

## *Curriculum Vitae*

**Abel Bult-Ito, Ph.D.**

**Associate Professor of Biology (Neuroscience)**

**Behavioral and Evolutionary Neuroscience Laboratory**

**Alaskan Basic Neuroscience Program**

**Institute of Arctic Biology and Department of Biology & Wildlife**

**University of Alaska Fairbanks**

**Fairbanks, Alaska 99775-7000**

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### **Education:**

- 1996-1997 Michigan State University, East Lansing, Michigan, Postdoctoral Fellow, Neuroscience
- 1993-1996 Yale University School of Medicine, New Haven, Connecticut, Postdoctoral Fellow, Molecular Neuroscience
- 1988-1993 Wesleyan University, Middletown, Connecticut, Ph.D., Biology
- 1985-1988 University of Groningen, Groningen, Netherlands, M.S., Biology
- 1981-1985 University of Groningen, Groningen, Netherlands, B.S., Biology

### **Employment:**

- 2003-present Associate Professor of Biology (Neuroscience), University of Alaska Fairbanks, Fairbanks, AK
- 2004-2005 President, University of Alaska Fairbanks Faculty Senate
- 2003-2004 President-elect, University of Alaska Fairbanks Faculty Senate
- 1999-2003 Assistant Professor of Biology (Integrative Physiology), University of Alaska Fairbanks, Fairbanks, AK
- 2001 (March-May) Visiting Scientist, Columbia University, Psychology, New York, NY
- 1997-1999 Assistant Professor of Biology, Middlebury College, Middlebury, VT
- 1996-1997 Postdoctoral Fellow, Michigan State University, Psychology, East Lansing, MI
- 1993-1996 Postdoctoral Fellow, Yale University School of Medicine, Child Study Center, New Haven, CT
- 1988-1993 Graduate Research/Teaching Assistant, Wesleyan University, Biology, Middletown, CT
- 1985-1988 Laboratory Instructor, University of Groningen, Biology, Groningen, Netherlands

### **Research Experience**

- 1997-present Integrative behavioral and evolutionary neuroscience studies of circadian rhythms, thermoregulation, and compulsive-like behaviors in mice and red-backed voles
- 1996-1997 Postdoctoral studies in the behavioral and neuroanatomical aspects of diurnality and nocturnality of the murid rodent *Arvicanthis niloticus*
- 1993-1996 Postdoctoral studies in the molecular neuroscience of a brain specific protein tyrosine phosphatase
- 1988-1993 Ph.D. studies in the quantitative genetic, neural, and circadian aspects of thermoregulatory nest-building behavior in the house mouse, *Mus domesticus*
- 1985-1988 Master's studies in the behavioral ecology of the European kestrel (see **Publications**)

section), the behavior of a marine snail, and the neurophysiological role of apomorphine in the central amygdala of the rat

**Teaching Experience:**

**University of Alaska Fairbanks, Department of Biology and Wildlife, Fairbanks, Alaska**

Human Anatomy & Physiology (BIOL 111x), fall 2005

Lecture in Human Anatomy & Physiology, Independent Study (BIOL 497), fall 2005 (Chelsea Paskvan)

Neuroscience Research, Independent Study (BIOL 497), spring 2005 (Kelsey Alexander)

Neurobiology (BIOL 417/617), spring 2004

Athletic Training, Independent Study (BIOL 497), spring 2004 (Gussie Ivanoff)

Neuroscience Research, Independent Study (BIOL 497), spring 2004 (Kelsey Alexander)

Writing a Review in Behavioral Neuroscience (BIOL 694), spring 2003: Resulted in a publication in the *International Journal of Circumpolar Health* 62:228-241 (2003) with students as first, second, and third authors.

Neuroscience Research, Independent Study (BIOL 497), spring 2003 (Yvonne Nieman)

Neuroscience Research, Independent Study (BIOL 497), fall 2002 (Yvonne Nieman)

Animal Behavior (BIOL 441) – Guest Lecturer (5 lectures), fall 2002

Neuroscience Research, Independent Study (BIOL 497), spring 2002 (Angela Largen)

Human Anatomy & Physiology I (BIOL 211x), fall 2001

Neuroscience Research, Independent Study (BIOL 497), spring 2001 (Micki Kobylk)

Human Anatomy & Physiology I (BIOL 211x), fall 2000

Neuroscience Research, Independent Study (BIOL 497), fall 2000 (Micki Kobylk and Doug Wacker)

Neurobiology (BIOL 417/617), spring 2000

**Middlebury College, Department of Biology, Middlebury, Vermont (1997-1999)**

Animal Behavior (BI 216, twice), Animal Physiology (BI 370, once), Behavior of Animals: Why should we care (BI 2, once), Human Evolution (BI 024, once), Independent Studies (BI 500/600, three times), Neural Regulation (BI 470, once), The evolution of *Homo sapiens* (FS 004, once), and Vertebrate Life (BI 202, twice)

**Wesleyan University, Middletown, Connecticut (1988-1993)**

Teaching Assistant for laboratory courses in introductory cell biology and genetics, and experimental ecology, and lecture courses in evolution, comparative animal behavior, and ecology

**University of Groningen, Groningen, the Netherlands (1985-1988)**

Laboratory Instructor for a laboratory course in introductory animal and human physiology

**Master's and Ph.D. Studies in my Laboratory:**

Graduate students are a very important component of a successful research program. They provide continuity and are the lifeblood of the program. They are given the opportunity to develop their career in the health-related sciences for successful future careers in academia, medical school, or industry!

### **Graduate Advisor for:**

- 2006-present Ph.D. student April Brennan: Alaskan red-backed vole physiology. **active**
- 2005-present M.Ed. student Stephanie Firmin: Science education (Co-Advisor). **active**
- 2004-present Master's Student Haiting Wan: Hormonal regulation and entrainment to scheduled feeding. **active**
- 2004 (Jan.)-2006 Ph.D. Student Keiko Akasofu: Molecular analysis of circadian rhythms. **Has chosen a different advisor**
- 2004 (Jan.)-present Master's Student Adlai Burman: Micro arrays in Arctic ground squirrels. **active**
- 2004-present Kalb Stevenson (Joint UAA/UAF Ph.D.): Co-Advisor (UAA Department of Biological Sciences and UAF Department of Biology & Wildlife) **active**
- 2002-present Ph.D. Student Kelly J. Hochstetler: Coupling and aging of circadian pacemakers in mice. **active**
- 2002-present Master's student Jim Kimbal: Biomechanical adaptations to skating in elite hockey players. **active**
- 2001-present Ph.D. student Dana M. Greene: Regulation of nest building behavior and body temperature. **active**
- 2000 (Jan.)-present Ph.D. student Ronald J. Tavernier: Arctic circadian rhythm organization of the Northern Red-backed Vole (*Clethrionomys rutilus*); <http://www.uaf.edu/csem/learn.htm>. **active**

### **Graduate Student Committee Member:**

- 2005-present Micki Kobylk (M.S.): Committee Member ((UAF Department of Chemistry and Biochemistry) **active**
- 2004-2006 April Brennan (Joint UAA/UAF Ph.D.): Committee Member (UAA Department of Biological Sciences and UAF Department of Biology & Wildlife) **active**
- 2002-2004 Katrina Knott (M.S.): Committee Member (UAF Department of Biology & Wildlife) **Graduated Summer 2004**
- 2001-2005 Huiwen Zhao (Ph.D.): Committee Member (UAF Department of Chemistry and Biochemistry) **Graduated Summer 2005**
- 2001-2005 Austin Ross (M.S.): Committee Member (UAF Department of Chemistry and Biochemistry) **Graduated Summer 2005**
- 2002-2003 Jennifer Jenkins (Ph.D.): Committee Member (UAF Department of Biology & Wildlife)
- 2001-2003 Timothy J. Martin (M.S.): Committee member (UAF Department of Biology & Wildlife)
- 1999-2004 Lucas B. Middle (M.S.): Committee member (UAF Department of Biology & Wildlife)
- 2000 Mike Sullivan (Ph.D.) Member comprehensive exam committee (UAA student)
- 2000 Kimberly L. Clapp (Ph.D.): Outside examiner (UAF Department of Chemistry and Biochemistry)
- 1999-2002 Jamie L. Barger (Ph.D.): Committee member (UAF Department of Biology & Wildlife) **Graduated August 2002**

### **Undergraduate Research:**

Undergraduate research is a high priority for me because I believe that hands-on cutting-edge

research using state-of-the-art facilities is one of the most effective educational experiences for an undergraduate student. I greatly enjoy working with undergraduates in my laboratory and students have been very successful publishing their work in highly respected peer-reviewed scientific journals. The first publications in 2000 appeared with undergraduate students as first and second authors! These publications are described in detail below under the Publications section (S.T. Marshall, A.I. Fa'anunu, and A. Bult (2000) *Brain Res.* 854:216-219; S.P. Amy, R. Chari, and A. Bult (2000) *J. Biol. Rhythms* 15:95-102). In addition, two manuscripts with a UAF undergraduate student as second author have been published in *Brain Research* (A. Bult, **M.E. Kobylk**, and E.A. Van der Zee (2001) *Brain Research* 914:123-133) and the *Journal of Biological Rhythms* (R.J. Tavernier, **A.L. Largen**, and A. Bult-Ito (2004) *Journal of Biological Rhythms* 19:238-247). In addition, an undergraduate is a co-author on a recent publication in *Physiology & Behavior* (M.R. Castillo, K.J. Hochstetler, D.M. Greene, **S.I. Firmin**, R.J. Tavernier, D.K. Raap, A. Bult-Ito (2005) *Physiology & Behavior* 86:538-545).

Undergraduate research also gives graduate students and research associates in my research laboratory a chance to develop their mentoring skills, which contributes to their career development.

#### **Undergraduate Students Working in My Laboratory at UAF:**

- 2004-2005 Kelsey Alexander: Neuroscience Research. Mouse model of OCD (co-advised Ph.D. student Dana Greene)
- 2004-2005 Adam McMahan: The role of serotonin in compulsive-like behaviors (co-advised with Dr. Dani Raap in Psychology and Ph.D. student Dana Greene)
- 2004 Heather L. Foltz: Neuroscience Research (co-advised with Dr. Dani Raap in Psychology and Ph.D. student Dana Greene).
- 2004 Crystal Duncan: Effect of fluoxetine on marble-burying in mice selectively bred for repetitive nesting behavior (co-advised with Dr. Dani Raap in Psychology and Ph.D. student Dana Greene).
- 2004 Traci Burrow: Neuroscience Research (co-advised with Dr. Dani Raap in Psychology and Ph.D. student Dana Greene).
- 2004 Gussie Ivanoff: Athletic Training (co-advised with UAF athletic trainer Morita Masa).
- 2003 Laura Walters: Senior Honors Thesis: The role of serotonin in nest-building behavior. Jointly advised with Dr. Marina Castillo, Affiliate Faculty of Chemistry (Former BIOL 211x student)
- 2002-2003 Yvonne Nieman: Cloning of clock genes in the red-backed vole. Supported by a NSF EPSCoR Undergraduate Internship. Jointly advised with Dr. Amy Denton, Assistant Professor of Biology at UAF (Former BIOL 211x student)
- 2001-2003 Stephanie Firmin (formally Marks): The role of VIP and PKC $\beta$ I in the SCN of mice. Funded by the National Institutes of Health: SNRP: NINDS, NIMH, NCR, NCMHD.
- 2002 (Spring) Angela Largen: Hanging behavior in the running-wheel does not affect the general circadian activity rhythms of red-backed voles. (Former BIOL 211x student)
- 2000-2002 Micki Kobylk: Behavioral differences among the selected lines are due to different levels of PKC, SERT, and 5HT in the SCN. Funded by the National Institutes of Mental Health (NIMH) **Graduated May 2002: Now Master's student with Dr. Lawrence K. Duffy at UAF**

2000 (fall) Doug Wacker: Neural regulation of circadian rhythms in mice and the role of AVP and VIP. **Graduated May 2001: Doug is now a graduate student in the Neurobiology and Behavior Program at the University of Washington, Seattle**

2000 (summer) Amy Price: The role of AVP and PKC in SCN function.

#### **Undergraduate Advisory Committees:**

2000-2001 Bevin L. McNally: Interdisciplinary Degree Program; Bachelor of Science in Neuroscience.

#### **High School Students:**

2005-2006 Alexandra Trevino, Monroe Catholic High School Student: Alaska Statewide High School Science Symposium Research: Non-photoc mechanisms of entrainment. Supervised by research associate Dr. Marina Castillo.

2005-2006 Harpreet Sangha, West Valley High School Student: Alaska Statewide High School Science Symposium Research: The effect of serotonergic lesions on compulsive-like behavior in mice bidirectionally selected for nest-building behavior. Supervised by graduate student Dana Greene and research associate Dr. Marina Castillo.

2004-2005 Samantha Forsko, West Valley High School Student: Alaska Statewide High School Science Symposium Research: The impact of chemical lesion to serotonergic raphe neurons in nesting behavior to study OCD. Supervised by research associate Dr. Marina Castillo.

2003-2004 Nune Martirosyan, West Valley High School Student: Alaska Statewide High School Science Symposium Research: Characterization of 5HT-2C receptors in mice bidirectionally selected for nest-building behavior. Supervised by graduate student Dana Greene.

2003-2004 Alla Bronskaya, West Valley High School Student: Alaska Statewide High School Science Symposium Research: Studying expression of known "clock" proteins in the Suprachiasmatic Nucleus (SCN) of the Red-Backed Vole (*Clethrionomys rutilus*). Supervised by graduate student Ron Tavernier.

2001-2002 Lisa Hoover, West Valley High School student: Alaska Statewide High School Science Symposium Research: Neuroanatomy of the suprachiasmatic nucleus of the northern red-backed vole, *Clethrionomys rutilus*. Supervised by graduate student Ron Tavernier.

#### **Student Awards:**

2006 April Brennan; UAF Ph.D. student; NSF EPSCoR Graduate Fellowship 2006/2007.

2006 Dana Greene; UAF Ph.D. student; NSF EPSCoR Graduate Fellowship 2006/2007.

2006 Harpreet Sangha, West Valley High School student; ranked 1<sup>th</sup> out of 14 finalists at the Alaska Statewide High School Science Symposium (ASHSSS) on March 4 & 5, 2006 (53 participants). This accomplishment earned her an all-expenses-paid trip to Albuquerque, New Mexico, to attend the National Junior Science and Humanities Symposium (JSHS) in April 2006. Harpreet worked in my research laboratory with my graduate student Dana Greene.

2005 Ron Tavernier; UAF Ph.D. student; NSF EPSCoR Graduate Fellowship 2005/2006.

2005 Samantha Forsko, West Valley High School student; ranked 4<sup>th</sup> out of 14 finalists at the Alaska Statewide High School Science Symposium (ASHSSS) on March 5 & 6, 2005.

- This accomplishment earned her an all-expenses-paid trip to San Diego to attend the National Junior Science and Humanities Symposium (JSHS) in April 2005. Lisa worked in my research laboratory with my Research Associate Marina Castillo.
- 2004 Adam McMahan, UAF undergraduate student; Undergraduate Student Research Award (2,500) from the Office of Sponsored Research. Co-advised with Dr. Daní Raap (UAF Psychology) and Ph.D. student Dana Greene.
  - 2004 Dana Greene, UAF Ph.D. student; Society for Neuroscience/Eli Lilly Graduate Student Travel Award (\$750).
  - 2004 Dana Greene, UAF Ph.D. student; NSF EPSCoR Graduate Fellowship 2004/2005.
  - 2004 Keiko Akasofu, UAF Ph.D. student; NSF EPSCoR Graduate Fellowship 2004/2005.
  - 2004 Traci Burrow, UAF undergraduate student: AY04-05 Alaska BRIN/INBRE Undergraduate Summer Research Experience (USRE) Award (\$6,956). Co-advised with Dr. Daní Raap (UAF Psychology).
  - 2004 Ron Tavernier, UAF Ph.D. student: Druska Carr Schiable Memorial Scholarship in Biological Sciences 2004/2005.
  - 2004 Crystal Duncan, UAF undergraduate student, Alaska BRIN/INBRE & ANSEP (Alaska Native Science and Engineering Program) Summer Internship Program. Co-advised with Dr. Daní Raap (UAF Psychology) and Ph.D. student Dana Greene.
  - 2004 Alla Bronskaya, West Valley High School Student: Alaska Statewide High School Science Symposium; 2<sup>nd</sup> prize (\$150) in session (03-06-04).
  - 2004 Nune Martirosyan, West Valley High School Student: Alaska Statewide High School Science Symposium: 4<sup>th</sup> prize (\$50) in session (03-06-04).
  - 2003 Ron Tavernier; UAF Ph.D. student; Ted McHenry Biology Field Research Fund.
  - 2003 Ron Tavernier; UAF Ph.D. student; Gray S. & Lola C. Tilly Scholarship 2003/2004.
  - 2003 Ron Tavernier; UAF Ph.D. student; NSF EPSCoR Graduate Fellowship 2003/2004.
  - 2003 Dana Greene; UAF Ph.D. student; NSF EPSCoR Graduate Fellowship 2003/2004.
  - 2003 Alice Velsko; Pre-vet Advisee; Outstanding Biology Student Award.
  - 2002 Yvonne Nieman; UAF Undergraduate student; NSF EPSCoR Undergraduate Internship 2002/2003.
  - 2002 Lisa Hoover, West Valley High School student; ranked 4<sup>th</sup> out of 14 finalists and a total of 70 students competing at the Alaska Statewide High School Science Symposium (ASHSSS) on March 9 & 10, 2002. This accomplishment earned her a \$150 check, a UAF Scholarship, and an all-expenses-paid trip to San Diego to attend the National Junior Science and Humanities Symposium (JSHS) in April 2002. Lisa worked in my research laboratory with my graduate student Ron Tavernier.
  - 2001 Ron Tavernier; UAF Master's student; Jessie O'Bryan McIntosh Scholarship 2001/2002
  - 2001 Ron Tavernier; UAF Master's student; NSF EPSCoR Graduate Fellowship 2001/2002
  - 2001 Ron Tavernier; UAF Master's student; UAF Thesis Completion Fellowship 2001/2002

**UAF Pre-Vet Advisor:**

2001-2005 UAF Pre-Veterinary Medicine Program Advisor.

**Manuscripts in Review:**

1. R.E. Samuels, R.J. Tavernier, M.R. Castillo, A. Bult-Ito, H.D. Piggins. Substance P and Neurokinin-1 Immunoreactivities in the CNS Circadian System of the Alaskan Northern Red-Backed Vole, *Clethrionomys rutilus*. Submitted to *Peptides*.

2. **H.W. Zhao**, S.L. Christian, M.R. Castillo, **A. Bult-Ito**, K.L. Drew. Distribution of NMDA receptor subunit NR1 in arctic ground squirrel central nervous system. Submitted to the *Journal of Chemical Neuroanatomy*.
3. **A. Bult-Ito**. Nest-building behavior and the genetic correlation structure of adaptive phenotypes in house mice. Submitted for inclusion in the *Handbook of Behavioral Genetics of the Mouse* (Eds. W.E. Crusio, F. Sluyter, R.T. Gerlai).

**Peer-Reviewed Publications:**

30. M.R. Castillo, K.J. Hochstetler, D.M. Greene, S.I. Firmin, R.J. Tavernier, D.K. Raap, **A. Bult-Ito** (2005) Circadian Rhythm of Core Body Temperature in Two Laboratory Mouse Lines. *Physiology & Behavior* 86:538-545.
29. D.R. Van der Veen, M.R. Castillo, E.A. Van der Zee, K. Jansen, M.P. Gerkema, **A. Bult-Ito** (2005) Circadian dynamics of vasopressin in mouse selection lines: translation and release in the SCN. *Brain Research* 1060:16-25.
28. M.R. Castillo, K.J. Hochstetler, R.J. Tavernier, Jr., D.M. Greene and **A. Bult-Ito** (2004) Entrainment of the master circadian clock by scheduled feeding. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology* 287:R551-R555.
27. R.J. Tavernier, A.L. Lagen, and **A. Bult-Ito** (2004) Circadian organization of a subarctic rodent, the northern red-backed vole (*Clethrionomys rutilus*). *Journal of Biological Rhythms* 19:238-247.
26. K.J. Hochstetler, T. Garland, Jr., J.G. Swallow, P.A. Carter, and **A. Bult-Ito** (2004) Number of arginine-vasopressin neurons in the suprachiasmatic nuclei is not related to level or circadian characteristics of wheel-running activity in house mice. *Behavior Genetics* 34:131-136.
25. N.K. McGrath-Hanna, D.M. Greene, R.J. Tavernier, and **A. Bult-Ito** (2003) Diet and mental health in the Arctic: Is diet an important risk factor for mental health in circumpolar peoples? – A review. *International Journal of Circumpolar Health* 62:228-241.
24. L. Yan, K.J. Hochstetler, R. Silver, and **A. Bult-Ito** (2003) Relationship between phase shifts and *per* gene expression in mouse suprachiasmatic nucleus. *NeuroReport* 14:1247-1251.
23. S.J. Kuhlman, R. Silver, J. Le Sauter, **A. Bult-Ito**, and D. G. McMahon (2003) Phase Resetting Light Pulses Induce *Per1* and Persistent Spike Activity in a Subpopulation of Biological Clock Neurons. *Journal of Neuroscience* 23:1441-1450.
22. **A. Bult**, M.E. Kobylk, and E.A. Van der Zee (2001) Differential expression of protein kinase C  $\beta$ I (PKC $\beta$ I) but not PKC $\alpha$  and PKC $\beta$ II in the suprachiasmatic nucleus of selected house mouse lines, and the relationship to arginine-vasopressin. *Brain Research* 914:123-133.
21. M. Mahoney, **A. Bult**, and L. Smale (2001) Phase response curve and light induced Fos expression in the suprachiasmatic nucleus and adjacent hypothalamus of *Arvicanthis niloticus*. *Journal of Biological Rhythms* 16:149-162.
20. **A. Bult** and C.B. Lynch (2000) Breaking through artificial selection limits of an adaptive behavior in mice and the consequences for correlated responses. *Behavior Genetics* 30:193-206.
19. S.P. Amy, R. Chari, and **A. Bult** (2000) Fos in the suprachiasmatic nucleus of house mouse lines that reveal a different phase-delay response to the same light pulse. *Journal of Biological Rhythms* 15:95-102.
18. S.T. Marshall, A.I. Fa'anunu, and **A. Bult** (2000) Calretinin is not a marker for subdivisions within the suprachiasmatic nucleus. *Brain Research* 854:216-219.

17. A.A. Nunez, **A. Bult**, T.L. McElhinny, and L. Smale (1999) Daily rhythms of Fos expression in hypothalamic targets of the suprachiasmatic nucleus in diurnal and nocturnal rodents. *Journal of Biological Rhythms* 14:300-306.
16. **A. Bult** and L. Smale (1999) Distribution of Ca<sup>2+</sup>-dependent protein kinase C-isoforms in the suprachiasmatic nucleus of the diurnal murid rodent, *Arvicanthis niloticus*. *Brain Research* 816:190-199.
15. F. Sluyter, **A. Bult**, F. Meeter, G.A. Van Oortmerssen, and C.B. Lynch (1997) A comparison between F1 reciprocal hybrids of house mouse lines bidirectionally selected for attack latency or nest-building behavior: no Y chromosomal effects on alternative behavioral strategies. *Behavior Genetics* 27:477-482.
14. **A. Bult** and C.B. Lynch (1997) Nesting and Fitness: Lifetime reproductive success in house mice bidirectionally selected for thermoregulatory nest-building behavior. *Behavior Genetics* 27:231-240.
13. **A. Bult**, F. Zhao, R.A. Dirksen, E. Sharma, M. Solimena, and P.J. Lombroso (1997) STEP: a family of brain-enriched PTPs-Alternative splicing produces transmembrane, cytosolic, and truncated isoforms. *European Journal of Cell Biology* 72:337-344.
12. D.M. Tucker, J.F. Leckman, L. Scahill, G. Epstein Wilf, R. LaCamera, L. Cardona, P. Cohen, S. Heidmann, J. Goldstein, J. Judge, E. Snyder, **A. Bult**, B.S. Peterson, R. King, and P. Lombroso (1996) A putative post-streptococcal case of OCD with chronic tic disorder, not otherwise specified. *Journal of the American Academy of Child and Adolescent Psychiatry* 35:1684-1691.
11. **A. Bult**, F. Zhao, R.A. Dirksen, E. Sharma, E. Lukacs, M. Solimena, J.R. Naegele, and P.J. Lombroso (1996) STEP61: a new member of a family of brain-enriched PTPs is targeted to the endoplasmic reticulum. *Journal of Neuroscience* 16:7821-7831.
10. E. Nuyts, **A. Bult**, and E.A. Van der Zee (1996) The influence of age on the assignment of a perch in the black-headed gull (*Larus ridibundus* L.): new data and a review of the literature. *Canadian Journal of Zoology* 74:1713-1720.
9. **A. Bult** and C.B. Lynch (1996) Multiple selection responses in house mice bidirectionally selected for thermoregulatory nest-building behavior: crosses of replicate lines. *Behavior Genetics* 26:439-446.
8. E.A. Van der Zee and **A. Bult** (1995) Distribution of AVP and Ca<sup>2+</sup>-dependent PKC-isozymes in the suprachiasmatic nucleus of the mouse and rabbit. *Brain Research* 701:99-107.
7. E. Sharma, F.S. Zhao, **A. Bult**, and P.J. Lombroso (1995) Identification of two alternatively spliced transcripts of STEP: a subfamily of brain-enriched protein tyrosine phosphatases. *Molecular Brain Research* 32:87-93.
6. F. Sluyter, **A. Bult**, C.B. Lynch, G.A. van Oortmerssen and J.M. Koolhaas (1995) A comparison between house mouse lines selected for attack latency or nest-building: evidence for a genetic basis for alternative behavioral strategies. *Behavior Genetics* 25:247-252.
5. **A. Bult**, J.R. Naegele, E. Sharma, and P.J. Lombroso (1995) Identifying and characterizing protein-tyrosine phosphatases in the brain. *NeuroProtocols: A Companion to Methods in Neurosciences* 6:91-104.
4. **A. Bult**, L. Hiestand, E.A. Van der Zee, and C.B. Lynch (1993) Circadian rhythms differ between selected mouse lines: a model to study the role of vasopressin neurons in the suprachiasmatic nuclei. *Brain Research Bulletin* 32:623-627.
3. **A. Bult**, E.A. Van der Zee, J.C. Compaan, and C.B. Lynch (1992) Differences in the number of arginine-vasopressin-immunoreactive neurons exist in the suprachiasmatic nuclei of house

- mice selected for differences in nest-building behavior. *Brain Research* 578:335-338.
2. C. Dijkstra, A. Bult, S. Bijlsma, S. Daan, T. Meijer, and M. Zijlstra (1990) Brood size manipulations in the kestrel (*Falco tinnunculus*): effects on offspring and parent survival. *Journal of Animal Ecology* 59:269-285.
  1. D. Masman, C. Dijkstra, S. Daan, and A. Bult (1989) Energetic limitation of avian parental effort: field experiments in the kestrel (*Falco tinnunculus*). *Journal of Evolutionary Biology* 2:435-455.

**Ph.D. Dissertation:**

- A. Bult (1993) An analysis of quantitative genetic, neural, and circadian aspects of thermoregulatory nest-building behavior in the house mouse, *Mus domesticus*. *Ph.D. Dissertation*, Wesleyan University, Middletown, Connecticut, USA.

**M.S. Thesis (equivalent):**

- A. Bult (1985-1988) Research projects on the behavioral ecology of the European kestrel, turning behavior of a marine snail, and neurophysiological regulation of heart rate and blood pressure in rats, and a colloquium on body temperature regulation and brown fat. University of Groningen, Groningen, the Netherlands.

**Published Abstracts of Presentations at International (or National) Meetings:**

56. K.A. Alexander, D.M. Greene, D.K. Raap, A. Bult-Ito. (2005) effects of desipramine and fluoxetine on repetitive nesting behavior in *Mus musculus*. *Society for Neuroscience 35<sup>th</sup> Annual Meeting*, Abstract 796.11.
55. D.M. Greene, M.R. Castillo, K.A. Alexander, A. McMahan, D.K. Raap, A. Bult-Ito (2005) Neurotoxic Lesions Of Serotonin Cells In The Dorsal Raphe Reduce Compulsive-Like Nest Building In Mice. *Society for Neuroscience 35<sup>th</sup> Annual Meeting*, Abstract 796.10.
54. Ronald J. Tavernier Jr., Keiko Akasofu, Abel Bult-Ito (2005) Circadian organization in the Subarctic. *Evolution 2005 meeting*, University of Alaska Fairbanks, Fairbanks, Alaska.
53. D.M. Greene, K.A. Alexander, D.K. Raap, and A. Bult-Ito (2005) Mice selected for excessive nest-building behavior: a potential animal model for compulsive disorders. *Fifth Annual Conference of Specialized Centers in Neuroscience: Excellence in Neuroscience*, Program Book page 34, Abstract # O-18, College Park, Maryland.
52. S. Forsko, M.R. Castillo, D.M. Greene, C. Beale, and A. Bult-Ito (2005) The impact of chemical lesion to serotonergic raphe neurons in nesting behavior to study obsessive compulsive disorder. *Fifth Annual Conference of Specialized Centers in Neuroscience: Excellence in Neuroscience*, Program Book page 47, Abstract # P-20, College Park, Maryland.
51. M.R. Castillo, K.J. Hochstetler, R.J. Tavernier, D.M. Greene, and A. Bult-Ito (2004) Entrainment of the master circadian clock by scheduled feeding. *Society for Neuroscience 34<sup>th</sup> Annual Meeting*, Abstract 428.11.
50. H.L. Foltz, M.W. Slater, D.M. Greene, D.K. Raap, and A. Bult-Ito (2004) The effects of selective breeding and sex on repetitive digging behavior in mice. *Society for Neuroscience 34<sup>th</sup> Annual Meeting*, Abstract 1025.16.
49. D.M. Greene, D.K. Raap, and A. Bult-Ito (2004) Mice selected for excessive nest-building behavior as a potential animal model for compulsive disorders. *Society for Neuroscience 34<sup>th</sup> Annual Meeting*, Abstract 1025.15.

48. **A. Bult-Ito**, M.R. Castillo, K.J. Hochstetler, R.J. Tavernier, Jr., and D.M. Greene (2004) Entrainment of the Master Circadian Clock by Scheduled Feeding - An Alternative Signal for Entrainment in Extreme Arctic Light-Dark Cycles. *55<sup>th</sup> AAAS Arctic Science Conference*, Anchorage, Alaska, Session, *Human Dimensions of the Arctic Environment*, Program and Abstracts page 60, 30 September.
47. **A. Bult-Ito**, M.R. Castillo, K.J. Hochstetler, R.J. Tavernier, Jr., and D.M. Greene (2004) Entrainment of the Master Circadian Clock by Scheduled Feeding - An Alternative Signal for Entrainment in Extreme Arctic Light-Dark Cycles. *55<sup>th</sup> AAAS Arctic Science Conference*, Anchorage, Alaska, Session, EPSCoR Poster Abstracts page 21, 29 September.
46. **A. Bult-Ito**, D. Greene (2004) Entrainment of the master circadian clock by scheduled feeding. *Fourth Annual Conference of Specialized Centers in Neuroscience: Excellence in Neuroscienc*, Program Book page 70, Abstract # 155, Nashville, Tennessee.
45. D.M. Greene, D.K. Raap, **A.Bult-Ito** (2003) Neurotransmitter pathway involvement in the regulation of nest - building behavior in mice: a preliminary study. *Society for Neuroscience 33<sup>th</sup> Annual Meeting*, Abstract 963.7.
44. R.J. Tavernier, A.Largen, **A.Bult-Ito** (2003) Circadian organization of a sub - arctic rodent, the northern red-backed vole (*Clethrionomys rutilus*) . *Society for Neuroscience 33<sup>th</sup> Annual Meeting*, Abstract 511.13.
43. H. Zhao, M.R. Castillo, **A. Bult-Ito**, K.L. Drew (2003) Distribution of NMDA receptors in arctic ground squirrels. *Society for Neuroscience 33<sup>th</sup> Annual Meeting*, Abstract 467.9.
42. M.R. Castillo, D.R. van der Veen, E.A. van der Zee, K. Jansen, M.P. Gerkema, **A.Bult-Ito** (2003) Dynamics of the vasopressin system in the suprachiasmatic nucleus in relation to circadian organization of behavior. *Society for Neuroscience 33<sup>th</sup> Annual Meeting*, Abstract 285.17.
41. K.J. Hochstetler, T. Garland, J.G. Swallow, P.A. Carter, **A.Bult-Ito** (2003) Number of arginine-vasopressin neurons in the suprachiasmatic nuclei is not related to level or circadian characteristics of wheel-running activity in house mice. *Society for Neuroscience 33<sup>th</sup> Annual Meeting*, Abstract 285.16.
40. M.R. Castillo, D.R. van der Veen, E.A. van der Zee, K. Jansen, M.P. Gerkema, **A. Bult-Ito** (2003) Vasopressin expression in the suprachiasmatic nucleus in relation to circadian organization of behavior. *54<sup>th</sup> Arctic Science Conference, American Association for the Advancement of Science, Extreme Events – Understanding perturbations to the physical and biological environment*. Circumpolar health: the future of behavioral and neuroscience research technical session oral presentation, Abstract page 157 of Programs and Abstracts, Fairbanks, Alaska.
39. R.J. Tavernier Jr., A. Largen, **A Bult-Ito** (2003) Northern red-backed vole (*Clethrionomys rutilus*) circadian organization. *54<sup>th</sup> Arctic Science Conference, American Association for the Advancement of Science, Extreme Events – Understanding perturbations to the physical and biological environment*. Circumpolar health: the future of behavioral and neuroscience research technical session oral presentation, Abstract page 156 of Programs and Abstracts, Fairbanks, Alaska.
38. D.M. Greene, D.K. Raap, **A. Bult-Ito** (2003) Neurotransmitter pathways involved in the regulation of thermoregulatory nest-building behavior in mice. *54<sup>th</sup> Arctic Science Conference, American Association for the Advancement of Science, Extreme Events – Understanding perturbations to the physical and biological environment*. Circumpolar health: the future of behavioral and neuroscience research technical session oral presentation, Abstract page 155 of

Programs and Abstracts, Fairbanks, Alaska.

37. **A. Bult-Ito**, N.K. McGrath-Hanna, D.M. Greene, R.J. Tavernier (2003) Is diet an important risk factor for mental health in Circumpolar peoples? – A review. *54<sup>th</sup> Arctic Science Conference, American Association for the Advancement of Science, Extreme Events – Understanding perturbations to the physical and biological environment*. Circumpolar health: the future of behavioral and neuroscience research technical session oral presentation, Abstract page 153 of Programs and Abstracts, Fairbanks, Alaska.
36. K.J. Hochstetler, M.R. Castillo, R.J. Tavernier Jr., D.M. Greene, **A. Bult-Ito** (2003) Entrainment of the master circadian oscillator by scheduled feeding. *1<sup>st</sup> World Congress of Chronobiology*, Abstract A1-48, Program & Abstracts page 40, Sapporo, Japan.
35. D. Greene, D. Raap, **A. Bult-Ito** (2003) Neurotransmitter pathway involvement in the regulation of nest-building behavior in mice: A preliminary study. *Third Annual Conference of Specialized Centers in Neuroscience: Excellence in Neuroscience at Minority Institutions*, Conference Program page 54, Honolulu, Hawaii.
34. **A. Bult-Ito**, L. Yan, K.J. Hochstetler, R. Silver (2003) Relationship between phase shifts and Per gene expression in mouse suprachiasmatic nucleus. *Third Annual Conference of Specialized Centers in Neuroscience: Excellence in Neuroscience at Minority Institutions*, Conference Program page 38, Honolulu, Hawaii.
33. M.R. Castillo and **A. Bult** (2002) Is the stability of circadian rhythms due to endogenous features of the suprachiasmatic nucleus? *Society for Neuroscience 32<sup>th</sup> Annual Meeting*, Volume 28, Abstract 77.2.
32. D.M. Greene, D.K. Raap, K. Cozad, and **A. Bult** (2002) Characterization of neurotransmitter involvement in nest-building behavior in mice. *Society for Neuroscience 32<sup>th</sup> Annual Meeting*, Volume 28, Abstract 90.1.
31. K.J. Hochstetler, [S.I. Firmin,] M.R. Castillo, D.M. Greene, M.E. Kobylk, D.K. Raap, and **A. Bult** (2002) Circadian rhythm stability influences body temperature regulation. *Society for Neuroscience 32<sup>th</sup> Annual Meeting*, Volume 28, Abstract 177.17.
30. S.I. Firmin, M.R. Castillo, K.J. Hochstetler, D.M. Greene, M.E. Kobylk, D.K. Raap, and **A. Bult** (2002) Circadian rhythm stability influences body temperature regulation. *Second Alaskan Summer Neuroscience Conference*, supplemental page, Fairbanks, Alaska.
29. K.J. Hochstetler, T. Garland, Jr., J.G. Swallow, P.A. Carter, and **A. Bult** (2002) Number of arginine vasopressin neurons in the suprachiasmatic nuclei is not linked to level of running wheel activity in house mice. *Second Alaskan Summer Neuroscience Conference*, page 38, Fairbanks, Alaska.
28. R.J. Tavernier and **A. Bult** (2002) Large variation in circadian activity rhythms in the northern red-backed vole. *Second Alaskan Summer Neuroscience Conference*, page 37, Fairbanks, Alaska.
27. D.M. Greene and **A. Bult** (2002) A functional relationship between nest-building behavior and circadian clock function? *Second Alaskan Summer Neuroscience Conference*, page 36, Fairbanks, Alaska.
26. **A. Bult**, M.R. Castillo, K.J. Hochstetler, D.M. Greene, S.I. Firmin, R.J. Tavernier (2002) Stability of behavioral and physiological rhythms is an important feature of circadian organization. *Second Alaskan Summer Neuroscience Conference*, page 26, Fairbanks, Alaska.
25. R.J. Tavernier and **A. Bult** (2002) Large variation in circadian activity rhythms in the northern red-backed vole. *Eighth Meeting of the Society for Research on Biological Rhythms*, Abstract 289.

24. D.M. Greene and **A. Bult** (2002) A functional relationship between nest-building behavior and circadian clock function? *Second Annual Conference of Specialized Programs in Neuroscience*; Abstract 1018.
23. M.E. Kobylk, D.K. Raap, and **A. Bult** (2001) Serotonin transporter immunoreactivity in the mouse suprachiasmatic nucleus. *Society for Neuroscience 31<sup>th</sup> Annual Meeting*, Volume 27, Abstract 180.5.
22. J. LeSauter, B. Vishnubhotla, D.R. van der Veen, **A. Bult**, D.G. McMahon, and R. Silver (2001) Setting time in the brain: temporal profile of circadian clock gene expression in the SCN and other brain regions. *Society for Neuroscience 31<sup>th</sup> Annual Meeting*, Volume 27, Abstract 181.5.
21. **A. Bult**, E.A. Van der Zee, B.A.M. Biemans, D.R. Van der Veen, and K. Jansen, M.P. Gerkema (2001) Spontaneous and experimentally induced release of vasopressin from the mouse suprachiasmatic nucleus: a novel aspect of the vasopressin system in the biological clock. *Inaugural Alaskan Summer Neuroscience Conference*, page 3, Fairbanks, Alaska.
20. K. Hochstetler, S. Pitts, R. Silver, and **A. Bult** (2001) Effects of food restriction on body temperature and activity rhythms. *Inaugural Alaskan Summer Neuroscience Conference*, page 29, Fairbanks, Alaska.
19. R. Tavernier and **A. Bult** (2001) Circadian activity and neuroanatomy of the suprachiasmatic nucleus of an arctic rodent, the northern red-backed vole (*Clethrionomys rutilus*). *Inaugural Alaskan Summer Neuroscience Conference*, page 30, Fairbanks, Alaska.
18. M.E. Kobylk, **A. Bult**, and E.A. van der Zee (2001) Differential expression of protein kinase c  $\beta$ I (PKC $\beta$ I) but not PKC $\alpha$  and PKC $\beta$ II in the suprachiasmatic nucleus of selected house mouse lines, and the relationship to arginine-vasopressin. *Inaugural Alaskan Summer Neuroscience Conference*, page 31, Fairbanks, Alaska.
17. **A. Bult**, E.A. Van der Zee, M.P. Gerkema, B.A.M. Biemans, D.R. Van der Veen, K. Jansen. (2001) Neural basis of circadian and thermoregulatory behavior. Inaugural Conference of Specialized Centers in Neuroscience; hosts: Morehouse School of Medicine Neuroscience Institute and NIH, Atlanta, Georgia, Abstract 1019.
16. R.J. Tavernier and **A. Bult** (2000) Circadian activity and neuroanatomy of the suprachiasmatic nucleus of an arctic rodent, the northern red-backed vole (*Clethrionomys rutilus*). *Society for Neuroscience 30<sup>th</sup> Annual Meeting*, Volume 26, Abstract 76.16.
15. C.M. Novak, **A. Bult**, K.N. Paul, L. Smale, G. Tosini, and H.E. Albers (2000) Daily rhythm of pineal melatonin content in the diurnal murid rodent, *Arvicanthis niloticus*. *Seventh Meeting of the Society for Research on Biological Rhythms*, Abstract 200.
14. **A. Bult** and E.A. Van der Zee (2000) Differential expression of protein kinase C $\beta$ I (PKC $\beta$ I) but not PKC $\alpha$  and PKC $\beta$ II in the suprachiasmatic nucleus of selected house mouse lines. *Seventh Meeting of the Society for Research on Biological Rhythms*, Abstract 164.
13. **A. Bult**, A.I. Faanunu, S.T. Marshall (1999) Calretinin is not a marker for a particular subdivision in the suprachiasmatic nucleus. *Society for Neuroscience 29<sup>th</sup> Annual Meeting*, Volume 25, Abstract 552.13.
12. **A. Bult**, SP Amy, and R. Chari (1998) Fos in the SCN of house mouse lines that reveal a different phase-delay response to the same light pulse. *Society for Neuroscience 28<sup>th</sup> Annual Meeting*, Volume 24, Abstract 663.5.
11. L. Smale, **A. Bult**, and M.M. Mahoney (1998) Plasma corticosterone exhibits a 24-hour rhythm with trough values at the beginning of the major daily period of activity in the diurnal rodent *Arvicanthis niloticus*. *Annual Society for Behavioral Neuroendocrinology Meeting*,

Atlanta, Georgia, June 11-13.

10. **A. Bult** and L. Smale (1997) Distribution of  $Ca^{2+}$ -dependent protein kinase C isozymes in the suprachiasmatic nucleus of the diurnal murid rodent, *Arvicanthis niloticus*. *Society for Neuroscience 27<sup>th</sup> Annual Meeting*, Volume 23, Abstract 309.16.
9. **A. Bult**, F. Zhao, R.A. Dirks, Jr., E. Sharma, E. Lukacsi, M. Solimena, J.R. Naegele, and P.J. Lombroso (1996) STEP61 and STEP38: new members of a family of brain-enriched PTPs. *Society for Neuroscience 26<sup>th</sup> Annual Meeting*, Volume 22, Abstract 400.6.
8. **A. Bult** and E.A. Van der Zee (1995) Proposing a model for the neural regulation of nest-building behavior, circadian rhythmicity, and aggression in selected house mouse lines. *Behav. Genet.* 25:257-258.
7. **A. Bult**, E. A. Van der Zee, C. B. Lynch, and P. J. Lombroso (1994) Using bidirectional selection, behavioral analyses, and neuroanatomical and molecular biology techniques to study the mechanisms underlying the regulation of an adaptive behavior in mice. Symposium organizer: Dr. W.E. Crusio, Annual Behavior Genetics Association meeting, Barcelona, Spain. *Behav. Genet.* 24:507.
6. P.J. Lombroso, F. Zhao, E. Sharma, and **A. Bult** (1994) A family of alternatively spliced protein tyrosine phosphatases enriched in the CNS. *Society for Neuroscience 24th Annual Meeting*, Volume 20, Abstract 100.4.
5. **A. Bult**, F. Zhao, and P.J. Lombroso (1994) A striatal enriched tyrosine phosphatase contains a SRC homology 3 binding domain. *Society for Neuroscience 24th Annual Meeting*, Volume 20, Abstract 29.14.
4. C.B. Lynch and **A. Bult** (1993) Behavioral adaptation to cold in mice: a general adaptive strategy. *Behav. Genet.* 23:557.
3. **A. Bult** and C.B. Lynch (1993) Direct response to renewed selection for nest-building behavior and changes in correlated responses. *Behav. Genet.* 23:548.
2. **A. Bult**, E.A. Van der Zee, L. Hiestand, and C.B. Lynch (1992) Mice bi-directionally selected for thermoregulatory nest-building behavior differ in circadian rhythms: a role for arginine-vasopressin neurons in the suprachiasmatic nuclei? *Behav. Genet.* 23:301 (1993).
1. **A. Bult**, E.A. Van der Zee, J.C. Compaan, and C.B. Lynch, Directional selection for nesting behavior results in a correlated response for vasopressin (VP) and protein kinase- $\alpha\beta$  (PK $\alpha\beta$ ) immunoreactivity in the suprachiasmatic nuclei (SCN), *Behav. Genet.* 21:563.

#### **Invited Seminars and Symposia:**

19. **A. Bult-Ito**, M.R. Castillo, K.J. Hochstetler, R.J. Tavernier, Jr., D.M. Greene (2006) Scheduled feeding entrains the master circadian clock. *6<sup>th</sup> Annual Arctic Health Science Seminar*, 27 January 2006, Anchorage, Alaska.
18. **A. Bult-Ito**, M.R. Castillo, K.J. Hochstetler, R.J. Tavernier, Jr., and D.M. Greene (2004) Entrainment of the Master Circadian Clock by Scheduled Feeding - An Alternative Signal for Entrainment in Extreme Arctic Light-Dark Cycles. UAF Physiology and Neuroscience Seminar, Host: Barbara Taylor, 25 September.
17. **A. Bult-Ito** (2004) Of mice and voles: behavioral neuroscience of adaptive behaviors. Host: Dr. Tim Hinterberger, Department of Biological Sciences, University of Alaska Anchorage, Anchorage, Alaska, 30 January 2004.
16. **A. Bult-Ito** (2003) Circadian rhythms in laboratory and wild rodents. Host: Professor Hitoshi Okamura, Department of Brain Sciences, Kobe University Graduate School of Medicine, Kobe, Japan, 13 June 2003.

15. **A. Bult-Ito** (2002) Rodent models to study the “master” circadian pacemaker. EPSCoR Symposium: Integrative Approaches to Environmental Physiology, University of Alaska Fairbanks, Fairbanks, Alaska, 9 November 2002.
14. B.A.M. Biemans, E.A. Van der Zee, M.P. Gerkema, **A. Bult**, S. Daan (2001) A double role for vasopressin in the SCN? *Chronobiology Gordon Research Conference*, Salve Regina University, Newport, Rhode Island, August 5-10.
13. M.P. Gerkema, B.A.M. Biemans, E.A. Van der Zee, K. Jansen, D.R. Van der Veen, and **A. Bult** (2001) Memory and the circadian system: a role for vasopressin? *Chronobiology Gordon Research Conference*, Salve Regina University, Newport, Rhode Island, August 5-10.
12. Neural regulation of circadian and thermoregulatory behavior. Host: Dr. Paul Lombroso, Child Study Center, Yale University School of Medicine, New Haven, Connecticut. (2001)
11. Neural regulation of circadian and thermoregulatory behavior. Host: Dr. Fred Cohan, Chair, Department of Biology, Wesleyan University, Middletown, Connecticut. (2001)
10. Alaskan Basic Neuroscience Program, Lawrence K. Duffy; The Function(s) of AVP and PKC beta I in the SCN of Mice, **Abel Bult**; Mechanisms of Neuroprotection in Hibernation and Arousal, Kelly L. Drew; The Role of rac-1 Mediated Superoxide Signaling in Neurons, Thomas B. Kuhn. Life Sciences Seminar, Institute of Arctic Biology, University of Alaska Fairbanks. (2000)
9. The quest for adaptive behavior: selected house mouse lines as a model. Hosts: Drs. S. Daan, M.P. Gerkema, and E.A. van der Zee, Department of Animal Behavior, University of Groningen, Groningen, the Netherlands. (1999)
8. **A. Bult** and L. Smale (1997) *Arvicanthis niloticus*: A model to study the neural mechanisms that control whether a circadian rhythm in locomotor activity will be diurnally or nocturnally expressed. *Chronobiology Gordon Research Conference*, Colby-Sawyer College, New London, New Hampshire, August 10-15.
7. Central nervous system regulation of adaptive behaviors: selected lines as a model. Host: Dr. U. Redlin, Physiophest Seminar Series, Zoology Department, University of Toronto, Toronto, Canada. (1997)
6. Central nervous system regulation of adaptive behaviors: selected lines as a model. Host: Dr. C.L. Sisk, TGIF/Behavioral Biology Seminar Series, Psychology Department, Michigan State University, East Lansing, Michigan. (1996)
5. Quantitative Genetic analysis of nest-building behavior in selected house mouse lines: evolutionary implications for natural populations. Host: Dr. K. Holekamp, Ecology and Evolutionary Biology Program, Michigan State University, East Lansing, Michigan. (1996)
4. Central nervous system regulation of adaptive behaviors: selected lines as a model. Host: Dr. S.C. Maxson, Biobehavioral Sciences Graduate Degree Program and Department of Psychology, University of Connecticut, Storrs, Connecticut. (1996)
3. **A. Bult**, E. A. Van der Zee, C. B. Lynch, and P. J. Lombroso. Using bidirectional selection, behavioral analyses, and neuroanatomical and molecular biology techniques to study the mechanisms underlying the regulation of an adaptive behavior in mice. Symposium organizer: Dr. W.E. Crusio, 1994 Behavior Genetics Association meeting, Barcelona, Spain. Abstract in *Behav. Genet.* 24:507. (1994)
2. Mice strains that are selected on differences in nest building, also differ in body temperature regulation, circadian rhythms, and vasopressin neurons in the suprachiasmatic nucleus. Host: Dr. G.J. de Vries, Department of Psychology, University of Massachusetts, Amherst, Massachusetts. (1992)

1. Quantitative genetic analysis of thermoregulatory nest-building behavior in the house mouse, *Mus domesticus*. Hosts: Drs. P.G.M. Luiten and E.A. van der Zee, Department of Animal Physiology, University of Groningen, Groningen, the Netherlands. (1990)

### **Federal Grants Awarded:**

5. National Institute of Health (NIH) Specialized Neuroscience Research Programs grant entitled: "Advancing UAF SNRP" PI: Lawrence K. Duffy; \$ 5,000,000 direct over 5 years); start date: June 1, 2006). Title of Subproject (PI: **Abel Bult-Ito**: Peripheral and Central Neural Pathways Controlling Entrainment of the SCN to Scheduled Feeding (\$265,537 for 2 years).
4. Research Supplement for Underrepresented Minorities (PA-99-104) to NIH-SNRP grant 1U54NS41069 (PI: Lawrence K. Duffy; PI on Project: **Abel Bult**, \$20,714; start date: February 5, 2001). (2001-2003)
3. Five-year National Institute of Health (NIH) Specialized Neuroscience Research Programs grant entitled: "Alaskan Basic Neuroscience Program" (NINDS, NIMH, NCCR, NCMHD: 1 U54 NS41069-01; PI: Lawrence K. Duffy; \$7,632,121 (\$1,546,820 for first year); start date: September 30, 2000). Title of Subproject (PI: **Abel Bult**, Co-PI: Rae Silver): The function(s) of AVP and PKC beta I in the SCN of Mice (\$477,606 for first year). (2000-2005) **Active**
2. Eleven-month Research Supplement for Individuals with Disabilities (PA-99-105) to NIH-AREA grant 1R15MH058453 (PI: **Abel Bult**, \$23,803; start date: May 8, 2000). (2000-2001)
1. Four-year National Institute of Mental Health Academic Research Enhancement Award grant entitled: "Model to study the role of AVP, PKC and Fos in the SCN" (1R15MH58453; PI: **Abel Bult**, \$110,437; start date: April 1, 1998). Supported one student each summer. (1998-2002)

### **Other Funding Awards (Total: \$20,533):**

3. University of Alaska President's Special Projects Fund Proposal entitled: "Serotonin and vasopressin in the Suprachiasmatic nucleus of selected mice lines: Do we have an animal model for Obsessive Compulsive Disorder?" (PI: **Abel Bult**; Co-PI: Dani Raap; Student Researcher: Micki E. Kobylk; \$4,955). (2001- 2002)
2. University of Alaska Natural Resources Fund Award entitled: "Arctic Circadian Rhythm Adaptations of the Tundra Redback Vole (*Clethrionomys rutilus*)" (PI: **Abel Bult**; \$2,603). (1999-2001)
1. Middlebury College Competitive Institutional Support for Teaching and Research Total: \$12,975. (1997-1999)

### **Honors**

11. Received the 2005 fourteenth annual *Emil Usibelli Distinguished Service Award* (\$10,000).
10. Received membership of *Sigma Xi*, The Scientific Research Society, 2004.
9. Recognition Award from the United States Army, Navy, and Air Force for my service as a session judge for the Alaska Statewide High School Science Symposium 2004.
8. Certificate of Appreciation for outstanding leadership as 2002-2003 Chairperson of the UAF Faculty Senate Faculty Development, Assessment, & Improvement Committee. Awarded 21 April 2003.
7. Recognition Award from the United States Army, Navy, and Air Force for my service as a session judge for the Alaska Statewide High School Science Symposium 2003.
6. One of eight founding Charter Members of the UAF Phi Nu Chapter of the Beta Beta Beta Biological Honor's Society, installed 25 November 2002. (2002-2005)

5. Recognition Award from the United States Army, Navy, and Air Force for my service as a session judge for the Alaska Statewide High School Science Symposium 2002.
4. NIH Postdoctoral Training Fellow in the Psychology Department at Michigan State University, East Lansing, Michigan. (1996-1997)
3. NIMH Postdoctoral Training Fellow in the Child Study Center at the Yale University School of Medicine, New Haven, Connecticut. (1995-1996)
2. Thompson Memorial Award received for a paper entitled: "Directional selection for nesting behavior results in a correlated response for vasopressin (VP) and protein kinase- $\text{C}\alpha\beta$  (PKC $\alpha\beta$ ) immunoreactivity in the suprachiasmatic nuclei (SCN)," at the Behavior Genetics Association meeting in St. Louis, Missouri. *Behavior Genetics* 21:563, 1991.
1. Received the "Doctorandus" Degree with Cum Laude honors (equivalent to Summa Cum Laude in the U.S.A.) from the University of Groningen, Groningen, the Netherlands. (1988)

**Recent Professional Development:**

15. Participated in the Professional Development Workshop Responsible Conduct in Research, 08-26-05.
14. Successfully completed EEO/Sexual Harassment Training, 02-01-2005.
13. Lead a discussion of my research team related to the reading of Academic Duty by Donald Kennedy, spring 2005 semester.
12. Scientific Publishing Workshop, Ed Barnas, Journals Manager of the North American Branch of Cambridge University Press, and Alex Holzman, Director of Temple University Press, organized by United Academics and UA Press, Fairbanks, 14 April 2005.
11. Videoconference on "Student retention: keeping 'em once you've got 'em - II", Starlink, with John M. Braxton, Professor of Education at Vanderbilt University, Iris HeavyRunner, National Resilience Resource Center Senior Felloe, Natalia Trevino, Assistant Professor of English at Northwest Vista College, and moderated by William Wenrich, Chancellor Emeritus at Dallas County Community College District, 7 April 2005.
10. EEO/Sexual Harassment workshop by Earlina Bowden, 1-2:30pm, 1 February 2005.
9. IACUC 101, Fairbanks, Alaska, 13 May 2004.
8. Attended and participated in IACUC 101, 05-13-2004.
7. Participant in the UAF Provost's Academic Leadership Institute. (2003/2004)
6. Attended Seventh Regional Pre-Veterinary Advising Workshop, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, 20 June 2003, Ft. Collins, Colorado.
5. Workshop on Techniques to Improve Classroom Teaching: Developing your students' higher-order thinking skills, by Roger Norris-Tull, Dean of the School of Education at the University of Alaska Fairbanks, 3 April 2003, Fairbanks, Alaska.
4. Bioethics in a Changing World, American Institute of Biological Sciences Meeting, 21-23 March 2003, Arlington, Virginia
3. Good Work in Challenging Times, American Association for Higher Education Conference, 14-17 March 2003, Washington, D.C.
2. Workshop on Assessment Tools for Busy People, by Gloria Rogers, Vice President for Institutional Research, Planning, and Assessment, Rose-Hulman Institute of Technology, 17 March 2003, Washington, D.C.
1. Workshop on Handling Conflict in the Department and in the College, by Sandra Chelderin, Professor of Conflict Resolution at George Mason University, and Ann Lucas, Professor of

Organization Development, Fairleigh Dickinson University, 14 March 2003, Washington, D.C.

**Public Service at UAF:**

25. Finals Judge for the Seventeenth Annual Alaska Statewide High School Science Symposium (ASHSSS), University of Alaska Fairbanks. (03-05-2006)
24. Frontier High School students visited the research laboratory for a tour and explanations (5 students and teacher). (03-28-05)
23. Elected President of the Fairbanks Montessori School Board for a 1-year term. (2005-2006)
22. Finals Judge for the Sixteenth Annual Alaska Statewide High School Science Symposium (ASHSSS), University of Alaska Fairbanks. (03-06-2005)
21. Article in the *futurist* UPDATE, Vol. 5, No. 3, March 2004, News & Previews from the World Future Society, "Changing diet linked to depression." Describes our article in the *International Journal of Circumpolar Health* on diet and mental health in the arctic (<http://www.wfs.org/futupmar04.htm>; publication #25).
20. Elected President of the Fairbanks Montessori School Board for a 1-year term. (2004-2005)
19. Judge for the Fifteenth Annual Alaska Statewide High School Science Symposium (ASHSSS), University of Alaska Fairbanks. (03-06-2004)
18. Newspaper article in the Anchorage Daily News, 02-02-04, "Native mental health issues may be linked to nutrition" by Ned Rozell. Describes our article in the *International Journal of Circumpolar Health* on diet and mental health in the arctic ([http://www.sitnews.us/0104news/012404/012404\\_ak\\_science.html](http://www.sitnews.us/0104news/012404/012404_ak_science.html); publication #25).
17. Publication in the Sitnews ~ Stories in the News ~, Ketchikan, Alaska, 01-24-04, "Researchers eye link between diet, depression" by Ned Rozell. Describes our article in the *International Journal of Circumpolar Health* on diet and mental health in the arctic (<http://www.gi.alaska/ScienceForum/ASF16/1682.html>; publication #25).
16. Publication on the Alaska Science Forum, 01-22-04, "Researchers eye link between diet, depression" by Ned Rozell. Describes our article in the *International Journal of Circumpolar Health* on diet and mental health in the arctic (<http://www.gi.alaska/ScienceForum/ASF16/1682.html>; publication #25).
15. Elected to the Fairbanks Montessori School Board for a 3-year term. (2003-2006)
14. Judge for the Fourteenth Annual Alaska Statewide High School Science Symposium (ASHSSS), University of Alaska Fairbanks. (03-08-2003)
13. Participated in a high school project of Lisa Hoover, a junior at West Valley High School, in which she interviewed me about my views on cloning. (04-22-2002)
12. Judge for the Thirteenth Annual Alaska Statewide High School Science Symposium (ASHSSS), University of Alaska Fairbanks. (03-09-2002)
11. Participated in a health fair at Randy Smith Middle school in Fairbanks, Alaska. I was part of the Tanana Valley Clinic booth and provided explanations to the students about the brain, how it functions, and how to protect it from injury by wearing a helmet and a seat belt. In addition, I provided materials, such as brain and skull models and showed a real human skull which was received with great enthusiasm. (01-25-2002)
10. Judge for the Fifth Annual Interior ANSES Science Fair 2001, University of Alaska Fairbanks. (12-07-2001)
9. I was on KUAC's Evening Rounds with Dr. Daní Raap from the Psychology Department to discuss circadian rhythms in Alaska and answer questions from listeners, hosted by Amy Mayer. (11-20- 2001, re-run fall 2002)

8. Science Symposium advisor for Lisa Hoover, a junior West Valley High School student (2001-2002). Lisa worked on “The neurotransmitter cholecystokinin (CCK) expression in the brain’s suprachiasmatic nucleus (SCN) of red-backed voles (*Clethrionomys rutilus*).”
7. Science Symposium advisor for Torey Alling, a junior North Pole High School student (fall 2001).
6. Science Symposium advisor for Nathan Moore, a junior West Valley High School student (fall 2001).
5. Twenty-one 6<sup>th</sup> grade Crawford Elementary School (Fairbanks, Alaska) students and 12 adults, including teacher Ron Harper, visited my laboratory and where given demonstrations and explanations about our research by graduate student Ron Tavernier and underrepresented minority undergraduate student Stephanie Marks. Immunofluorescent microscope images of brain tissue and the demonstration of a real human brain provoked many “oohs and aahs.” (05-11-2001)
4. Participated in a health fair at Ryan Middle school in Fairbanks, Alaska. I was part of the Tanana Valley Clinic booth and provided explanations to the students about the brain, how it functions, and how to protect it from injury by wearing a helmet and a seat belt. In addition, I provided materials, such as brain and skull models and showed a real human skull which was received with great enthusiasm. (02-16-2001)
3. Gave a lecture to high school students and their teachers from Wiseman Charter School in Wiseman, Alaska, and Frontier High school in Fairbanks, Alaska. In addition, some of the students were given a tour of my laboratory and received explanations and demonstrations of the type of research we do. These students were encouraged to consider a science career at UAF. (09-20-2000)
2. Larry Duffy, Kelly Drew, Tom Kuhn, **Abel Bult** were featured in the Fairbanks Daily News-Miner regarding the successful grant application to NIH. Title: “Institute professors have big plans for \$5 million grant.” This article enhanced UAF’s reputation in the Natural Sciences and made the public aware of exciting (neuro)science at UAF. (09-20-2000)
1. Donated surplus laboratory supplies from my laboratory to Wiseman Charter School in Wiseman, Alaska. (August 2000)

#### University Service at UAF/UA:

53. Member of the University of Alaska Statewide Retirement Committee (January 2006-present).
52. Member of the University of Alaska Statewide Human Resources Council (January 2006-present).
51. Member of the University of Alaska Statewide Applications Service Director search committee (January 2006-present).
50. Member of the University of Alaska Statewide Director of Training and Development search committee (December 2005-April 2006).
49. Member of the Office of Multicultural Affairs and Diversity Manger search committee (July-September 2005).
48. Faculty panelist for Freshman orientation 11am-12:30pm, 29 August 2005.
47. Co-Chair of the Chancellor's Campus Diversity Action Committee (Spring 2005-May 2006).
46. Represented the faculty at an event for UA Scholars (Swing into Spring) on Tuesday, March 8, 2005, from 1:00-2:00pm in the Alumni Lounge.
45. Assisted a JRN 456 student (Barbara Travis) with a science magazine article. (2004-2005)
44. Ex-officio member of the Staff Council Workplace Ethics Committee. (2004-2005)

43. Ex-officio member of the Staff Council. (2004-2005)
42. Represented the faculty and presented at a local Alaska high school counselors reception on Tuesday, January 19, 2005, from noon-2pm in the IARC 501.
41. Represented the faculty and presented on a faculty panel at a Freshman orientation on Wednesday, December 14, 2004, from 1-1:30pm in the Wood Center Ballroom.
40. Member of the Chancellor appointed Enrollment Management Task Force. (2004-present)
39. Member of the Chancellor's Campus Diversity Action Committee (2004-present).
38. Represented the faculty at a UA Scholars Ice Cream Social on Tuesday, October 19, 2004, from 1-2pm in the Alumni Lounge.
37. Represented the faculty and presented at a recruitment event for UA Scholars (UA Scholars Reception) on Wednesday, October 13, 2004, from 6:00-8:00pm in the Wood Center Ballroom.
36. Member of the Provost's Council. (2004-2005)
35. Member of a UA Statewide Ad Hoc Committee to hire a general council for UA. (October-December 2004)
34. Member of the UA System Governance Council. (2004-2005)
33. UAF Faculty Senate President. (2004-2005)
32. Member of the Association of American Colleges and Universities UAF campus team. (2003-present)
31. Member of the UAF Governance Coordinating Committee. (2003-2005)
30. Member of the University of Alaska Faculty Alliance. (2003-2006)
29. Authored an article, which appeared in the UAF Senate News, Volume 2 (6), April 15, 2003, entitled "AAHE & AIBS (American Institute of Biological Sciences) Conference."
28. UAF Faculty Senate President-Elect. Elected 7 April 2003. (2003-2004)
27. Chair of the Faculty Senate Administrative Committee. (2003-2004)
27. Alice Velsko, Drs. Christa Mulder and **Abel Bult-Ito**. Spring 2003. Installation of the Phi Nu Chapter of Beta Beta Beta at UAF, in: The Students Beyond the Classroom section: UAF College of Science, Engineering & Mathematics Newsletter 2 (2):6.
26. Member of the Assistant Professor of the Integrative and Molecular Physiologist Search Committee. (2003)
25. Faculty Senate Budget Liaison. Nominated by Faculty Senate President Godwin Chukwu on 23 September 2002 and accepted by Provost Paul Reichardt on 25 September 2002. (2002-2003)
24. Member of the Faculty Senate Ad Hoc Committee on Unit Criteria. (elected by Faculty Senate; 2002-2003)
23. Member of the Faculty Senate Administrative Committee. (2002-2005)
22. Chair of the Faculty Senate Faculty Development Assessment, and Improvement Committee, elected 09-17-2002. (2002-2003)
21. Co-Chair of the Faculty Senate Faculty Affairs Committee, elected 09-09-2002. (2002-2003)
20. Member and chair of the Department of Biology and Wildlife Teaching Advisory Committee. (2002-2003)
19. Member of the Assistant Professor of Molecular Biology Search Committee. (2002)
18. Member of the Institute of Arctic Biology Director Search Committee. (2002)
17. Faculty Parade Marshal for CSEM faculty at UAF's 2002 commencement. (05-12-02)
16. Translated a segment of a Dutch television news cast for Amy Mayer to be used in her journalism course (JRN 421, Journalism in Perspective). (April 16, 2002)

15. Staffed the CSEM table at the Secondary Schools Career Showcase event in the Wood Center Carol Brown Ballroom. (February 12, 2002)
14. Member of the Department of Biology and Wildlife Ad Hoc Committee on Unit Criteria for Promotion and Tenure. (2002-2003)
13. Chair of the Assistant Professor of Neurobiology Search Committee – successful search. (2002)
12. Member of the Faculty Senate Faculty Affairs Committee. (2002-2003)
11. Member of the Committee on Program Review of the Allied Health Department. Primary author of the Review of the Allied Health Department, which was finalized on 13 March 2002.
10. Edited an article, which appeared in the UAF Senate News, Volume 1 (3), December 17, 2001, entitled “College of Science, Engineering & Mathematics.”
9. Faculty advisor for Biological Sciences Honor Society and Beta Beta Beta National Biological Sciences Honor Society UAF Chapter led by undergraduate students Alice Velsko and Laura Walters. (2001-2005)
8. UAF Pre-Veterinary Medicine Program Advisor (<http://mercury.bio.uaf.edu/vet/prevet.shtml>). (2001-2005)
7. Member of the Space Committee of the Institute of Arctic Biology. Representative of the program group "Environmental Physiology and Neuroscience, and Biomedical Sciences." (2001-2002)
6. Member of Research Advisory Committee (RAC) of the Institute of Arctic Biology (IAB). Representative of the program group "Environmental Physiology and Neuroscience, and Biomedical Sciences." (2001-2002)
5. UAF Faculty Senator representing the faculty of the College of Science Engineering and Mathematics. (2001-2003)
4. Member of the Faculty Development, Assessment & Improvement Committee. (2001-2003)
3. Member of the Assistant Professor of Biology (Molecular Physiologist) Search Committee. Reviewing applications, interviewing and hosting candidates, and participating in search committee meetings and activities. (2001)
2. Member of the Professor of Chemistry and Biochemistry (Neuroscience) Search Committee. Reviewing applications, interviewing and hosting candidates, and participating in search committee meetings and activities. (2001-2002)
1. Co-coordinator for the Life Sciences Seminar Series. Scheduling and hosting of seminar speakers, and setting up audio-visual equipment. (2000-2002)

**Scholarly Service:**

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| 2006       | Manuscript Reviewer for <i>Physiological and Biochemical Zoology</i>  |
| 2006       | Manuscript Reviewer for the <i>Proceedings of the National Academy of Sciences</i>  |
| 2006       | Manuscript Reviewer for the <i>Journal of Biological Rhythms</i>  |
| 2005-2006  | Member of the Board of Directors of the <i>American Society for Circumpolar Health</i> (August 25, 2005-December 2006)  |
| 2005-2006  | Manuscript reviewer for <i>Acta Theriologica</i>  |
| 2005       | Manuscript reviewer for the <i>European Journal of Neuroscience</i>   |
| 2004       | Manuscript reviewer for the <i>International Journal of Obesity</i> (a Nature Publishing Group journal)   |
| 09-24-2003 | Chair of the Circumpolar Health: the Future of Behavioral and Neuroscience Research technical session at the 54 <sup>th</sup> Arctic Science Conference, American |

- Association for the Advancement of Science, Extreme Events – Understanding perturbations to the physical and biological environment*, Fairbanks, Alaska.
- 2003-2004 Manuscript reviewer for *Journal of Neuroscience Research*
- 2003 Reviewer for the Global Change Student Research Grant Competition, sponsored by the Center for Global Change in partnership with the International Arctic Research Center.
- 2002-2003 Nominated for membership of the Arctic Division’s Executive Committee of the Arctic Division of the American Association for the Advancement of Science and elected 9 September 2002
- 07-15-2002 Chair of the Circadian Timing Session at the *Second Alaskan Summer Neuroscience Conference*, Fairbanks, Alaska
- 2002 & 2006 Grant proposal reviewer for the United States-Israel Binational Science Foundation
- 07-29-2001 Chair of the Circadian Rhythm Session at the *Inaugural Alaskan Summer Neuroscience Conference*, Fairbanks, Alaska
- 2001 Manuscript reviewer for *Comparative Biochemistry and Physiology*
- 2000-2002 Manuscript reviewer for *Physiology and Behavior*
- 1999-2001 & 2005 Grant reviewer for the National Science Foundation (NSF)
- 1998-2004 Manuscript reviewer for *Brain Research*
- 1997-2006 Manuscript reviewer for *Behavior Genetics*

**Memberships:**

American Association for the Advancement of Science  
 American Society for Circumpolar Health  
 Behavior Genetics Association  
 Sigma Xi  
 Society for Neuroscience  
 Society for Research on Biological Rhythms

**Research Interests :**

My research program currently focuses on the neural regulation of thermoregulation and circadian (24-h) rhythms in mice and red-backed voles. These traits represent key adaptations to the extreme environments in Alaska. Unique mouse strains are employed that were bidirectionally selected for thermoregulatory nest-building behavior. Selection resulted in a 40-fold difference between the big and small nest-builders in the amount of cotton used for a nest. In addition, the big and small nest-builders are different in their circadian activity patterns and neuroanatomical features of the suprachiasmatic nucleus of the hypothalamus, the circadian clock in mammals. A major goal of the research program is to identify causal relationships between the behavioral and neuroanatomical differences between the selected lines employing behavioral, neuroanatomical, (neuro-) physiological, pharmacological, and molecular approaches. We are also developing these mouse lines as an animal model of Obsessive Compulsive Disorder. In addition, we are currently describing the circadian activity patterns and suprachiasmatic nucleus neuroanatomy of the northern red-backed vole, *Clethrionomys rutilus*, with the goal to investigate circadian rhythm adaptations in the Arctic.