerkes National Primate Center, GA

\$1,000,000.00 direct funds

P.I. Donna J Toufexis

Co-investigators: Mark Wilson, Kim Wallin, Mar Sanchez

National Institutes of Mental Health R21 MH076869

January 2006- January 2008: The Effect of Gonadal Steroids on Pavlovian Fear
Conditioning \$244,000.00 direct funds

P.I. Donna J Toufexis

Co-investigators: Karyn M Myers, Michael Davis

Center for Behavioral Neuroscience Venture Grants:

Spring 2006: Limbic CRH Over Expression Targets the Reproductive Axis

P. I.'s: M. E. Wilson, E. M. Keen-Rhinehart, H. Nair, K. Ressler, D. J. Toufexis

Spring 2005: Developing a model to study the adverse effects of childhood obesity on reproduction and metabolism.

P.I.'s M. Wilson T. Bartness R.B.S. Harris D. J. Toufexis A. Fischer

Fall 2003: The Effect of Estrogen and Tamoxifen on Fear-conditioning in the Female Rat.

P.I.s: D.J. Toufexis, M.E. Wilson M. Davis

Spring 2001:The Neurobiology of Maternal Behavior

P.I.s: T Insel, D.J. Toufexis, S. Hu

Publications

Chemosensory responses from two instars of Choristoneura Fumiferana to extracts of balsam fir, sucrose and certain amino acids. 1994, (M.S. Thesis).

Noradrenergic and pituitary mechanisms underlying the stress and behavioral changes during lactation in the rat. 1998, (Doctoral Thesis).

Text Book: Anti-Anxiety Drugs (with S E Hammack) 2006. Chelsea House Publishing, Langhorne PA.

Text Book Chapter: Development of Olfactory Modulated Approach and Avoidance Motivated Behaviors (with Regina Sullivan & Donald Wilson) In: Handbook of Approach and Avoidance Motivation
Andrew J. Elliot, Ph. D Department of Clinical and Social Sciences in Psychology University of Rochester, Editor (in press)

Text Book Chapter Prepared for *The Human Amygdala* (Elisabeth Phelps editor): Implications of Animal Fear Models for Assessing the Role of the Human Amygdala in Psychopathology

With Karyn M. Myers (1st author), Michael Davis, James T. Winslow, Tanja Jovanovic, Seth D. Norrholm, Erica J. Duncan, and Barbara O. Rothbaum

Papers published in refereed journals in 2011

PTSD is associated with the PAC1 receptor and dysregulation of PACAP.

Ressler Kerry J. KBM, Bekh Bradley, Tanja Jovanovic, Amy Mahan,, Kimberly Kerley SDN, Varun Kilaru, Alicia K. Smith, Amanda J. Myers, Manuel Ramirez, Anzhelika Engel, Sayamwong E. Hammack, Donna Toufexis, Karen M. Braas, Elisabeth B. Binder, Victor May. *Nature* (2011) 470(7335) pp 492-7

Papers published in refereed journals 2009

Continuous expression of Corticotropin Releasing Hormone in the Central Nucleus of the Amygdala Emulates the Dysregulation of the Stress and Reproductive Axes*

E. Keen-Rhinehart, V. Michopoulos, L. Martin, D.J. Toufexis, M. Davis, K. Ressler, C. Nemeroff, M. E. Wilson.

Molecular Psychiatry (2009)14(1) pp 37-50.

***My participation includes writing the manuscript**

Invited review special edition of Physiology and Behavior on Sex differences

Genetic, Epigenetic and Environmental Impact on Sex Differences in Social Behavior. Kathryn N. Shepard, Vasiliki Michopoulos: Donna J. Toufexis, and Mark E. Wilson.

Physiology & Behavior 97 (2009) pp 157–170

Previously Published peer-reviewed papers

1. Toufexis D.J., Myers K.M., Bowser M.E., & Davis M. 2007. Estrogen disrupts the inhibition of fear in female rats: possibly through the antagonistic action of ER α AND ER β . J. Neuroscience 27 pp 9729-9735.

2. Mao H., Toufexis D.J., Wang X., Lacreuse A, & Wu S. 2007. Changes of Metabolite Profile in Kainic Acid Induced Hippocampal Injury in Rats Measured by the HRMAS NMR. Experimental Brain Research 183 pp 477-485.

3. Toufexis D. 2007. Region- and sex-specific modulation of anxiety in the rat: an invited “Young Investigator Perspective” review for the Journal of Neuroendocrinology 19 pp 461-474.

4. Toufexis D.J., Myers, K.M. & Davis M. 2006. The effect of gonadal hormones and gender on anxiety and emotional learning in the rat. Invited Review: Hormones and Behavior 50 pp 539-549.

5. Toufexis D.J., Davis C. Hammond A. & M. Davis M. 2005. Sex differences in hormonal modulation of anxiety measured with light enhanced startle: a possible role of arginine vasopressin in the male J. Neuroscience 25 pp 9010-9016.

6. Toufexis D.J., Davis C., Hammond A. & Davis M. 2004. Progesterone attenuates CRF-enhanced startle, but not fear-potentiated startle, through the activity of its metabolite allopregnanolone. J. Neuroscience 24 pp 10280-10287.

7. Walker DL, Toufexis DJ, Davis M. 2003. Role of the bed nucleus of the stria terminalis versus the amygdala in fear, stress, and anxiety. Eur J Pharmacol. 463 pp199-216.
8. Toufexis D.J. Kyriazis D. and Woodside B. 2002. Chronic NPY Y5 receptor stimulation suppresses reproduction in virgin female and lactating rats. J. Neuroendocrinology 15 pp 492-497.
9. Toufexis D.J. Yorozu, S. and Woodside B. 2002. Y1 receptor activation is involved in the effect of exogenous NPY on reduced pup weight and the early termination of lactational diestrus in the postpartum rat. J. Neuroendocrinology 14 pp 354-360.
10. Walker C-D, Toufexis D.J., Burlet A., 2001. Hypothalamic and limbic expression of CRF and AVP during lactation: implications for the control of ACTH secretion and stress hyporesponsiveness. Progress in Brain Research 133 pp 99-110. (special edition on the Maternal Brain)
11. Toufexis D.J., Tesolin S., Huang N., & Walker C-D., 1999. Altered pituitary sensitivity to corticotropin-releasing factor and arginine vasopressin participates in the stress hyporesponsiveness of lactation. J. Neuroendocrinology 11 pp 757-764.
12. Toufexis D.J., Rochford J., & Walker C-D., 1999. Lactation induced reduction in acoustic startle is associated with changes in noradrenergic neurotransmission. Behavioral Neuroscience 113 pp 76-84.
13. Toufexis D.J., Thirivikraman K.V., Plotsky P.M., Morilak D.A., Huang N., & Walker C-D., 1998. Reduced noradrenergic tone to the hypothalamic paraventricular nucleus contributes to the stress hyporesponsiveness of lactation. J. Neuroendocrinology 10 pp 417-427.
14. Trottier G., Brun T., Toufexis D.J., Koski K.G., Richard D., & Walker C-D., 1998. Increased fat intake during lactation modifies hypothalamic-pituitary-adrenal responsiveness in developing rat pups. Endocrinology 139 pp 3704-3711.
15. Walker C-D, Bodnar M, Forget M.J., Toufexis D. J. & Trottier G., 1997. Stress et plasticite neuroendocrinienne. Medicine/Science 13 pp 509-518.
16. Toufexis D.J. & Walker C-D., 1996. Noradrenergic facilitation of the adrenocorticotropin response to stress is absent during lactation in the rat. Brain Research 737 pp 71-77.

17. Toufexis D.J., Albert P.J., & Bauce E., 1996. Age-related responses from the maxillary sensilla styloconica of *Choristoneura fumiferana* larvae to foliage extracts from balsam fir host. *Entomologia Experimentalis et Applicata* 78 pp 129-133.

Abstracts, published 2010 at the 39th Annual Meeting of the Society for Neuroscience, San Diego Ca Nov 15-18

D.J. Toufexis, M.E. Wilson

Androgens modulate the reactivity of the HPA axis in male and female rhesus monkeys.

O. Lipatova, V. May, D. J. Toufexis

Estrogen disruption of fear inhibition may involve down-regulation of the 5-HT₆ receptor in the striatum and the bed nucleus of the stria terminalis in female rats.

V. Michopoulos, D. J. Toufexis, M. E. Wilson

Behavioral and physiological phenotype of female rhesus monkeys is dependent upon estradiol, social status and serotonin reuptake transporter gene polymorphism.

Earlier Abstracts

V. Michopoulo, C. Barrett, M.E. Wilson, D. Toufexis.

Dose-dependent effects of estrogen receptor specific agonists on physiology and behavior in female rhesus monkeys. Abstract for the Annual Society for Behavioral Neuroscience Meeting, Toronto, Canada July 18-21, **2010**

Donna J. Toufexis, Aryele Maye, Brittney Nalty, Michael Bowser, and Michael Davis

Antagonism of the serotonin 6 receptor disrupts the inhibition of fear in rats. The 38th Annual Meeting of the Society for Neuroscience to be held in Chicago IL. Oct 15-19, **2009**.

Donna J. Toufexis, Karyn M. Myers, Michael E. Bowser & Michael Davis.

Isolation stress disrupts the expression of inhibitory fear learning in female rats. The 36th Annual Meeting of the Society for Neuroscience to be held in San Diego CA, Nov 3-7, **2007**.

D J. Toufexis, Myers, K.M. & Davis M. Opposing effects of ER α and ER β activation in an aversive discrimination learning paradigm

The Annual Meeting for the Society of Behavioral Neuroscience held in Pittsburg PN. June 17-20 **2006**

Mao H. D. J. Toufexis, Wang X, Wu S. Lacreuse A. Metabolic Responses in Kanic Acid Induced Lesion in Rat. International Society for Magnetic Resonance in Medicine, Seattle, WA **2006**.

Toufexis D. J., Davis C., Hammond A.S. & Davis M. Testosterone is involved in modulating light-enhanced, but not fear potentiated, startle in male rats: possible role for arginine vasopressin. 34th Society for Neuroscience held in San Diego CA. Nov **2004**.

Toufexis D. J., Hammond A.S. & Davis M.. The effect of estrogen and tamoxifen on slow-acquisition fear conditioning in female rats. Women's Health Initiative Conference. University of North Carolina, Wake Forest, October 30th-31st **2003**.

Toufexis D.J., Walker D.L., & Davis M. Involvement of plasma testosterone in modulating light-enhanced startle in male rats: possible role for arginine vasopressin. Annual Meeting for the Society for Behavioral Neuroendocrinology. Cincinnati OH. June 25th –29th **2003**.

Toufexis D.J. & Davis M. Involvement of progesterone in the reduction of CRF-enhanced startle during lactation in the rat. 32nd Annual Meeting of The Society for Neuroscience held in Orlando FL. Nov **2002**.

Walker D.L Toufexis D.J. & Davis M. Sex-differences in the expression of light-enhanced startle in the rat. Submitted to the 32nd Annual Meeting of The Society for Neuroscience held in Orlando FL.USA. Nov **2002**.

D. J. Toufexis, J. LaRoche, & B. Woodside. Changes in metabolic load alter stress-induced c-fos expression in the paraventricular (PVN) and supraoptic (SON) nuclei in the post-parturient rat. 30th Annual meeting of The Society for Neuroscience, November 4-9, New Orleans La., USA. Nov **2000**.

C-D. Walker, D.J. Toufexis, A. Abizaid, J-L. Junien and B. Woodside. Neuropeptide Y (NPY) Y5 receptor stimulation lengthens the duration of lactational diestrus: possibly through inhibition of luteinizing hormone (LH) release. 30th Annual meeting of The Society for Neuroscience, held in New Orleans La., USA. Nov **2000**.

Toufexis D.J., & Woodside B.S. Differential effect of Y1 and Y2 receptor activation underlies reduced pup growth and the early return to estrus in chronic neuropeptide Y-treated lactating rats.. 29th Annual meeting of The Society for Neuroscience, October 23-28, Miami Beach, Florida USA..Oct **1999**.

Walker C-D., Toufexis D.J., & Bulet A. Increased colocalization of CRF and AVP in hypothalamic PVN neurons during lactation has functional implications for the control of ACTH secretion. The Maternal Brain, July 6-9, Bristol, UK. **1999**.

Toufexis D.J., Rochford J., & Walker C-D. Changes in noradrenergic neurotransmission during lactation affect the expression of acoustic startle in the rat. 28th Annual meeting of The Society for Neuroscience, Los Angeles, California, USA. Nov **1998**.

Tesolin S. Toufexis D.J., Huang N. & Walker C-D. Pituitary ACTH response to arginine vasopressin (AVP) but not corticotropin-releasing hormone (CRH) is greatly enhanced during lactation in the rat. 28th Annual meeting of The Society for Neuroscience, Los Angeles, California, USA. Nov 1998.

Francis D. Toufexis D.J., Brake W.G. Liu D. & Meaney M.J. Natural Variations in maternal licking and grooming behavior. How do these mothers differ? 28th Annual meeting of The Society for Neuroscience, Los Angeles, California, USA. Nov **1998**.

Toufexis D.J., & Walker C-D., Noradrenergic regulation of the adrenocortical axis is altered during lactation in the rat. 27th Annual meeting of The Society for Neuroscience, New Orleans, LA, USA. Oct **1997**.

Toufexis D.J., & Walker C-D. Reduction in noradrenergic potentiation of the stress response during lactation in the rat is associated with changes in adrenergic alpha-2 receptor density in the paraventricular nucleus (PVN). 26th Annual meeting of The Society for Neuroscience, Washington D.C., USA. Nov **1996**.

Albert P.J. Toufexis D.J., & Bauce E. Age differences in the chemosensory response of larvae of the spruce budworm (*Choristoneura fumiferana*) to sucrose. 9th International Symposium on Insect-Plant Relationships, June 24-30, **1995**. Gwatt, Switzerland.

Membership in Professional Societies

Society for Neuroscience
Society for Behavioral Neuroendocrinology

Techniques and Laboratory Experience

Small animal surgery including: ICV cannulation and micropump placement, region specific cannulation, chemotoxic lesioning, ovariectomy, IV jugular cannulation, perfusion, and microdialysis.

Electrophysiology: whole cell recording.

Behavioral testing; open field, elevated plus maze, maternal behavior, prepulse inhibition, fear conditioning, and acoustic startle.

Cell and biochemical techniques: radio-immunoassays, receptor autoradiography (and image analysis), Western blotting, Immunohistochemistry, insitu hybridization.

Service

Gave classes on "The Five Senses" to grade 6 students in four Elementary schools in the greater Montreal area for BRAIN AWARENESS WEEK 1998.

Presented lectures to High School students on "The Mechanisms of Drug Action and Addiction" for BRAIN AWARENESS WEEK 2000.

Mentored High School students in Scitrek mentoring program in Atlanta GA, 2002.

Lectured on "Fear Systems and the Brain." Booker T. Washington High School, Atlanta GA. October 2002.

Acted as a Judge for the Atlanta Regional High School Science Fair Poster Competition 2003.

Acted as a Judge for the Atlanta University Colleges Annual Science Fair and Poster Competition April 2003.

Fall 2003: Gave informal lecture at Hull Middle School Atlanta GA. To grade 6 science class. Hosted visit to the Davis lab as follow-up.

Acted as a Judge for the Atlanta Regional High School Science Fair Poster Competition FINAL. Jan 2004.

Manned front desk at "Brains Rule" day at Zoo Atlanta. March 2005.

Manned "Real Brain" exposition at "Brains Rule" day at Zoo Atlanta 2006.

Manned "Sparky the Neuron" exposition at "Brains Rule" day at Zoo Atlanta 2007.

Taught 4 groups of grade 5 students at Briar Ridge Elementary School in Atlanta for SFN Brain Awareness Month 2007.

Acted as a Poster Judge for the final presentations of the Center for Behavioral Neuroscience summer program (BRAIN) for undergraduates. July 2007.

Gave a talk entitled *Gender differences and the brain* for the
Newport/Derby/Stanstead Osher Lifelong Learning Institute, Newport, Vermont.
May 13th 2009