

Curriculum Vitae

Name: Naomi E. Rance
Office address: Department of Pathology
University of Arizona College of Medicine
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Tucson, Arizona 85724
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Education and Postgraduate Training:

1973	B.S., Psychology	University of Maryland, College Park
1975	Certificate, Physical Therapy	University of Pennsylvania
1981	Ph.D., Physiology	University of Maryland School of Medicine
1983	M.D.	University of Maryland School of Medicine
1983 - 1986	Resident	Anatomic Pathology, The Johns Hopkins Hospital
1986 - 1987	Chief Resident	Anatomic Pathology, The Johns Hopkins Hospital
1987 - 1989	Fellow	Neuropathology, The Johns Hopkins Hospital

Doctoral Advisor: Dr. Charles A. Barraclough, Department of Physiology, University of Maryland College of Medicine, Baltimore, Maryland

Postdoctoral Research Mentor: Dr. Donald L. Price, Neuropathology, The Johns Hopkins Hospital, Baltimore, Maryland

Employment:

1975 - 1976	Physical Therapist	South Baltimore General Hospital
1979	Physical Therapist	Good Samaritan Hospital, Baltimore
1976-1979	Instructor	Department of Physical Therapy, University of Maryland
1989-	Chief, Division of Neuropathology	University Medical Center, Tucson Arizona

1989 - 1995	Assistant Professor	Departments of Pathology, Anatomy and Neurology, University of Arizona College of Medicine
1995	Associate Professor	Departments of Pathology, Cell Biology, Anatomy and Neurology, University of Arizona College of Medicine
1996-	Associate Chairperson	Department of Pathology
2000-	Professor	Departments of Pathology, Cell Biology, Anatomy and Neurology, University of Arizona College of Medicine
2007-	Professor	Evelyn F. McNight Brain Institute, University of Arizona

Honors and Awards:

1973	Phi Beta Kappa
1979	The Michael J. Pelczar Award for Excellence in Graduate Study, The Graduate School, University of Maryland School System
1983	Rudolph Virchow Prize for Research in Pathology, Graduating Medical School Class Award for Research, University of Maryland School of Medicine
1991	Dean's List for Excellence in Teaching in the Basic Sciences Award, University of Arizona College of Medicine (elected by medical school student body, year II)
1995	John R. Davis, M.D. Outstanding Residency Teaching Award, Department of Pathology, University of Arizona College of Medicine (elected by Pathology Residents)
1997	Vernon and Virginia Furrow Award for Excellence in Graduate Medical Education, University of Arizona College of Medicine (award for interdisciplinary brain cutting conference).
1998	Dean's List for Excellence in Teaching in the Basic Sciences Award, University of Arizona College of Medicine (elected by medical school student body, year II)
1999	Vernon and Virginia Furrow Award for Excellence in Innovation in Teaching, University of Arizona College of Medicine (award for integration of Pathology into First Year Histology and Cell Biology Course).
1999	Basic Sciences Educator of the Year, University of Arizona College of Medicine (elected by medical school student body, Year II)
2000	Basic Sciences Educator of the Year, University of Arizona College of Medicine (elected by medical school student body, Year II)

- 2001 Basic Sciences Educator of the Year, University of Arizona College of Medicine (elected by medical school student body, Year II)
- 2002 Basic Science Educator of the Year Lifetime Award, University of Arizona College of Medicine (retired from receiving future student-elected teaching awards)
- 2004 Faculty Marshall, Medical School Convocation University of Arizona College of Medicine (chosen by graduating class)
- 2007 Vernon and Virginia Furrow Award for Excellence in Innovation in Teaching, University of Arizona College of Medicine (award for development and implementation of virtual slide pathology laboratories in new medical school curriculum)

Board Certification (American Board of Pathology):

- 1987 Anatomic Pathology
- 1989 Neuropathology

Clinical Service:

Neuropathologist, University Medical Center:

- Diagnosis of all surgical pathology brain biopsies, including operating room frozen-sections, biopsies from outside hospitals and peripheral nerve biopsies.
- Diagnosis of all neuropathology specimens collected at autopsy
- Participation at weekly NeuroOncology Tumor Board conferences with supervision of resident presentations
- Training of Pathology Residents, post-sophomore fellows and rotating medical students through surgical and autopsy neuropathology sign-out sessions

TEACHING AND ADVISING

Undergraduate Medical Education, University of Arizona College of Medicine

1989 - 2008 **Medical School Pathology Course**, Year II (120 students):

Neuropathology Block, lectures and laboratories, 18 contact hours

Instructor, pathology laboratories, 80 contact hours

- 1996 - **Graduate Course in Pathology** (Path 515, 10 graduate students):
 Neuropathology Lectures and Laboratory, 7 contact hours
- 2008 - **AZMed Curriculum** (Arizona Medical School Curriculum, 120 students/year),
 Neuropathology Lectures, Laboratories and Clinical Presentations,
 Neuroscience Block (Year I, 25 contact hours)
- Pathology Laboratories, organ systems other than brain (Year I and II, 16-20
 contact hours).
- Intersession 3 (Year III, 2 contact hours)
- Lecture, Pituitary Pathology, Year II

Teaching Administration, University of Arizona College of Medicine:

- 1994 - 2008 Laboratory Team Leader, Medical School Pathology Course
- 1997 - 2002 Course Director, Medical School Pathology Course
- 2008 - 2009 Developed and implemented virtual pathology laboratories in new medical school curriculum
- 2008 - 2010 Pathology Discipline Co-Director, AZMed Curriculum, Year I and II
- 2008- Key Faculty Member, Neuroscience Block, AZMed Curriculum, Year I
- 2008- Pathology Laboratory Co-Coordinator, AZMed Curriculum, Year I and II
- 2010 Development Team, Intersession Pathology Exercises, AZMed Curriculum, Year III

Resident Teaching:

- 1989 - Pathology Journal Club: 1- 2 conferences/year
- 1997 - 1999 Wednesday Morning Surgical Pathology Conferences, 6/year
- 1989 - Core Curriculum: 2 to 3 lectures/year on Neuropathology
- 1989 - 2012 Neuropathology Brain Cutting Conference

- 1989 - Elective Neuropathology Rotation: Departments of Pathology and Neurology
- 2008 - NeuroOncology tumor board: Participant and supervision of resident presentations, weekly
- 2012- Neurology and Neurosurgery resident lectures: 2/year

Student Advising:

Major Advisor and Dissertation Director, Graduate Students

Monica K. Chawla, Department of Cell Biology and Anatomy, Ph.D. received in 1997
Steve C. Danzer, Program in Neuroscience, Ph.D. received in 1998
Ty W. Abel, Program in Neuroscience, M.D., Ph.D. student, Ph.D. received in 1999
Tatiana Sandoval-Guzman, Ph.D., Program in Neuroscience, Ph.D. received in 2003
Adonna Rometo, Physiological Sciences, Ph.D. received in 2008
Penny Dacks, Program in Neuroscience, Ph.D. student, Ph.D. successful Ph.D. defense, spring 2010
Hemalini Williams, Physiological Sciences, M.S. student, M.S., spring semester 2010
Melinda Mittelman-Smith, Ph.D. Program in Neuroscience, successful Ph.D. defense, spring 2012
Marina Cholanian, Ph.D. Program in Neuroscience, Comprehensive examination passed in 2010

Graduate Student Committee Member

Cheryl Harrington, M.S., Program in Neuroscience, Masters student
Katherine M. Schroeder, Ph.D., Program in Neuroscience, Ph.D. student
Lauren M. Baker, Program in Neuroscience, Ph.D. student
Jason Gerrard, Program in Neuroscience M.D., Ph.D. student
Lisa Marriot, Program in Neuroscience, Ph.D. student
Julie Miller, Program in Neuroscience, Ph.D. student
Cortnie Lauren Cherry, Physiology IDP Ph.D. student

Faculty Mentor, Undergraduate Honors Thesis, University of Arizona

Tami R. Bruce, 1994
David Frye, 1995
Carla Escobar, 2001
Kyung Chen, 2002
Seth Stalcup, 2003
Elizabeth Shih, 2006
Marc Bingaman, 2008
Jessica Brown, 2010

Faculty Advisor, Undergraduate Biology Research Program (UBRP program)

Tami R. Bruce, 1990-1994
Shane V. Uswandi, 1991-1995

David Frye, 1993-1995
Carla Escobar, 1998-2001
Kyung Chen 2000-2002
Seth Stalcup 2001-2003
Elizabeth Shih, 2005-2006
Marc Bingaman, 2006-2008
Jessica Brown, 2007-2010
James Knitter 2008-2009

Research Mentor, Pathology Postsophomore Fellowship Year

LuLu Iles-Shih, 2003-2004
Heather Wheeler, 2004-2005
Paul DiMaggio, 2006
Jeffrey Pat, 2008-2009

Intramural Service, University of Arizona:

Departmental of Pathology

1991 Support Services Task Force
1993 Residency Interview Committee
1994 Five Year Research Strategic Planning Committee
1996 - Associate Chair, Department of Pathology

Responsible for matters related to the Academic Mission of the Department of Pathology
Administrative duties related to the Pathology Department Staff in the College of Medicine
Representation of the Department of Pathology at various meetings and award ceremonies

1996 - Executive Committee, Department of Pathology
2000 - Promotion and Tenure Committee, Dept. of Pathology
2001 Administrative Review Committee of Dr. Ronald S. Weinstein
2005 -2010 Chair, Promotion and Tenure Committee, Dept. of Pathology
2012 - Chair, Promotion and Tenure Committee, Dept. of Pathology

College of Medicine

1990 -1993 Committee on Continuing Education
1991 Subcommittee, Ethics Guidelines, Committee on Continuing Education
1992 Subcommittee, Mission Statement, Committee on Continuing Education
1994 -1995 Search Committee, to recruit Department of Neurology Chairman
1993 -1998 Alternate, Credentials Committee, University Medical Center
1991 - 2001 Student Appeals Committee, College of Medicine

1993 - 1999 Consulting Member, Committee on Continuing Education
 1995- Neuroscience Subcommittee, Curriculum Committee
 1998 Search Committee, to recruit Department of Surgery Chairman
 1999 Medical Staff Appeals Committee, University Medical Center
 2000 Subcommittee of Student Progress/Student Appeals Committee- to revise procedures for Disciplinary Proceedings
 2000 - 2001 Promotion and Tenure Committee, Department of Cell Biology and Anatomy
 2001 - 2004 Promotion and Tenure Committee, College of Medicine
 2004 Co-chairman, Promotion and Tenure Committee, College of Medicine
 2004 Human Neuroscience Working Group
 2005 Faculty Salary Incentive Committee
 2008 - 2010 Academy of Educators, University of Arizona College of Medicine
 2010 Selection Committee, Founder's Day Speaker, University of Arizona College of Medicine

University:

1990 - 1991 Executive Committee, Committee on Neuroscience
 1992 - 1994 Steering Committee, Arizona Brain Center
 1990- 2010 Faculty Sponsor, Undergraduate Biology Research Program
 1989- Member, Committee on Neuroscience (Neuroscience IDP)
 1993-1996 Member, Program in Developmental Neuroscience
 1999- Member, Graduate Program in Physiological Sciences (IDP)
 1999 - 2000 Search Committee, to recruit Dean of Medical School
 2003 Search Committee, to recruit Dean of Medical School
 2005 Adjunct Promotion and Tenure Committee, Arizona Research Laboratories
 2007- Scientific Advisory Committee, Evelyn McNight Brain Institute

Extramural Service:

1993 NIH: Advisory Group, Workshop on Menopause: Biology of Ovarian and Neuroendocrine Systems during the Menopausal Transition, Bethesda, Maryland
 1994 NIH: *Ad Hoc* Member, Biochemical Endocrinology Study Section, Bethesda, Maryland
 1995 National Science Foundation: *Ad Hoc* Grant Reviewer,
 1997 NIH: *Ad Hoc* Member, Biochemical Endocrinology Study Section, Bethesda
 1997 National Science Foundation, *Ad Hoc* Reviewer,
 1998 NIH: Site Visit Review Committee, National Institute on Aging, Program Project, Mt. Sinai School of Medicine, New York, New York
 1999 NIH: Site Visit Review Committee, National Institute on Aging, Program Project, University of Kentucky, Lexington, Kentucky

- 1999 NIH: Teleconference Review Committee, National Institute on Aging, Program Project, University of Kentucky
- 2000 Alzheimer's Association: Initial Review Board of the Medical and Scientific Advisory Council, Research Grant Program
- 2001 NIH: Primate Models of Menopause Workshop, participant, National Institute on Aging, Bethesda, Maryland
- 2003 NIH: Reverse Site Visit Review Panel, SWAN - Study of Women's Health across the Nation, Bethesda, Maryland
- 2003 NIH: Teleconference Review Panel, National Institutes of Health -SWAN - Study of Women's Health across the Nation
- 2003 NIH: Special Emphasis Panel, Reverse Site Visit of Program Project from the Mt. Sinai School of Medicine, National Institute on Aging, Bethesda, Maryland
- 2004 NIH: Teleconference Special Emphasis Panel, Program Project from the Mt. Sinai School of Medicine, National Institute on Aging, Bethesda, Maryland
- 2005 NIH: Special Emphasis Panel, KO8 review teleconference
- 2007 Society for Neuroscience, Chair, Platform Presentation, Annual Meeting
- 2009 NIH: *Ad Hoc* Member, Integrative Clinical Endocrinology and Reproductive Study Section (ICER), Bethesda, Maryland
- 2010 Burroughs Wellcome Fund, *Ad Hoc* Grant Reviewer
- 2010 Chair, Platform Presentation Nanosymposium entitled "Kisspeptin and Company", Annual Meeting Society for Neuroscience
- 2011 NIH: Ad Hoc Member, Integrative Clinical Endocrinology and Reproductive Study Section (ICER), Chicago, Illinois

Professional Associations

Society for Neuroscience
 Endocrine Society
 American Association of Neuropathologists (AANP)

2006 - AANP Membership Committee
 2008 - 2010, Chair, AANP Membership Committee

Ad Hoc Peer- Review, Journals:

Endocrinology
Brain Research
Journal of Cancer Research and Clinical Oncology
Journal of Clinical Endocrinology and Metabolism
Journal of Comparative Neurology
Journal of Neuropathology and Experimental Neurology
Proceedings of the National Academy of Science
Journal of Neuroendocrinology
Journal of Neuroscience
Neurology
Nature Genetics
Neurobiology of Aging
Peptides

Refereed Publications:

1. Wise, P.M., **Rance**, N., Barr, G. and Barraclough, C.A. Further evidence that luteinizing hormone-releasing hormone is also follicle stimulating hormone-releasing hormone. *Endocrinology* 104: 940-948, 1979.
2. Barraclough, C.A., Wise, P.M., Turgeon, J., Shander, D., Depaolo, L. and **Rance**, N., Recent studies on the regulation of pituitary LH and FSH secretion. *Biology of Reproduction* 20:86-97, 1979.
3. **Rance**, N., Wise, P.M., Selmanoff, M.K. and Barraclough C.A.: Catecholamine turnover rates in discrete hypothalamic areas and associated changes in median eminence luteinizing hormone-releasing hormone and serum gonadotropins on proestrus and diestrus day 1. *Endocrinology* 108:1795-1802, 1981.
4. **Rance**, N. and Barraclough, C.A. Effects of phenobarbital on hypothalamic LHRH and catecholamine turnover rates in proestrus rats. *Proceedings of the Society of Experimental Biology and Medicine* 166:425-431, 1981.
5. Wise, P.M., **Rance**, N. and Barraclough, C.A. Effects of estradiol and progesterone on catecholamine turnover rates in discrete hypothalamic regions in ovariectomized rats. *Endocrinology* 108:2186-2193, 1981.
6. Wise, P.M., **Rance**, N., Selmanoff, M.K. and Barraclough, C.A. Changes in radioimmunoassayable luteinizing hormone-releasing hormone in discrete brain areas of the rat at various times on proestrus, diestrus day 1 and after phenobarbital administration. *Endocrinology* 108:2179-2186, 1981.

7. **Rance**, N., Wise P.M. and Barraclough, C.A. Negative feedback effects of progesterone on catecholamine turnover rates in discrete hypothalamic regions in ovariectomized rats. *Endocrinology* 108:2193-2199, 1981.
8. **Rance**, N.E. and Max, S.R. Modulation of the cytosolic androgen receptor in striated muscle by sex steroids. *Endocrinology* 115:862-866, 1984.
9. **Max, S.R. and Rance**, N.E. No effect of sex steroids on compensatory muscle hypertrophy. *Journal of Applied Physiology* 56:1589-1593, 1984.
10. Bernard, P.A., **Rance**, N.E., Fishman, P.S. and Max, S.R. Increased cytosolic androgen receptor binding in rat striated muscle following denervation and disuse. *Journal of Neurochemistry* 43:1479-1483, 1984.
11. **Rance**, N.E., de la Monte, S.M. and Hutchins, G.M. Dilatation of the left ventricle in a newborn: probable in utero myocardial infarction. *Pediatric Pathology* 5:463-469, 1986.
12. Kanof, M.E., **Rance**, N.E., Hamilton, S.R., Luk, G.D. and Lake, A.M. Congenital diarrhea with intestinal inflammation and epithelial immaturity. *Journal of Pediatric Gastroenterology and Nutrition* 6:141-146, 1987.
13. **Rance**, N.E., McArthur, J.C., Cornblath, D.R., Landstrom, D.L., Griffin, J.W. and Price, D.L. Gracile tract degeneration in patients with sensory neuropathy and AIDS. *Neurology* 38:265-271, 1988.
14. Naidu, S., Hoefler, G., Watkins, P.A., Chen, W.W., Moser, A.B., Hoefler, S., **Rance**, N.E., Powers, J.M., Beard, M., Green, W.R., Hashimoto, T., and Moser, H.W. Neonatal seizures and retardation in a girl with biochemical features of X-linked adrenoleukodystrophy: A possible new peroxisomal disease entity. *Neurology* 38:1100-1107, 1988.
15. Gordon, B., Lesser, R.P., **Rance**, N.E., Hart, J., Webber, R., Uematsu, S., and Fisher, R.S. Parameters for direct cortical electrical stimulation in the human: Histopathologic confirmation. *EEG and Clinical Neurophysiology* 75:371-377, 1990.
16. **Rance**, N.E., McMullen, N.T., Smialek, J.E., Price, D.L. and Young, W.S. III. Postmenopausal hypertrophy of neurons expressing the estrogen receptor gene in the human hypothalamus. *Journal of Clinical Endocrinology and Metabolism* 71:79-85, 1990.
17. Walker, L.C., **Rance**, N.E., Price, D.L. and Young, W.S. III. Galanin mRNA in the Nucleus Basalis of Meynert Complex of baboons and humans. *Journal of Comparative Neurology* 303:113-120, 1991.
18. **Rance**, N.E. and Young, W.S. III. Hypertrophy and increased gene expression of neurons containing neurokinin B and substance P messenger RNAs in the hypothalami of postmenopausal women. *Endocrinology* 128:2239-2247, 1991.

19. Pindur, J., Capin, D.M., Johnson, M.I. and **Rance**, N.E. Cystic brain stem necrosis in a premature infant after prolonged bradycardia. *Acta Neuropathologica* 83:667-669, 1992.
20. Gouras, G.K., **Rance**, N.E., Young, W.S.III, and Koliatsos, V.E. Tyrosine-hydroxylase-containing neurons in the primate basal forebrain magnocellular complex. *Brain Research* 584:287-293, 1992.
21. Wenk, G.L., Harrington, C.A., Tucker, D.A., **Rance**, N.E. and Walker, L.C. Basal forebrain and memory: A biochemical, histological and behavioral study of differential vulnerability to ibotenate and quisqualate. *Behavioral Neuroscience* 106:909-923, 1992.
22. **Rance**, N.E. Uswandi, S. and McMullen, N.T. Neuronal hypertrophy in the hypothalamus of older men. *Neurobiology of Aging* 14:337-342, 1993.
23. Rappaport, W.D., Valente, J., Hunter, G., **Rance**, N.E., Lick, S., Lewis, T. and Neal, D. Complications and clinical utilization of sural nerve biopsy. *American Journal of Surgery* 166:252-256, 1993.
24. Sukhov, R.R., Walker, L.C., **Rance**, N.E., Price, D.L. and Young, W.S.III. Vasopressin and oxytocin gene expression in the human hypothalamus. *Journal of Comparative Neurology* 337:295-306, 1993.
25. **Rance**, N.E., Young, W.S.III and McMullen, N.T. Topography of neurons expressing LHRH gene transcripts in the human hypothalamus and basal forebrain. *Journal of Comparative Neurology* 339:573-586, 1994.
26. **Rance**, N.E. and Bruce, T.R. Neurokinin B gene expression is increased in the arcuate nucleus of ovariectomized rats. *Neuroendocrinology* 60:337-345 1994.
27. Sukhov, R.R., Walker, L.C., **Rance**, N.E., Price, D.L. and Young, W.S.III, Opioid precursor gene expression in the human hypothalamus. *Journal of Comparative Neurology*, 353:604-602, 1995.
28. Wenk, G.L., **Rance**, N.E., and Mobley, S.L. Effects of excitatory amino acid lesions upon neurokinin B and acetylcholine neurons in the nucleus basalis of the rat. *Brain Research*, 679:8-14, 1995.
29. **Rance**, N.E. and Uswandi, S.V. Gonadotropin-releasing hormone (GnRH) gene expression is increased in the medial basal hypothalamus of postmenopausal women. *Journal of Clinical Endocrinology and Metabolism*, 81:3540-3546, 1996.
30. Chawla, M.K., Gutierrez, G.M., Young, W.S., III, McMullen, N.T. and **Rance**, N.E. Localization of neurons expressing substance P and neurokinin B mRNAs in the human hypothalamus and basal forebrain. *Journal of Comparative Neurology*, 384:429-442, 1997.

31. Danzer, S.C., McMullen, N.T. and **Rance**, N.E. Dendritic growth of arcuate neuroendocrine neurons following orchidectomy in adult rats. *Journal of Comparative Neurology*, 390: 234-246, 1998.
32. Danzer, S.C., Price, R.O., McMullen, N.T. and **Rance**, N.E. Sex steroid modulation of neurokinin B gene expression in the arcuate nucleus of adult male rats. *Molecular Brain Research*, 66:200-204, 1999.
33. Abel, T.W., Voytko, M.L. and **Rance**, N.E. Effects of hormone replacement therapy on neuropeptide gene expression in a primate model of menopause. *Journal of Clinical Endocrinology and Metabolism*, 84: 2111-2118, 1999.
34. Abel, T.W. and **Rance**, N.E. Proopiomelanocortin gene expression is decreased in the infundibular nucleus of postmenopausal women. *Molecular Brain Research*, 69: 202-208, 1999.
35. Abel, T.W. and **Rance**, N.E. Stereological study of the human infundibular nucleus in young and older women. *Journal of Comparative Neurology*, 424:679-688, 2000.
36. Danzer, S.C., McMullen, N.T. and **Rance**, N.E. Testosterone modulates the dendric architecture of arcuate neuroendocrine neurons in adult male rats. *Brain Research*, 890:78-85,2001.
37. Krajewski, S.J., Abel, T.W., Voytko, M.L., and **Rance**, N.E. Ovarian steroids differentially modulate the gene expression of GnRH neuronal subtypes in the ovariectomized cynomolgus monkey *Journal of Clinical Endocrinology and Metabolism*, 88:655-662, 2003.
38. Sandoval-Guzmán, T., Stalcup, S.T., Krajewski, S.J. Voytko, M.L. and **Rance**, N.E. Effects of ovariectomy on the neuroendocrine axes regulating reproduction and energy balance in young cynomolgus macaques. *Journal of Neuroendocrinology*, 16:146-153, 2004.
39. Escobar, C.M., Krajewski, S.J., Sandoval-Guzmán, T., Voytko, M.L., **Rance**, N.E. Neuropeptide Y gene expression is increased in the infundibular nucleus of postmenopausal women. *Journal of Clinical Endocrinology and Metabolism*. 89:2338-2343, 2004.
40. Sandoval-Guzmán, T., **Rance**, N.E. Central injection of senktide, an NK₃ receptor agonist, or neuropeptide Y inhibits LH secretion and induces different patterns of Fos expression in the rat hypothalamus. *Brain Research*, 1026:307-312, 2004.
41. Krajewski, S.J., Anderson, M. J., Iles-Shi, L., Chen, K.J., Urbanski, H.F., **Rance**, N.E. Morphological evidence that neurokinin B neurons modulate GnRH secretion via NK₃ receptors in the rat median eminence. *Journal of Comparative Neurology*, 489:372-386, 2005.
42. Burke M.C., Letts P.A., Krajewski S.J. and **Rance** N.E. Coexpression of dynorphin and neurokinin B immunoreactivity in the rat hypothalamus: Morphologic evidence of interrelated function within the arcuate nucleus, *Journal of Comparative Neurology*, 498: 712-726, 2006.

43. Bousfield, G.R. Butnev, V.Y., Walton, W.J., Nguyen, V.T, Huneidi, J, Singh, V., Kolli, V.S., Harvey, D.J., **Rance**, N.E. All-or-none N-glycosylation in primate follicle-stimulating hormone beta-subunits. *Molecular and Cellular Endocrinology*, 260-262, 40-48, 2006.
44. Rometo, A.M., Krajewski, S.J., Voytko, M.L., **Rance**, N.E. Hypertrophy and increased kisspeptin gene expression in the hypothalamic infundibular nucleus of postmenopausal women and ovariectomized monkeys. *Journal of Clinical Endocrinology and Metabolism*, 92:2744-2750, 2007.
45. Rometo, A.M. and **Rance**, N.E. Changes in Prodynorphin Gene Expression and Neuronal Morphology in the Hypothalamus of Postmenopausal Women. *Journal of Neuroendocrinology*, 20, 1376-1381, 2008.
46. Zhang, W., Gardell,S., Zhang, D, Xie, J.Y., Agnes, R.S., Badghisi, H. Victor J. Hruby, V.J., **Rance**, N., Ossipov, M.H., Vanderah, T.W., Porreca, F. and Lai, L. Neuropathic pain is maintained by brainstem neurons co-expressing opioid and cholecystokinin receptors. *Brain* 132: 778-87, 2009.
47. Krajewski, S. J., Burke, M. C., Anderson, M. J., McMullen, N. T., **Rance**, N. E. Forebrain projections of arcuate neurokinin B neurons demonstrated by anterograde tract-tracing and monosodium glutamate lesions in the rat. *Neuroscience*, 166:1187-1193, 2010.
48. Dacks, P.A. and **Rance**, N.E. Effects of estradiol on the thermoneutral zone and core temperature in ovariectomized rats. *Endocrinology*, 151:1187-1193, 2010.
49. Williams, H., Dacks, P.A., and **Rance**, N.E. An improved method for recording tail skin temperature in the rat reveals changes during the estrous cycle and effects of ovarian steroids. *Endocrinology*, 151:5389-94, 2010.
50. Dacks, P.A., Krajewski, S.J. and **Rance**, N.E. Ambient Temperature and 17 β -estradiol modify Fos -immunoreactivity in the median preoptic nucleus, a putative control center for thermoregulation. *Endocrinology*, 152:2750-2759, 2011.
51. Dacks, P.A., Krajewski, S.J and **Rance**, N.E. Activation of neurokinin 3 receptors in the median preoptic nucleus decreases core temperature in the rat. *Endocrinology*, 152:4894-4905, 2011.
52. Mittelman-Smith, M.A., Williams, H. Krajewski-Hall, S.J. Lai, J., Ciofi, P. McMullen, N.T. and **Rance**, N.E. Arcuate kisspeptin/neurokinin B/dynorphin (KNDy) neurons mediate the estrogen suppression of gonadotropin secretion and body weight. *Endocrinology*, 153:2800-2812 2012
53. Mittelman-Smith, M.A., Williams, H. Krajewski-Hall. McMullen, N.T. and **Rance**, N.E. Role for Kisspeptin/Neurokinin B/Dynorphin (KNDy) Neurons in Cutaneous Vasodilatation and the Estrogen Modulation of Body Temperature. *Proceedings of the National Academy of Science, U.S.A.* 109:19846-19851, 2012

Invited Reviews:

1. Barraclough, C.A., Wise, P.M. and **Rance**, N.E. An analysis of temporal changes in hypothalamic LHRH concentrations, and catecholamine turnover rates associated with gonadotropin surges in female rats: effects on sex steroids. In: *Pituitary Hormones and Related Peptides, Serono Symposium*. No. 49. M. Motta, M. Zanisi and F. Pira(eds), New York, Academic Press, 1982, pp139-155.
2. **Rance**, N.E. Hormonal Influences on morphology and neuropeptide gene expression in the infundibular nucleus of postmenopausal women. *Progress in Brain Research*, Vol 93, Swaab, D.F, Hofman,M.A., Mirimairan, M., Ravid, R. and van Leeuwen F.W. (eds). Elsevier Science, New York, Chapter 15, pp 221-226, 1992.
3. **Rance**, N.E. Pathophysiology of Menopause: Effects of ovarian failure on the morphology of neurons in the human hypothalamus. *Advances in Pathology and Laboratory Medicine*, Vol. 7, Weinstein, R.M. and Graham, A.R. (eds). Mosby Year Book, Chicago, pp 565-574, 1994.
4. **Rance**, N.E., Abel, T.W., and Danzer, S.C. Reproductive aging and the human hypothalamus. In: *Biology of Menopause, Serono Symposium Proceedings*. F. Belino (ed). Springer-Verlag, New York, pp. 24-35, 2000.
5. **Rance**, N.E., and Abel, T.W. Hypothalamic gene expression in postmenopausal women. In: *Functional Neurobiology of Aging*. Hof, P.R. and Mobbs, C.V. (eds.), Academic Press, San Diego, pp 781-794, 2001.
6. **Rance**, N.E. Aging of the Hypothalamic-Pituitary-Ovarian Axis in Women. *The New Encyclopedia of Neuroscience*, Elsevier, 2008.
7. **Rance**, N.E. Menopause and the human hypothalamus: Role of kisspeptin/neurokinin B neurons in the regulation of estrogen negative feedback. *Peptides*, 30:111-22, 2009.
8. **Rance**, N.E., Krajewski, S.K., Smith, M.A., Cholanian, M. and Dacks, P.A. Neurokinin B and the hypothalamic regulation of reproduction. *Brain Research*, special issue entitled “New Insights into the Neurobiology of Reproduction and Puberty” 1364:116-128, 2010
9. **Rance**, N.E., Dacks, P.A. Mittelman-Smith, M.A., Krajewski, S.K., Romanovsky, A. A. Modulation of body temperature and LH secretion by hypothalamic KNDy (kisspeptin, neurokinin B and dynorphin) neurons: a novel hypothesis on the mechanism of hot flushes. *Frontiers in Neuroendocrinology*, 3:211-27, 2013.

Abstracts (since 1989):

1. **Rance**, N.E., McMullen, N.T., Smialek, J.E. and Price, D.L. Postmenopausal neuronal hypertrophy in the human hypothalamus. *J. Neuropath. Exp. Neurol.*, 48:362, 1989.
2. **Rance**, N.E., McMullen, N.T., Smialek, J.E., Price, D.L. and Young, S.W. III. Postmenopausal

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3. **Rance**, N.E. and Young, W.S.III. Hypertrophy of neurons containing substance P and neurokinin B mRNA in hypothalami of postmenopausal women. *The Endocrine Society*, Atlanta, GA, 1990.
 4. Walker, L.C., **Rance**, N.E., Price, D.L. and Young W.S.III. Peptide and glutamic acid decarboxylase mRNAs in the human Nucleus Basalis of Meynert. *Soc. Neurosci. Abst.* 16:1056, 1990.
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 7. **Rance**, N.E., Young, W.S.III, Parks, B.O. and McMullen, N.T. Location of neurons containing luteinizing hormone-releasing hormone (LHRH) mRNA in the human hypothalamus and basal forebrain. *Soc. Neurosci. Abst.* Vol 18, 1992.
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 10. Chawla, M.K., Gutierrez, G.M., Young, W.S.,III, and **Rance**, N.E. Localization of neurons expressing substance P and neurokinin B mRNAs in the human hypothalamus and basal forebrain. *Soc.Neurosci.Abst.*, Vol 20, 1994
 11. Wenk, G.L., Stoehr, J.D., **Rance**, N.E., and Mobley, S.L. Nucleus basalis: age-increased vulnerability to excitatory amino acids.. *Soc.Neurosci.Abst.*, Vol 20, 1994.
 12. Walker, L.C., Sukhov, R.R., **Rance**, N.E., Price, D.L., and Young, W.S.,III Growth hormone-releasing hormone factor and somatostatin gene expression in the human hypothalamus. *Soc.Neurosci.Abst.*, Vol 20, 1994.
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 28. Amerongen, H. and **Rance**, N.E. Laboratory exercises that inject clinical content into histology and cell biology teaching. *The FASEB Journal*, 15:A1105, 2001.

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38. Rometo A.M., Voytko M.L. and **Rance** N.E. Kisspeptin neurons in the hypothalamic infundibular nucleus: Hypertrophy and increased gene expression in postmenopausal women and ovariectomized monkeys. *Soc. Neurosci. Abstr.* 2006.
39. **Rance**, N.E., Neuroendocrine regulation in menopause. *Endocrine Soc. Abstr.*, 2007.
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43. Krajewski, S. J. Anderson, M. J., McMullen N. T., **Rance** N.E. An interconnected network of neurokinin B neurons in the arcuate nucleus of the rat. *Soc. Neurosci. Abstr.* 2009
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47. Smith, M.A., Williams, H., Krajewski, McMullen N. T., **Rance** N.E. Arcuate NK3 receptor-expressing KNDy neurons are essential for estrogen modulation of LH secretion and body weight in the female rat. *Soc. Neurosci. Abstr*, 2011
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51. Krajewski-Hall, S. J., Mittelman-Smith, M.A., Williams, H, LaFrance, K.J. McMullen N. T., **Rance** N.E. A role for kisspeptin/neurokinin B/dynorphin (KNDy) neurons in the regulation of estrous cycles and the estrogen modulation of body temperature. *Soc. Neurosci. Abstr* 2012
52. Krajewski-Hall, S. J., Mittelman-Smith, McMullen N. T., **Rance** N.E. Ablation of arcuate KNDy neurons amplifies the LH surge in steroid-primed, ovariectomized rats. *Soc. Neurosci Abstr*, 2013

Invited Presentations (since 1989):

University of Arizona:

- 1989 Neuropathology of AIDS, Department of Pathology
- 1990 Neuropathology of Parkinsons' and Huntingtons' Diseases, Symposium on Movement Disorders, Department of Neurology, University of Arizona
- 1990 Alterations in Morphology and Neuropeptide Gene Expression in the Hypothalami of Postmenopausal Women, Department of Anatomy
- 1990 Reproductive Aging and the Human Hypothalamus, Department of Obstetrics and Gynecology Grand Rounds
- 1990 Neuropathology of AIDS, Neurological and Neurosurgical Grand Rounds
- 1991 Symposium on Alzheimer's Disease, Department of Neurology
- 1991 Alterations in Morphology and Neuropeptide gene Expression in the Human Hypothalamus, Neurological and Neurosurgical Grand Rounds
- 1992 Neurobiology of Disease Symposia; Alzheimer's Disease, Current Concepts and Controversies
- 1992 Clinical-pathological Correlation Conference (CPC), University of Arizona College of Medicine
- 1992 Neuropathological Evaluation of Peripheral Nerve Biopsies, Neurological and Neurosurgical Grand Rounds
- 1993 Reproductive Aging and the Human Hypothalamus, Department of Anatomy
- 1994 World Health Organization Classification of CNS Tumors, Neurological and Neurosurgical Grand Rounds
- 1994 Neuroendocrine Laboratory Presentation, Developmental Neuroscience Training Program
- 1994 Progressive Multifocal Leukoencephalopathy, Tucson Pathology Society
- 1995 Changes in LHRH gene expression in the hypothalami of postmenopausal women, Research Forum on Aging, Gerontology Society of Arizona
- 1995 Classification of CNS Tumors, Part II, Neurological and Neurosurgical Grand Rounds

- 1997 Neuroendocrine Laboratory Presentation, Developmental Neuroscience Training Program
- 1997 Hormonal Influences on Morphology and Neuropeptide Gene Expression in the Human Hypothalamus, Neurological and Neurosurgical Grand Rounds
- 1999 Biology of Prion Disease, Neurological and Neurosurgical Grand Rounds
- 1999 Creutzfeldt Jacob and Related Prion Diseases, Science School, University Medical Center Technologists, Department of Pathology
- 2001 Biology of Mad Cow Disease, Neuroscience 101, Brain Awareness Week, University of Arizona
- 2001 Speaker, Arizona Senior Academy, Tucson, Arizona
- 2002 Neuropathology of Alzheimer's Disease, Neuroscience 101, Brain Awareness Week, University of Arizona
- 2003 Neuropathology of Degenerative Disease, Neurological and Neurosurgical Grand Rounds
- 2003 Speaker, Arizona Pathology Society Annual Meeting, Tucson, Arizona
- 2004 Participant in panel presentation of effective teaching methods. Physiological Sciences Interdisciplinary Program
- 2006 Neuroanatomy of Puberty, Neuroscience 101, Brain Awareness Week, University of Arizona
- 2006 Reproductive Aging and the Human Hypothalamus, Physiology Department Seminar
- 2007 Histopathology of Glioblastoma Multiforme, Workshop on Glioblastomas, University of Arizona Brain Tumor Cooperative Group
- 2008 Conversations with Colleagues Roundtable Discussion Leader - Approaches to Effective Teaching, Office of Faculty Affairs, College of Medicine
- 2010 Menopause and the Human Hypothalamus: Evidence for a Role of Neurokinin B in the Regulation of the Reproductive Axis. Department of Neuroscience, University of Arizona

Invited Seminars (outside of University of Arizona):

- 1991 Speaker and participant, 17th International Summer School of Brain Research, The Netherlands Institute for Brain Research, Amsterdam, The Netherlands.
- 1993 Speaker, Symposium entitled Molecular and Cellular Advances in Neuroendocrine Regulation of Gonadotropins, Center for Studies in Reproduction, University of Maryland College of Medicine, Baltimore, MD.
- 1995 Visiting Professor and Speaker, Wyeth-Ayerst Women's Health Research Institute, Radnor PA.
- 1995 Speaker, Plenary Symposium entitled "Biological Aspects of Menopause". Annual Meeting of the Gerontological Society of America. Los Angeles, CA.
- 1996 Speaker, Flinn Foundation Biomedical Initiative Symposium, Scottsdale, AZ.
- 1998 Speaker, International Symposium on the Biology of Menopause, Hosted by the National Institute on Aging and Serono Symposia, USA, Newport Beach, CA.
- 2000 Speaker, Symposium entitled "Neuroendocrinology of Aging" Experimental Biology Meeting, San Diego, CA.
- 2000 Speaker, Biology of Prion Disease, Tucson Pathology Society, Tucson Medical Center
- 2001 Speaker and Workshop Participant: Primate Models of Menopause Workshop, NIH, National Institute on Aging, Bethesda, Maryland
- 2002 Speaker, GlaxoSmithKline Pharmaceuticals, Research Triangle Park, North Carolina.
- 2002 Speaker, Symposium on Hot Flushes, Women's Health Research Institute, Wyeth Pharmaceuticals, Radnor, PA.
- 2004 Speaker, Neuroendocrinology Symposium, Annual Meeting of the Endocrine Society of Australia, Sidney, Australia.
- 2004 Visiting Professor and Seminar Speaker, Reproductive Endocrine Unit, Massachusetts General Hospital, Boston, Massachusetts.
- 2007 Speaker, Symposium entitled Lifecycle of the GnRH neuron. Annual Meeting of the Endocrine Society, Toronto, Ontario, Canada.
- 2007 Speaker, Wyeth Pharmaceuticals, Collegetown, Pennsylvania.
- 2008 Speaker, First World Conference on Kisspeptin Signaling in the Brain, Cordoba Spain.

- 2009 Visiting Professor and seminar speaker, Magee-Women's Research Institute and University of Pittsburgh, Pittsburgh, Pennsylvania.
- 2010 Speaker, Annual Conference, Arizona Alzheimer's Consortium, Glendale, Arizona.
- 2010 Visiting Professor and seminar speaker, Department of Physiology, University of West Virginia, Morgantown, West Virginia
- 2011 Visiting Professor and seminar speaker, Netherlands Institute on Neuroscience, Amsterdam, The Netherlands
- 2011 Visiting Professor and Colloquium speaker, Department of Integrative Physiology, University of Colorado, Boulder
- 2012 Visiting Professor and Seminar Speaker, Neuroscience Program, University of Wyoming, Laramie
- 2012 Speaker, Symposium entitled: Neuromodulatory regulation of gonadotropin release: NKB, Annual Meeting of the Endocrine Society, Houston Texas
- 2012 Speaker, Symposium entitled: Role of arcuate KNDy neurons in GnRH pulse generation, Second World Conference on Kisspeptin Signaling in the Brain, Tokyo Japan
- 2012 Invited Speaker, Barrow Neurological Institute, Phoenix Arizona
- 2013 Endocrine Grand Rounds and Visiting Professor, Reproductive Endocrine Sciences Center, Massachusetts General Hospital
- 2014 5th International Symposium on the Physiology and Pharmacology of Temperature Regulation, Kruger National Park, South Africa-invited speaker in September, 2014

Grant support (since 1989):

Federal (continuous NIH funding since 1991):

- 1991 - 1997 NIH: FIRST Award National Institute on Aging, AG09214, Reproductive Aging and the human hypothalamus, N.E. **Rance**, P.I., Total award \$508,938.
- 1994 - 1997 NIH: Office of Research on Women's Health, Administrative Supplement to Grant AG09214, N.E. **Rance**, P.I., Total award \$99,852.
- 1993 - 1998 NIH: Developmental Neuroscience Training Grant, R.B. Levine, P.I., N.E. **Rance** was a member of the training faculty, Total award \$721,020.
- 1997 - 2002 NIH: National Institute on Aging, RO1 AG09214, Competitive Renewal, Reproductive Aging and the human hypothalamus, N.E. **Rance**, P.I. Total award \$770,000.

- 1997 - 2002 NIH: Training Grant T32 NS07434, Predoctoral Training Program in Neuroscience, R.B. Levine, Program Director, N. E. **Rance** was a member of the training faculty, Annual direct costs \$103,217.
- 2002 - 2007 NIH: National Institute on Aging, R01 AG09214, Reproductive Aging and the human hypothalamus, Competitive Renewal, N.E. **Rance**, P.I., National Institute on Aging. Total award \$1,283,095.
- 2004 - 2009 NIH: Training Grant T32 AG007434, Predoctoral Training Program in Neuroscience, R.B. Levine, P.I., N.E. **Rance** was a member of the training program, Annual direct costs \$120,676.
- 2007 - 2010 NIH: National Institute on Aging, R56AG009215-15A1, Reproductive Aging and the human hypothalamus, N.E. **Rance**, P.I., Total award \$364,750.
- 2007 - 2010 NIH: National Institute on Aging, F31 AG030881, The neuronal circuitry underlying estrogen effects on thermoregulation, Penny Dacks, P.I. This is a Ruth L. Kirschstein National Research Service Award for a predoctoral fellowship in Dr. **Rance**'s laboratory. Annual award \$26,556.
- 2007 - 2012 NIH: National Institute of General Medical Science, 5 T32 GM08400 Graduate Training in Systems and Integrative Physiology, P. Hoyer, P.I., N.E. **Rance** is a member of the training faculty. Annual direct costs \$236,376.
- 2008 - 2014 NIH: National Institute on Aging, R01 AG032315, The role of neurokinin B in the generation of menopausal flushes. N.E. **Rance**, P.I., Total award \$1,390,637.

State:

- 1990 - 1991 University of Arizona College of Medicine: Development of an animal model for postmenopausal neuronal hypertrophy, Biomedical Research Support Grant,, N.E. **Rance**, P.I., Total award \$6,000.
- 1990 - 1991 Office of the Vice President for Research: University of Arizona, Alterations in neuropeptide gene expression in the hypothalami of postmenopausal women, N.E. **Rance**, P.I., Small Grants Program, total award \$5,000.
- 1990 - 1993 Arizona Disease Research Control Commission: Morphological alterations in the brains of postmenopausal women. N.E. **Rance**, P.I., Total award \$72,193.
- 2006 - 2009 Arizona Biomedical Research Commission: Effects of Estrogen Withdrawal on Hypothalamic Thermoregulation. N.E. **Rance**, P.I., Total award \$147,090.

Private:

- 1993 - 1998 Robert S. Flinn Biomedical Research Initiative: Developmental Neuroscience Training Grant, R.B. Levine, P.I., N.E. **Rance** is a member of the training faculty. Total award \$497,803.
- 1997 - 2000 Robert S. Flinn Biomedical Research Initiative: Developmental Neuroscience Training Grant, R.B. Levine, P.I., N.E. **Rance** is a member of the training faculty. Total award \$250,000.