

Curriculum Vitae

Ralph L. Cooper

Current Address:

Work:

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Home:

8612 Millers Bend
Bahama, NC 27503,

Phone: 919-479-5447

Citizenship: USA

Education:

Monmouth College
West Long Branch, NJ

Rutgers University
Institute of Animal Behavior
Newark, NJ

Major

Psychology

Psychobiology

Degree

B.A.

Ph.D.

Year

1968

1973

Professional Experience:

Institution:

Chief, Endocrinology Branch
Reproductive Toxicology Division,
National Health and Environmental
Effects Research Laboratory
U.S. Environmental Protection Agency
RTP, NC

Dates:

1995 - 2014

Chief, Endocrinology/Gerontology Section
Reproductive Toxicology Branch,
Developmental Toxicology Division
Health Effects Research Laboratory
U.S. Environmental Protection Agency

1987-1995

Curriculum Vitae

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RTP, NC

Research Biologist
Reproductive Toxicology Branch
Health Effects Research Laboratory
Environmental Protection Agency

1984 - 1987

Assistant Medical Research Professor
Division of Medical Psychology
Duke University Medical Center
Durham, North Carolina

Dec. 1977- Aug. 1984

Senior Fellow
Center for the Study of Aging
and Human Development
Duke University Medical Center
Durham, North Carolina

Jun. 1976
Lifetime Appointment

Research Associate
Department of Psychology
Duke University

Jan. 1976 - Dec. 1977

NIMH Postdoctoral Fellow
Duke University Neuroscience Program

Jan. 1973 - Dec. 1975

Other:

U. S. Army

Honorable Discharge

Jan. 1961 - Dec. 1962

Teaching Experience:

Duke University
(1975 - 1995)

Dept. of Psychology

Behavior and Neurochemistry
Hormones and Behavior
Biological Basis of Behavior

Dept. of Psychiatry

Neurobiological Basis of
Behavior (basic neuroendo-
crine mechanisms)

Center for Aging

Seminar in Physiology of Aging

Academic Honors and Awards:

Elected: Member Lambda Sigma Tau (Monmouth College Honor Society, 1967))

Elected: Member Psi Chi (president Monmouth College Chapter, 1967-68)

Awarded: National Institute of Mental Health Predoctoral Fellowship (1970-72)

- 1988 Recipient: ORD Gold Medal for Exceptional Service: Combined Male and Female Reproductive Risk Assessment Guidelines Committee.
- 1998 Recipient: ORD Bronze Medal ORD/RAF Workgroup on Environmental Endocrine Disruption: An Effects Assessment and Analysis Document.
- 1999 Recipient, Reproductive and Developmental Toxicology Specialty Section Best Paper Published in Toxicological Sciences.
- 1999 Recipient, STAA award, Level III for the two manuscripts on the effects of the flame retardant mixture, DE-71, on thyroid homeostasis and demonstration of anti-androgenic activity.
- 1999 Recipient, NHEERL award for leadership: Endocrine Disruptors Implementation Plan.
- 2000 Recipient, STAA award, honorable mention, for the two manuscripts on the effect of environmental endocrine disruptors on delayed ovulation and oocyte functioning in the rat.
- 2000 Recipient, Reproductive and Developmental Toxicology Specialty Sections Best Paper Published in Toxicological Sciences in 2000.
- 2000 Recipient, Office of Pesticides Programs Health Effects Division Team Award for work related to the mode of action of the chlorotriazine herbicides
- 2000 Recipient, ORD Award for Outstanding Technical Assistance to OPPTS during the standardization and validation of Tier 1 Screening Battery of EDCs.
- 2001 Recipient, NHEERL Teamwork award for participation in Human Health Research Multiyear Plan.
- 2001 Recipient, EDSP Team award for Exceptional/Outstanding ORD Technical Assistance to the Regions or Program Offices.
- 2002 Recipient, Office of Science Coordination and Policy award for contributions to the EDSP for research which led to the development of new testing methods and insights into the mode of action of endocrine disruptors.
- 2003 Recipient, Office of Pesticides Programs Health Effects Division Team Award (2003).
- 2003 Recipient, STAA award, Level III for manuscripts on the effects of endocrine disruptors on male and female pubertal development.
- 2004 Recipient, ORD Bronze Medal for Promoting Strong Science in Agency Decisions. Aug.

- 2004
- 2004 Recipient, Special Recognition Award for contributing expertise in a written synthesis of improved methods and research needs for screening and testing xenoendocrine disruptors.
- 2006 Recipient, STAA award, Level III for the two manuscripts on the effects of the flame retardant mixture, DE-71, on thyroid homeostasis and demonstration of anti-androgenic activity.
- 2006 Recipient, STAA award, honorable mention, for the two manuscripts on the effect of environmental endocrine disruptors on delayed ovulation and oocyte functioning in the rat.
- 2008 Recipient ORD Bronze medal Office of Research & Development – “For significant contributions to the Office of Pesticide Programs and the Office of Water on the mode and mechanism of chlorotriazine action on the endocrine system.”

Research Interest:

Reproductive Toxicology and Risk Assessment
Neuroendocrine control of gonadal function

Professional Organizations, Committees and Appointments

Sigma Xi
Society for Neuroscience, North Carolina Chapter
Society for the Study of Reproduction
Editorial Board: Experimental Aging Research (1979-1984)
Editorial Board: Neurobiology of Aging (1980-1986)
Editorial Board: Birth Defects Research: Developmental and Reproductive Toxicology (2002-present)
Member, Steering Committee, Research Training Program on Aging (1976-1984)
Member, Steering Committee, Research Training Program on Adulthood
Member, Operating Committee, Center for the Study of Aging and Human Development (1976-1984)
Member, Reproductive Toxicology Study Section (RFP reviews). National Institute of Environmental Health Sciences. RTP, NC. (1982)
Advisor, National Research Council Associateship Program 1984-present
Member, Review Panel for Assessing the Biological Effects of Low Frequency Electric and Magnetic Fields. Department of Energy (1984-87)
Member, Workgroup for the study of the Methanol Toxicity, 1984-1987
Member, Combined Male and Female Reproductive Risk Assessment Guidelines Committee, (1984-1986)

Member, Development/Reproductive Workgroup for Biomarker Research Strategy Document. (1987).

Temporary Advisor, World Health Organization 1989-1993

Member, IPCS workgroup for development of an Environmental Health Monograph on Principles for Evaluating the Effects of Chemicals on Aged Populations and the Ageing Process, Leningrad, Russia (1989-1993)

Member, Executive Committee, Triangle Consortium for Reproductive Biology (1990 -present)

Member, Quality/Quantity Committee, HERL, US EPA, RTP, NC, (1992)

Member, EPA/NIEHS Carbon Disulfide Workgroup, (1993)

Member, IPCS workgroup for the evaluation of the health effects of Carbendazim and Benomyl and Carbendazim. (1995)

Member, Reproductive Toxicology Division's Awards and Recognition Committee (1996-1997).

Participant: Characterizing the Effects of Endocrine Disruptors on Human Health At Environmental Exposure Levels workshop, RTP, NC (1998)

Member: Bisphenol A subpanel: Endocrine Disruptors Low-Dose Peer Review RTP, NC (2000)

Chair, Special Emphasis Panel, Conference Grant Applications (R-13) National Institute of Environmental Health Sciences. 1999-2001

Participant: SETAC-EUROPE OECD Expert Workshop on Endocrine Modulators and Wildlife, Veldhoven, Holland 1999

Participant: Joint US/EU Endocrine Disruptor Research Expert Panel Meeting, Ispra, Italy, 2000.

Member, OPPTS/ORD Endocrine Disruptors Screening and Testing Implementation Group (1998-2011)

Co-Chair, Life Stages Task Force of the ISLI/HESI Agricultural Chemical Safety Assessment Committee. (2002-2006).

EPA Representative on the Interagency Working Group (IWG) on Endocrine Disruptors of the National Science and Technology Council (NSTC) Committee on Environment and Natural Resources (CENR) Toxics and Risk Subcommittee. 2003-2014.

Rat and Amphibian Thyroid Histopathology Workshop, Washington, D.C. July 12, 2005. Development of evaluation protocols for OSCP.

Brain Mechanisms of Action/ Atrazine Workshop, Greensboro, NC, April, 2005.

Co-Chair, Hormonally Induced Reproductive Tumors: Relevance of Rodent Bioassays, Invited to participate in prostate tumor breakout discussion session, National Toxicology Program Workshop, Raleigh, May 22-24, 2006.

HESI, Reproductive Endpoints Workshop, Invited participant in developmental

- endpoints breakout discussion group, Washington, D.C., March 28-29, 2006
- Co-chair. OPP/OSCP/ORD Expert panel for the assessment of the F1-extended one-generation reproductive toxicity test.(2005-2007).
- Member, NHEERL Working Committee on Development of a Tier 1 Battery for the Evaluation of Endocrine Disrupting Chemicals. 2004-2008.
- Member and United States Co-Lead on Expert Group Meeting on the Extended One Generation Reproductive Toxicity Study. OECD Guideline Development (2007-2012).
- Member, EPA OPP/ORD team for the development of background documents and presentations at the SAP Meeting on the Re-Evaluation of Human Health Effects of Atrazine: Review of Experimental Animal and In Vitro Studies and Drinking Water Monitoring Frequency. April, July, and September 2010.
- Member, EPA OPP/ORD Workgroup developing background information for the SAP meeting on for the Scientific Issues Associated with Prioritizing the Universe of Endocrine Disruptor Screening Program (EDSP) Chemicals Using Computational Toxicology Tools. Potomac Yards, January, 2013.
- Member, EPA OPP/ORD Workgroup developing background information for the SAP meeting on for the Endocrine Disruptor Screening Program (EDSP) Tier 1 Screening Assays and Battery Performance. Potomac Yards May 2013.
- Member, EPA OPP/ORD Workgroup developing background information for the SAP meeting on for Development of white paper and preparation for the Weight-of-Evidence: Evaluating Results of EDSP Tier 1 Screening. Potomac Yards July-August, 2013.
- Member, EPA OPP/ORD EDSP Science Committee on the WoE evaluation of List 1 test chemicals. 2013-March 2014.
- Member, Organization of Economic and Cooperative Development Test Guidelines Programme. Expert group on Reproductive and Developmental Toxicity. 2014-present.

Adjunct Appointments

- Adjunct Assistant Professor, Department of Psychology, Duke University (1984-2014).
- Adjunct Assistant Medical Research Professor, Division of Medical Psychology, Duke University Medical Center (1984-2014).
- Adjunct Professor, Department of Anatomy, Physiological Sciences and Radiology

North Carolina State University College of Veterinary Medicine.
(1996-2014)

National Invited Lectures and Seminars: (1985 to present)

1. Aging and Reproductive Neuroendocrinology. Lecture presented at the 30th Anniversary Celebration Program. Selected Topics in Biological and Biomedical Research on Aging. Duke University, Durham, North Carolina. (1985).
2. Environmental toxicology and the aging organism. Invited lecture presented at the 38th Annual Meeting of the Gerontological Society of America, New Orleans, Louisiana (1985).
3. Hypothalamic-Pituitary Regulation of the Gonadal Axis. Invited lecture presented at the EPA/ARMY Workshop, Charleston, South Carolina. (1985)
4. Neuroendocrine Aspects of Reproductive Aging. Geriatric Research, Education and Clinical Center, Veterans Administration Hospital, Durham, North Carolina (1986).
5. Reproductive Responses to Drugs Altering Pituitary Function. Invited lecture presented at the Conference on Reproductive and Developmental Toxicology. Smith Kline and French Laboratories, King of Prussia, Pennsylvania (1987).
6. Control of Ovarian Function. Invited lecture presented at the 9th Chemical Industry Institute of Toxicology, Conference on Toxicology. Raleigh, NC. (1987).
7. Aging Alterations of the Brain/Hormone System. Invited lecture presented at the Physiological Processes of Aging meeting. Duke University Medical Center, Durham, North Carolina (1987).
8. Animal endpoints in female reproductive toxicity. Invited lecture presented at California's Workshop on Risk Assessment Issues in Reproductive and Developmental Toxicology. Berkeley, California (1989).
9. Neuroendocrine control of ovarian function. Invited lecture presented the Middle Atlantic Reproduction and Teratology Association. Summit, New Jersey. (1990).
10. Methanol effect on hormonal control of the rat testes. Invited presentation to Health Effects Institute's Annual Meeting, Scottsdale Arizona (1990).
11. Assessing Reproductive Toxicants. Department of Obstetrics and Gynecology. Duke University Medical Center (1990).
12. The effect of toxicants on the neuroendocrine control of ovulation. Lecture presented at the 30th annual meeting of the Society of Toxicology, Dallas, Texas (1991).
13. The effect of methanol on male reproductive function. Lecture presented at the 31st annual meeting of the Society of Toxicology, New Orleans LA (1993).
14. Effect of toxicants on female reproductive function, Lecture presented at the School of Public Health, University of North Carolina, Chapel Hill, N.C. (1994).

15. Effect of atrazine on reproductive function. Lecture presented to the Office of Prevention Pesticides and Toxic Substances, Washington D.C., (1994).
16. Neuroendocrine control of reproduction following toxicant exposure. Lecture presented to the Department of Physiology, University of Illinois, Urbana, (1994).
17. Reproductive function following burst exposure to toxicants. Lecture presented at the Department of Anatomy, East Carolina University, Greenville, NC. (1994)
18. Effect of atrazine on neuroendocrine control of ovulation in the rat. Lecture presented at the Atrazine Workshop, Greensboro, NC. (1995).
19. Effect of reproductive toxicants on hypothalamic and pituitary function. Lecture presented at the Department of Physiology and Pharmacology. Bowman Gray Medical School, Winston Salem, NC (1995).
20. Non-estrogenic, non-steroidal xenobiotic effects of environmental agents on the reproductive process. Principles and Processes for Evaluating Endocrine Disruption in Wildlife, Kiawah, South Carolina, March, (1996).
21. Pre-ovulatory Toxicant exposure and Pregnancy Outcome. 3rd Annual NHEERL Symposium on Susceptibility and Risk, Durham, N.C., September, (1996).
22. Pesticide Exposure Disrupts Neuroendocrine Control of Female Reproduction. Health Effects of Contemporary-Use Pesticides: The Wildlife/Human Connection. Racine, Wisconsin, September, (1996).
23. Target Site and Mechanism of Action of Chlorotriazines on Pituitary Hormone Secretion. Atrazine Research Meeting, Hilton Head, S. C., April, (1997).
24. Evaluation and Interpretation of Rodent Vaginal Cytology in Toxicology Studies. ILSI meeting on the Evaluation and Interpretation of Reproductive Endpoints for Human Health Risk Assessment. Washington DC, November, (1997).
25. Mode and Mechanism of Action of Atrazine (Triazine induced alterations in the hormonal control of reproduction). Seminar presented to Office of Prevention Pesticides and Toxic Substances, Crystal City, Virginia, April, (1998).
26. Effect of Atrazine on Reproductive Function in the Female Rat. Seminar presented to the Triangle Wide Endocrine Disruptor Discussion Group, RTP, NC, April, (1998).
27. Endocrine Disruptors: Fact or Fantasy. Presentation to National Center for Environmental Research and Quality Assurance. Crystal City, June, 1998.
28. Hormonal Measurement after Chlorotriazines Exposure in the Male. Presentation to Novartis Corporation, Greensboro, North Carolina, December, (1998).
29. Brain and pituitary as a target site for triazine pesticides. Triazine Expert Panel Meeting, Panama City, Florida, May, (1999).
30. Risk assessment issues of the chlorotriazines. Mode of action and Hazard ID. Briefing held for OPP chlorotriazine team. RTP, NC, May, (1999).
31. Evaluation and Interpretation of Rodent Vaginal Cytology in Toxicology Studies. Seminar presented at the 20th annual meeting of the American College of

- Toxicology, McLean, Va., November, (1999).
32. Atrazine: Mode of Action and Developmental Studies. Presentation to the FIFRA Scientific Advisory Panel on Hazard and Dose-Response Assessment and Characterization of atrazine Crystal City, Va. June (2000).
 33. Atrazine Alters the Neuroendocrine Control of Gonadal Function in Males and Females, Conference on Gender Differences in Toxicology. Tuscon Arizona (2000).
 34. Male and Female Pubertal Assays. Presented to Endocrine Disruptors Regional Workshop, Atlanta Georgia, April (2001).
 35. Emerging Issues in Reproductive Toxicology. Presented at the "Hot Topics" Workshop, RTP, North Carolina. May (2001).
 36. Mode and Mechanism of Atrazine. Presentation to the NHEERL Board of Scientific Counselors, RTP, NC. October, (2001).
 37. Evaluation of the Male and Female Pubertal Assay to Detect Endocrine Disrupting Chemicals. Presentation to the Endocrine Disruptor Evaluation and Validation Sub-Committee, Washington, DC. December, (2001).
 38. Introduction to Endocrine Disrupting Chemicals and their Effects on Humans. EPA Regional Workshop on Effective Risk Assessment Management of EDCs, Cincinnati, Ohio, (2002).
 39. Research Highlights on Endocrine Disruptors within NHEERL. Presentation to Assistant Administrator, Office of Research and Development, March (2002).
 40. Mode and mechanism of action of chlorotriazine herbicides. Endocrine Disruptor Workshop: Program Review of Extramural and Intramural Research. RTP, NC. Oct. (2002).
 41. Role of Atrazine in prostate inflammation. Workshop on Adverse Effects of Atrazine. Ponte Verde, Fla, Dec. (2002).
 42. NHEERL Endocrine Disruptors Implementation Plan: Briefing to NHEERL Director and Senior Staff, RTP, NC. Aug, (2003).
 43. What effects are occurring in exposed human and wildlife populations? Presented at the ORD, EDC, MYP Workshop, RTP, NC, Oct. (2003).
 44. Evaluation and Interpretation of pubertal endpoints in rodent models. Presented at the International Serono Symposium Pubertal Progression Workshop. Chicago Il. Nov (2003).
 45. Presentation of Life-Stages, Tiered Approach to the ILSI/HESI/ACSA Technical Committee on Agricultural Chemical Safety Assessment. Washington DC., Nov 2003.
 46. Synthesis of a tiered approach to testing agricultural pesticides. Presented at the ORD, EDC, MYP Workshop, RTP, NC, Nov (2003).
 47. Female Reproductive Toxicology. Presentation to the Henry Stewart conference, Washington D.C., may 2005.

48. Technical Committee on Agricultural Chemical Safety Assessment (ACSA). Life Stages Task Force. Presented to the Office of Pesticide Programs, Crystal City, July, 2005.
48. Atrazine mechanisms and new research (steroidogenesis, Central Nervous System): Do we know everything we should know? Presentation to the Office of Drinking Water, Washington DC, May, 2006
49. Mammalian Life-Stages Protocol FIFRA SAP of In Utero/Lactational Protocol for EDSP, Potomac Yards, Feb 2006
49. Update on the Progress of the Extended One-Generation Reproductive Protocol, Cincinnati, Ohio Feb, 2006
50. Research Highlights on Endocrine Disruptors in Mammals.. Presentation to Dr. George Gray Assistant Administrator, Office of Research and Development, August (2006)
51. Aromatase Studies with atrazine and other chlorotriazines. Briefing to OPP, July 2007
52. Research Updates on the MOA and Adverse Effects of the Chlorotriazines and Chlorotriazine Metabolites: Presented to the Office of Water and Office of Pesticides, OPPTS; Potomac Yards, Virginia, May 2008.
53. Establishing a NOAEL/LOAEL for mammalian studies of the Chlorotriazines and Chlorotriazine Metabolites: Presented to the Office of Water and Office of Pesticides, OPPTS; Potomac Yards November (2009).
54. Atrazine MOA in mammals. Presented at the SAP Meeting on the Re-Evaluation of Human Health Effects of Atrazine: Review of Experimental Animal and In Vitro Studies and Drinking Water Monitoring Frequency. April, 2010.
55. Recent developments on the evaluation of atrazine on LH secretion. Presentation to the SAP Meeting on the Non-Cancer Effects of Atrazine, September, 2010.
56. The many faces of atrazine. Seminar presented to the Interdisciplinary Toxicology Program, Duke University, May, 2012.
57. Keynote Speaker: Identifying and Characterizing Environmental Chemicals that alter Endocrine Function. 29th Annual Meeting of the Allegheny-Erie Society of Toxicology Regional Chapter. Erickson Alumni Center West Virginia University Morgantown, WV June , 2015

International Invited Lectures, Seminars and Workgroups::

1. Role of serotonin in reproductive aging. Presented at the annual meeting of Psychoneuroendocrinology, Florence Italy, September, 1983.
2. Hormonal control of reproductive aging. Presented at the IPCS Workgroup

- Meeting on the Effects of Chemicals on Aged Populations and the Ageing Process, Leningrad, Russia (1989).
3. Effect of altered endocrine function on the hypothalamic function in the aging brain. Presented at the IPCS Workgroup Meeting on the Effects of Chemicals on Aged Populations and the Ageing Process, Geneva, Switzerland (1991).
 4. Evaluating endocrine disruptors that act on the brain. SETAC-EUROPE OECD Expert Workshop on Endocrine Modulators and Wildlife, Veldhoven, Holland 1999.
 5. Mammary Tumors and Altered Reproductive Function Following Atrazine in the Rat. Seminar presented at the University of Zurich, Zurich Switzerland. (2000).
 6. Reproductive Effects of Chlorotriazines. Presented at the International Workshop on Endocrine Disruptors, National Institute of Environmental Sciences, Tsukuba, Japan. March (2001).
 7. Identification of a tiered approach for the risk assessment of agricultural chemicals. ILSI-HESI Life Stages Task Force Meeting, Washington DC, April (2003).
 8. Design and status of a Tier 1 for assessing reproductive, immunological and neurotoxicological effects. ILSI-HESI Life Stages Task Force Meeting, Washington DC, July (2003).
 9. Evaluation of the Toxicity of Estrogens. United States vs. European Commission in Hormone Dispute. Geneva, Switzerland, Sept. 2006
 10. A Discussion of the Triggers for the Extended 1-Generation Study. OECD Meeting, Berlin, 2007
 11. Re-evaluation of Technical Issues for the Extended 1-Generation Reproductive Protocol., OECD Meeting, Paris, France, Oct. 2008:
 12. Establishing an Extended 1-Generation Study: From Origins to OECD Guideline. Rome, Italy, September 2009.
 13. Current Developments in Reproductive Toxicity Testing of Pesticides: the Extended One-Generation Reproductive Toxicity Protocol Arles, France, Sep 2009
 14. Power Analysis Requirements for the Extended F1 Reproductive Toxicity Test. OECD Meeting, October, 2010.

Publications:

- Cooper, Ralph L. (Ph.D. Thesis) (1973). Relationship between rhythmical behavioral patterns and theta activity in the rat. Rutgers University, Institute of Animal Behavior, Newark, New Jersey
1. Cooper, R. L., Prinz, P. N., and Marsh, G. R. Age-dependent changes in

- hippocampal theta rhythm. **Experimental Aging Research** 1: 91-98, 1975.
2. Cooper, R. L., and Erickson, C. J. Effect of septal lesions on the courtship behavior of the male ring dove (*Streptopelia risoria*). **Hormones and Behavior** 7: 441-450, 1976.
 3. Linnoila, M., and Cooper, R. L. Reinstatement of vaginal cycles in aged female rats. **Journal of Pharmacology and Experimental Therapeutics** 199:477-482, 1976.
 4. Cooper, R. L., and Linnoila, M. Pattern of food intake and body weight gain in aged, noncycling female rats. **Behavioral Biology** 18: 551-561, 1976.
 5. Cooper, R. L., and Linnoila, M. Sexual behavior in aged, non-cycling female rats. **Physiology and Behavior** 18: 573-576, 1976.
 6. Cooper, R. L. Sexual receptivity in aged female rats: Behavioral evidence for increased sensitivity to estrogen. **Hormones and Behavior**, 9: 321-333, 1977.
 7. Cooper, R. L., Brandt, S. J., Linnoila, M., and Walker, R. F. Induced ovulation in aged female rats by L-dopa implants into the medial preoptic area. **Neuroendocrinology**. 28: 234-240, 1979.
 8. Cooper, R. L., and Walker, R. F. Potential therapeutic consequences on age-dependent changes in brain physiology. **Interdisciplinary Topics in Gerontology**, 15: 54-76, 1979.
 9. Conn, P. M., Cooper, R. L., McNamara, M. C., Rogers, D. C. and Shoenhardt, L. Qualitative change in gonadotropin during normal aging in the male rat. **Endocrinology**, 106: 1549-1553, 1980.
 10. Walker, R. F., Cooper, R. L., and Timiras, P. S. Constant estrus: Role of rostral hypothalamic monoamines in development and reproductive dysfunction in aging rats. **Endocrinology**, 107: 249-255, 1980.
 11. Cooper, R. L. Possible role of serotonin in the reinstatement of ovarian cycles in the aged rat. **Neuroendocrinology Letters**, 2: 178:1980.
 12. Cooper, R. L., and Linnoila, M. Effect of centrally and systemically administered L-tyrosine and L-leucine on ovarian function in the old rat. **Gerontology**, 26:

270-275, 1980.

13. Cooper, R. L., McNamara, M. C. and Thompson, G.W. Vasopressin and conditioned flavor aversion in aged rats. **Neurobiology of Aging**, 1:53-57, 1980.
14. Kilbey, M. M., Ellinwood, E. H., Gonzales, L. P., and Cooper, R. L. Differential dopaminergic function in young and old female rats as measured by three behaviors. **Communications in Psychopharmacology**, 4:1-10, 1980.
15. Cooper, R. L., Conn, P. M., and Walker, R. F. Characterization of the LH surge in middle-aged female rats. **Biology of Reproduction**, 23:611-615, 1980.
16. Marian, J., Cooper, R. L., and Conn, P. M. Regulation of the rat GnRH-receptor. **Molecular Pharmacology**, 19: 399-405, 1981.
17. Smith, W. A., Cooper, R. L., and Conn, P. M. Altered pituitary responsiveness to gonadotropin releasing hormone in the middle-aged, regularly cycling rat. **Endocrinology**, 111: 1843-1848, 1982.
18. Cooper, R. L. and Walker, R. F. Radioenzymatic assays for catecholamines and serotonin in the brain and blood. **Methods in Enzymology**, 108: 483-493, 1983.
19. Cooper, R. L., Roberts, B., Rogers, D. C., Seay, S. G. and Conn, P. M. Endocrine status versus chronological age as predictors of altered luteinizing hormone secretion in the aging rat. **Endocrinology** 114: 391-396, 1984.
20. Cooper, R. L., Seppala, M., and Linnoila, M. Effects of luteinizing Hormone-releasing hormone antiserum on sexual behavior in the female rat. **Pharmacology, Biochemistry and Behavior** 20: 527-530, 1984.
21. Cooper, R. L. Aging and serotonergic function: causes or consequences. **Neurobiology of Aging**, 5: 144-146, 1984.
22. Walker, R. F., and Cooper, R. L. Synergistic effects of estrogen and serotonin receptor agonist on the development of pituitary tumors in aging rats. **Neurobiology of Aging**, 6: 107-111, 1985.
23. Goldman, J. M., Walker, R. F., and Cooper, R. L. Aging in the rat hypothalamic-pituitary-ovarian axis: The involvement of biogenic amines in the loss of reproductive cyclicity. **Progress in Neuroendocrinology** 1: 127-152, 1985.

24. Cooper, R. L., McNamara, M. C. and Linnoila, M. Catecholaminergic-serotonergic balance in the CNS and reproductive cycling in aging rats. **Neurobiology of Aging**, 7: 9-16, 1986.
25. Cooper, R. L., Goldman, J. M. and Rehnberg, G. L. Neuroendocrine control of reproductive function in the aging female rodent. **Journal of the American Geriatrics Society** 34: 735-751, 1986.
26. Cooper, R. L., Goldman, J. M. and Rehnberg, G. L. Pituitary function following treatment with reproductive toxins. **Environmental Health Perspectives** 70: 177-184, 1986.
27. Goldman, J. M., Cooper, R. L., Rehnberg, G. L., Hein, J. F., McElroy, W. K. and Gray, L.E., Jr. Effect of low, subchronic doses of methoxychlor upon the rat hypothalamic-pituitary reproductive axis. **Toxicology and Applied Pharmacology** 86: 474-483, 1986.
28. Goldman, J. M., Cooper, R. L., Rehnberg, G. L., Gabel, S., McElroy, W. K., Hein, J. and Conn, P. M. Age-related alterations in the stimulated release in vitro of catecholamines and LHRH from the male rat hypothalamus. **Neurochemical Research** 12: 651-657, 1987.
29. Guthrie, S., Cooper, R. L., Thurman, R. and Linnoila, M. Pharmacodynamics and pharmacokinetics of ethanol, diazepam and pentobarbital in young and aged rats. **Pharmacology and Toxicology** 61: 308-312, 1987.
30. Cooper, R. L., Goldman, J. M., Rehnberg, G. L., McElroy, W. K. and Hein, J. F. Effects of metal cations on pituitary hormone secretions in vitro. **Journal of Biochemical Toxicology** 2: 241-249, 1987.
31. Goldman, G. M., Cooper, R. L., Rehnberg, G. L., McElroy, W. K., Hein, J. F. and Booth, K. C. Age-related changes in the regional distribution of hormones in the male rat anterior pituitary. **Biochemical and Biophysical Research Communications** 52: 1213-1220, 1988.
32. Chadwick, R. W., Cooper, R. L., Chang, J. Rehnberg, G. L. and McElroy, W. K. Possible antiestrogenic activity of lindane in female rats. **Journal of Biochemical Toxicology** 3: 147-158, 1988.

33. Goldman, G. M., Cooper, R. L., Rehnberg, G. L., Booth, K. C., McElroy, W. K., Hein, J. F. Regional patterning of hormones in the female rat anterior pituitary: Disproportionate changes over the estrous cycle. **Endocrine Research** 14: 263-282, 1988.
34. McLeod, M., Bennett, P. B. and Cooper, R. L. Rat brain catecholamine release at 1, 10, 20 and 100 ATA heliox, nitrox, and trimix. **Undersea Biomedical Research** 15: 211-221, 1988.
35. Gray, L. E., Jr., Ostby, J. Sigmon, R., Ferrell, J., Rehnberg, G., Linder, R., Cooper, R., Goldman, J. and Laskey, J. The development of a protocol to assess reproductive effects of toxicants in the rat. **Reproductive Toxicology** 2: 281-287, 1988.
36. Rehnberg, G. L., Linder, R., Goldman, J. M., Hein, J. F., McElroy, W. K. and Cooper, R. L. Changes in testicular and serum hormone concentrations in the male rat following treatment with m-dinitro-benzene. **Toxicology and Applied Pharmacology** 95: 255-264, 1988.
37. Gray, L. E. Jr., Ferrell, J., Ostby, J., Rehnberg, G., Linder, R., Cooper, R., Goldman, J., Slott, V., and Laskey, J. A dose response analysis of methoxychlor-induced alterations of reproductive development and function in the rat. **Fundamental and Applied Toxicology** 12: 92-108, 1989.
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