

CURRICULUM VITAE

Colleen M. Novak
Associate Professor

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EDUCATION AND PROFESSIONAL EXPERIENCE

Associate Professor **April, 2014**
Assistant Professor, Kent State University, Department of Biological Sciences and School of Biomedical Sciences **July, 2009**

Associate Consultant, Mayo Clinic College of Medicine, Endocrine Research Unit **2008-2009**

Assistant Professor of Medicine, Mayo Clinic College of Medicine, Endocrine Research Unit **2007-2009**

Instructor, Mayo Clinic College of Medicine, Endocrine Research Unit **2006-2007**

Postdoctoral Fellow, Mayo Clinic, Endocrine Research Unit, Laboratory of Dr. James Levine **2004-2006**

Postdoctoral Associate, Georgia State University, Department of Biology, Laboratory of Dr. H. Elliott Albers **1999-2004**

Ph.D., Michigan State University, Neuroscience Program and Department of Psychology, Laboratory of Dr. Antonio A. Nunez **1999**

M.A., Michigan State University, Department of Psychology, Laboratory of Dr. Antonio Nunez **1995**

B.A., University of Iowa, Departments of Psychology and History, Laboratory of Dr. A. Kim Johnson **1993**

DOCTORAL THESIS

Circadian Modulation of Brain Areas that Control the Sleep-Wake Cycle in Diurnal and Nocturnal Rodents **July, 1999**
Michigan State University,
Department of Psychology and Neuroscience Program

GRANTS AND AWARDS

CURRENT:

R15: DK097644 (PI) **2013-2016**
“Brain Melanocortin Control of Activity Energy Expenditure and Obesity Resistance”
Total Costs: \$384,192

AMERICAN HEART ASSOCIATION GRANT-IN-AID **2012-2014**
12GRNT12050566 (PI)
"Melanocortins and the Sympathetic Brain Muscle Axis: Role in Obesity Prevention"
Total Costs: \$154,000

Council on Graduate Education for Administration in Nursing **2012-2013**
Co-Investigator
"Nurses' Physical Activity Measured Objectively by Accelerometry: Relationship to Health Markers, Adaptation to Shift Schedules and Nutrition Habits"
Total Costs: \$2,494

PREVIOUS:

R01: NS055859 (PI) **2008-2012**
"Brain Mechanisms of Non-Exercise Activity Thermogenesis"
Total Costs: \$1,299,395

Minnesota Obesity Center Pilot & Feasibility Grant (PI) **2008**
"Intrinsic Aerobic Capacity, NEAT, and Obesity."
Total Costs: \$23,339

Minnesota Obesity Consortium Pilot Grant (PI) **2006-2008**
"Oxyntomodulin and the Regulation of Non-Exercise Activity Thermogenesis"
Total Costs: \$38,836

American Heart Association Scientist Development Grant (PI) **2006-2007**
(0635113N)
Total Costs Granted: \$260,000
Total Costs Used: 65,000 (Unused funds due to successful competition for R01)

Postdoctoral National Research Service Award (PI) **2001-2004**
(NRSA; NIMH MH 12956) from NIH
Total Costs: \$136,252

Predocctoral National Research Service Award (PI) **1996-1998**
(NRSA; NIMH MH 11232) from NIH

HONORS

Special commentary highlighting article in *Hormones and Behavior*, Activity, Economy of Activity, and Resistance to Diet-Induced Obesity in Rats Bred for High Intrinsic Aerobic Capacity **2010**

Editorial Focus highlighting article in *American Journal of Physiology*, Novel phase-shifting effects of GABA_A receptor activation in the suprachiasmatic nucleus of a diurnal rodent. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*: 286 (5): R820-R825. **2002**

Psychology Graduate Office Fellowship, Michigan State University **1993**

Graduated magna cum laude, with honors in Psychology, University of Iowa **1993**

Phi Beta Kappa, University of Iowa **1993**

PROFESSIONAL AFFILIATIONS	American Physiological Society	since 2011
	Society for the Study of Ingestive Behavior	since 2009
	The Obesity Society	since 2007
	American Heart Association	since 2006
	Society for Neuroscience	since 1994
	Society for Research on Biological Rhythms	since 1995
	Society for Behavioral Neuroendocrinology	since 1996

TEACHING	Kent State University	
	<ul style="list-style-type: none"> • Endocrinology (40432/50432/70432; spring) • Obesity and Related Metabolic Disease (fall) • Careers Pathways in Biology (fall) • Co-taught Hormones & Behavior (summer) • Co-taught Biological Diversity (summer) • Co-teach or multiple guest lectures for: Diabetes and Cardiovascular Disease, Foundations of Neuroscience (2012), Biological Foundations (2012), Neuroendocrinology, Advanced Physiology Laboratory, and College Teaching. 	2010-2013 2012-2013 2010-2011 2012-2013 2011

	Georgia State University	
	<ul style="list-style-type: none"> • Lecturer for advanced (Biological Rhythms) and introductory level courses (General Biology, General Psychology, Brain and Behavior) • Laboratory sheep brain dissections 	

	Michigan State University	
	<ul style="list-style-type: none"> • Instructor: Brain and Behavior, Summer Session Full teaching responsibility for this core survey course in Department of Psychology • Teaching Assistant: Brain and Behavior, Advanced Behavioral Neuroscience, Psychobiology of the Lifespan, Psychobiology of Motivation, Psychological Testing and Measurement, Principles of Learning and Motivation, History of Modern Psychology 	

SERVICE	The Obesity Society, Scientific Review Committee	2012-2013
	Review Letters of Intent and Grant Applications	
	Ad hoc reviewer for:	
	National Science Foundation	2009
	National Institutes of Health (NIAMS)	2009
	Ad hoc reviewer for:	
	<i>American Journal of Physiology</i> <i>BMC Physiology</i> <i>Chronobiology International</i>	<i>Diabetes</i> <i>Diabetes Care</i> <i>Hormones & Behavior</i> <i>International Journal of Obesity</i>

*Journal of Chemical
Neuroanatomy
Endocrinology
Journal of Neuroendocrinology
Neuroscience*

*Neuroscience Letters
Obesity
Peptides
Physiology & Behavior
PLOS One*

Service on Committees, Kent State University

Doctoral: 12

Master's: 2

Graduate School Representative (Doctoral Committees): 4

Faculty Vivarium Director; KSU IACUC committee

since 2011

**OTHER
EXPERIENCE**

Attended New England Bio Labs Molecular Biology Workshop June, 2003

Attended "IACUC 101" Nov 22, 2002
Day-long course designed to educate and inform members of institutional IACUC committees

**CONFERENCE
SYMPOSIA
AND
INVITED
PRESENTATIONS**

Society for Neuroscience, Co-Chair and Presenter, Minisymposium:
*Hypothalamic control of autonomic nervous system outflow
and obesity: Impact on multiple systems* 2014

Northeastern Ohio Medical University (NEOMED), Pharmacy 2014

Kent State University 2nd Annual neuroscience Symposium 2014

Case Western Reserve University
Transdisciplinary Research on Energetics and Cancer 2014

Cleveland Clinic, Pathobiology 2014

Miami University, Department of Biology 2014

Case Western University, Seep Medicine, Grand Rounds 2012, 2013

University of Michigan 2011

Michigan State University, Neuroscience Program 2011

Ohio Physiological Society 2011

Case Western Reserve University, Department of Biochemistry 2010

University of Akron 2010

NEOMED, Department of Integrative Medical Sciences 2009

Eastern Virginia Medical School 2009

American Association of Clinical Endocrinology,
Ohio River Regional Chapter Annual Meeting 2008

Florida State University, Department of Psychology 2003

Medical College of Georgia 2002

Georgia State University, Depts of Biology and Psychology 1999

**PUBLISHED
ORIGINAL
ARTICLES**

1. Smyers ME, Bachir KZ, Britton SL, Koch LG, and **Novak CM** (2014) Physically active rats lose more weight during calorie restriction. *Physiology & Behavior*, 139C: 303-313. (PMID: 25449411)
2. Gavini CK, Mukherjee S, Shukla C, Britton SL, Koch LG, and **Novak CM** (2014) Leanness and heightened non-resting energy expenditure: Role of skeletal muscle activity thermogenesis. *American Journal of Physiology: Endocrinology and Metabolism*, 306 (6): E635-647. (PMID: 24398400)
3. Zhu Z, Spicer EG, Gavini CK, Goudjo-Ako AJ, **Novak CM**, and Shi H (2014) Enhanced sympathetic activity in mice with brown adipose tissue transplantation (transBATation). *Physiology & Behavior*, 125: 21-29. (PMID: 24291381)
4. Walrand S, Short KR, Heemstra LA, **Novak CM**, Levine JA, Coenen-Schimke LM, and Nair KS (2014) Altered regulation of energy homeostasis in older rats in response to thyroid hormone administration. *The FASEB Journal*, 28 (3): 1499-1510 (PMID: 24344330)
5. Shukla C, Britton SL, Koch LG, and **Novak CM** (2012) Region-specific differences in brain melanocortin receptors in rats of the lean phenotype. *Neuroreport*, 11 (10): 596-600. (PMID: 22643233)
6. **Novak CM** and Gavini CK (2012) Smokeless weight loss. *Diabetes*, 61(4): 776-7. (PMID: 22442297)
7. Zhang Y, Ge X, Heemstra LA, Smith JS, Ma H, Kasim N, Edwards PA, and **Novak CM**. (2012) Loss of FXR protects against diet-induced obesity and accelerates liver carcinogenesis in ob/ob mice. *Molecular Endocrinology*, 26 (2): 272-80. (PMID: 22261820)
8. Nixon JP, Kotz CM, **Novak CM**, Billington CJ, Teske JA. (2012) Neuropeptides controlling energy balance: orexins and neuromedins (Review). *Handbook of Experimental Pharmacology: Appetite Control*, 209: 77-109. (PMID: 22249811)
9. **Novak CM**, Burghardt PR, and Levine JA. (2011) Running wheel activity in rodents: Relationship to energy balance, general activity, and reward. *Neuroscience and Biobehavioral Reviews*, 36 (3):1001-14. (PMID: 22230703)
10. Park YJ, Kim SC, Him J, Anakk S, Lee JM, Tseng HT, Yechoor V, Park J, Choi JS, Jang HC, Lee K-U, **Novak CM**, Moore DD, and Lee YK. (2011) Dissociation of diabetes and obesity in mice lacking orphan nuclear receptor small heterodimer partner. *Journal of Lipid Research*, 52 (12): 2234-2244. (PMCID: PMC3220290)
11. **Novak CM**, Escande C, Burghardt P, Zhang M, Barbosa MT, Chini EN, Britton SL, Koch LG, Akil H, and Levine JA (2010) Activity, Economy of Activity, and Resistance to Diet-Induced Obesity in Rats Bred for High Intrinsic Aerobic Capacity. *Hormones and Behavior*, 58 (3): 355-367 (Special Commentary highlights publication: Hormones and Behavior, 58 (3): 353-354).

12. Li T, Owsley E, Matozel M, Hsu P, **Novak CM**, and Chiang JYL (2010) Transgenic expression of CYP7A1 in the liver prevents high fat diet-induced obesity and insulin resistance in mice. *Hepatology*, 52 (2): 678-690.
13. Escande C, Chini CCS, Nin V, Dykerhouse KM, **Novak CM**, Levine J, vanDeursen J, Gores GJ, Chen J, Lou Z, Chini EN. (2010) Deleted in breast cancer-1 (DBC1) is a physiological regulator of SIRT1 activity and is necessary for the development of high fat diet induced liver steatosis. *Journal of Clinical Investigation*, 120 (2): 545-558.
14. Nixon JP, Zhang M, Wang C, Kuskowski M, **Novak CM**, Levine JA, Billington CJ, and Kotz CM. (2010) Evaluation of a quantitative magnetic resonance imaging system for whole body composition analysis in rodents. *Obesity*, 18 (8): 1652-1659.
15. **Novak CM**, Escande C, Gerber SM, Chini EN, Zhang M, Britton SL, Koch GL, and Levine JA (2009) Endurance capacity, not body size, determines physical activity levels: role of skeletal muscle PEPCK. *PLoS One*, 4 (6): e5869.
16. **Novak CM** Invited "News and Views" contribution: NeuromedinS and U (2009) *Endocrinology*, 150 (7): 2985-2987.
17. **Novak CM** and Levine, JA (2009) Daily Intraparaventricular Orexin-A treatment induces weight loss in rats. *Obesity*, 17 (8): 1493-4-1498.
18. Conover CA, Mason MA, Levine JA, and **Novak CM** (2008) Metabolic consequences of PAPP-A deficiency in mice: exploring possible relationship to longevity phenotype. *Journal of Endocrinology*, 198 (3):599-605.
19. Ehlen, JC, **Novak CM**, Karom MK, Gamble KL, and Albers HE. (2008) GABAA receptor activation and light oppose each other's action on the expression of Period 1 and Period 2 mRNA in the suprachiasmatic nucleus only during the subjective night. *Journal of Biological Rhythms*, 23 (1): 16-25.
20. **Novak CM**, Ehlen JC, and Albers HE. (2008) Invited Review: Photic and nonphotic inputs to the diurnal circadian clock. *Biological Rhythm Research*, 39 (3): 291-304.
21. **Novak CM** and Levine, JA (2007) Review: Central neural and endocrine mechanisms of non-exercise activity thermogenesis and their potential impact on obesity. *Journal of Neuroendocrinology*, 19 (12): 923-40.
22. **Novak CM**, Zhang M, and Levine JA (2007) Sensitivity of the hypothalamic paraventricular nucleus to the locomotor-activating effects of neuromedin U in obesity. *Brain Research*, 1169: 57-68.
23. Barbosa MTP, Soares SM, **Novak CM**, Sinclair D, Levine JA, Aksoy P, and Chini EN (2007) The Enzyme CD38 (a NAD glycohydrolase, EC 3.2.2.5) is necessary for the induction of diet-induced obesity. *The FASEB Journal*, 21 (13): 3629-39.

24. Kiwaki K, **Novak CM**, Hsu DK, Liu F, and Levine JA (2007) Galectin-3 Stimulates Preadipocyte Proliferation and is Upregulated in Growing Adipose Tissue. *Obesity, 1* (15) 32-39
25. **Novak CM**, Ehlen JC, Paul KN, Fukuhara C, and Albers HE. (2007) Light and GABA_A receptor activation alter period mRNA levels in the SCN of diurnal Nile grass rats. *European Journal of Neuroscience, 24*: 2843-2852.
26. **Novak CM**, Parfitt DB, Sisk CL, and Smale L. (2007) Associations between behavior, hormones, and Fos responses to novelty differ in pre-and post-pubertal grass rats. *Physiology and Behavior, 90* (1): 125-136.
27. **Novak CM**, Zhang M, and Levine JA (2006) Neuromedin U in the paraventricular and arcuate hypothalamic nuclei increases non-exercise activity thermogenesis. *Journal of Neuroendocrinology, 18*: 594-601.
28. **Novak CM**, Kotz CM, and Levine JA (2006) central orexin sensitivity, physical activity, and obesity in diet-induced obese and diet-resistant rats. *American Journal of Physiology: Endocrinology and Metabolism, 290* (2): E396-403.
29. Kotz CM, Wang CF, Teske JA, Thorpe AJ, **Novak CM**, Kiwaki K, and Levine JA (2006) Orexin A mediation of time spent moving in rats: Neural mechanisms. *Neuroscience, 142* (1): 29-36.
30. Ehlen JC, **Novak CM**, Karom MC, Gamble KA, Paul KN, and Albers HE (2006) GABA_A receptor activation suppresses Period 1 mRNA and Period 2 mRNA in the suprachiasmatic nucleus during the mid-subjective day. *European Journal of Neuroscience, 23*: 3328-2236.
31. **Novak CM**, Jiang X, Wang C, Teske JA, Kotz CM, Levine JA (2005) caloric restriction and physical activity in zebrafish (*Danio rerio*). *Neuroscience Letters, 383* (102): 99-104.
32. **Novak CM** and Albers HE (2004) Novel phase-shifting effects of GABA_A receptor activation in the suprachiasmatic nucleus of a diurnal rodent. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology, 286* (5): R820-R825. "Editorial Focus" spotlights article.
33. **Novak CM**, Ehlen JC, Huhman KL, and Albers HE (2004) GABA_B receptor activation in the suprachiasmatic nucleus of diurnal and nocturnal rodents. *Brain Research Bulletin, 63* (6): 531-535.
34. **Novak CM** and Albers HE (2004) Circadian phase alteration by GABA and light differs in diurnal and nocturnal rodents during the day. *Behavioral Neuroscience, 118* (3): 498-504.
35. Gamble KL, **Novak CM**, and Albers HE (2004) Neuropeptide Y and N-methyl-D-aspartic acid interact within the suprachiasmatic nuclei to alter circadian phase. *Neuroscience, 126* (3): 559-65.
36. Paul KN, Gamble KL, Fukuhara C, **Novak CM**, Tosini G, and Albers HE (2003) Tetrodotoxin prevents the decrease of melatonin levels in the pineal gland without

influencing Per1 and Per2 levels in the suprachiasmatic nucleus. *European Journal of Neuroscience*, 19 (10): 2808-14.

37. **Novak CM** and Albers HE (2002) N-methyl-D-aspartate microinjected into the suprachiasmatic nucleus mimics the phase-shifting effects of light in the diurnal Nile grass rat (*Arvicanthis niloticus*), *Brain Research*, 951 (2): 255-263.
38. Gamble KL, **Novak CM**, Paul KN, and Albers HE (2002) Tetrodotoxin blocks the circadian effects of NMDA during the day but not at night. *NeuroReport*, 14 (4): 641-644
39. **Novak CM** and Albers HE (2001) Localization of hypocretin-like immunoreactivity in the brain of the diurnal rodents, *Arvicanthis niloticus*. *Journal of Chemical Neuroanatomy*, 23: 49-58.
40. **Novak CM**, Harris JA, Smale L, and Nunez AA (2000) Suprachiasmatic nucleus projections to the paraventricular thalamic nucleus in nocturnal rats (*Rattus norvegicus*) and diurnal Nile grass rats (*Arvicanthis niloticus*). *Brain Research*, 874 (2): 147-157.
41. **Novak C M**, Smale L, and Nunez A A (2000) Rhythms in Fos expression in brain areas related to the sleep-wake cycle in the diurnal *Arvicanthis niloticus*. *American Journal of Physiology*, 287 (Regulatory, Integrative and Comparative Physiology): R1267-R1274.
42. **Novak CM** and Nunez AA (2000) A sparse projection from the suprachiasmatic nucleus to the sleep active ventrolateral preoptic area in the rat. *NeuroReport*, 11 (1): 93-96.
43. **Novak CM**, Smale L, and Nunez AA (1999) Fos expression in the sleep-active cell group of the ventrolateral preoptic area in the diurnal murid rodent, *Arvicanthis niloticus*. *Brain Research*, 818: 375-384.
44. Rose S, **Novak CM**, Mahoney MM, Nunez AA, and Smale L (1999) Fos expression within vasopressin-containing neurons in the suprachiasmatic nucleus of diurnal compared to nocturnal rodents. *Journal of Biological Rhythms*, 14 (1): 37-46.
45. **Novak CM** and Nunez AA (1998) Daily rhythms in Fos activity in the rat ventrolateral preoptic area and midline thalamic nuclei. *American Journal of Physiology*, 275 (Regulatory, Integrative and Comparative Physiology): R1620-R1626.
46. **Novak, CM** and Nunez AA (1998) Tyrosine hydroxylase and/or L-amino acid decarboxylase-containing cells in the suprachasmatic nucleus of the Syrian hamster (*Mesocricetus auratus*). *Journal of Chemical Neuroanatomy*, 14: 87-94.
47. Meek LR, Romeo R, **Novak CM**, and Sisk CL (1997) Actions of testosterone in pubertal and postpubertal male hamsters: Dissociation of effects on reproductive behavior and brain androgen receptor immunoreactivity. *Hormones and Behavior*, 31: 75-88.
48. Kirby RF, **Novak CM**, Thunhorst RL, and Johnson AK (1994) The role of beta-1 and beta-2 adrenoreceptors in isoproterenol-induced drinking. *Brain Research*, 656: 74-84.

MANUSCRIPTS SUBMITTED OR IN PREPARATION

Shukla C, Koch LG, Britton SL, Cai M, Hraby VJ, Bednarek M, and **Novak CM** (*submitted*) Contribution of regional brain melanocortin receptor subtypes to elevated activity energy expenditure in lean, active rats.

Almundarij TA, Smyers ME, Spriggs A, Beltz L, Gavini CK, Dyne E, and **Novak CM** (*in preparation*) Physical activity, energy expenditure, and defense of body weight in melanocortin 4 receptor-deficient rats.

Novak CM, Iwaniec U, Clifton KB, Turner R, Levine JA, Burghardt P, Britton SL, Koch LG, and Clowes JA (*in preparation*) Designed for speed: Impact of intrinsic aerobic capacity on the skeleton