RAE SILVER
Helene L. and Mark N. Kaplan Professor of Natural and Physical Sciences

CURRICULUM VITAE
December 2018

Titles
Helene L. and Mark N. Kaplan Professor of Natural & Physical Sciences Neuroscience Program and Psychology Department, Barnard College
Professor of Psychology, Psychology Department, Columbia University
Professor of Psychology, Department of Pathology and Cell Biology, Columbia College of Physicians and Surgeons

Current Appointments
Neuroscience Program and
Department of Psychology
Barnard College
3009 Broadway
New York, NY 10027

Department of Psychology,
Graduate School of Arts and Sciences,
Columbia University
1190 Amsterdam Avenue, MC 5501
New York, NY 10027

Department of Pathology and Cell Biology,
Graduate Program
Columbia University Health Sciences
New York, NY 10032

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Positions
2006-2007: Senior Advisor, Office of the Director, National Science Foundation
1990-present: Helene L. and Mark N. Kaplan Professor of Natural & Physical Sciences Psychology Department, Barnard College
1982: Professor, Psychology Department, Barnard College of Columbia University
1982: Professor of Psychology, Columbia University, GSAS
1979-1982: Associate Professor and Chair, Psychology Department, Barnard College
1976-1979: Assistant Professor, Barnard College of Columbia University
1974-1976: Research Associate, The American Museum of Natural History
1974-1976: Assistant Professor, Hunter College of the City University of New York
1972-1974: Assistant Professor, Rutgers - The State University

Education

Degree	Institution	Year	Field
B.Sc. Honours	McGill University	1966	Physiol. Psychol.
M.A.	City College of the City University of New York	1970	Biopsychology
Ph.D.	Institute of Animal Behavior Rutgers - The State University Advisor: Daniel S. Lehrman	1972	Biopsychology

Honors

2018: Society for Research in Biological Rhythms- mentor award
2016: Teaching Award in recognition of exceptional contributions to undergraduate education
2015: DS Lehrman Award for Lifetime contributions, Society for Behavioral Neuroendocrinology
2003: Elected Fellow of the American Academy of Arts and Sciences
1997: Elected Fellow of the American Association for the Advancement of Science

Extramural Research Grants: Note record of continuous funding

(reverse chronological order: record of continuous funding)

2018-2022 NSF IOS-1749500
Mapping physical networks to functional networks in the SCN oscillation

2018-2023 1 R01 NS102962-01A1 (PI: Butler; Co-PI: Silver)
Androgen receptors and sex differences in the biological clock

2018-2021: NSF MRI-1828264 (PI: Vizcarra; Co-PIs: Silver, Mansfield)
Acquisition of an integrated Confocal and TIRF fluorescence microscope for multidisciplinary research and teaching at Barnard College

2013-2018: NSF IOS-1256105
Quantitative analysis of brain clock oscillations and associated cellular contacts and morphologies

2017-2020: Sponsor for Life Sciences Research Foundation grant award to David Tourigny

2007-2012: MH075045SCN
Networks and Efferent signals

1998-2011: NINDS NS37919
Physiological dissection of the SCN

2006-2008: NSF IOS-05-54514
Cellular mediator of thermoregulatory responses

2003-2004: NSF DBI 320988
Acquisition of a Confocal Microscope for the Sciences

2003-2006: NIMH R21 MH067782
The Immune Response in Mast Cell Deficient Mice

2001-2006: NIH
Molecular Physiology of Circadian Rhythms (PI Dr. D. McMahon)

2000-2005: NIH NS41069
The Function(s) of AVP & PKCbeta I in the SCN of mice
Alaskan Basic Neuroscience Program (SNRP Grant: PI Dr. L. Duffy)

1996-2005: NIMH Grant MH 54088
Mast cells-Function in Normal Adult Brain (Co-PI's Silver, AJ Silverman)
1998-2001: NSF-CNRS Grant
Brain mast cells in sheep
1976-2001*: NIMH Grant MH 29380 Factors influencing parental behavior (*25 years of support)
1996-1999: AFOSR Grant
Efferent signals of the SCN
1995-1998: NSF Grant
Brain photoreceptors
1994-1995: NSF SGER award
Brain mast cells
1992-1995: AFOSR Grant
Efferent signals of the SCN
1987-1995: NIH Grant NS24292
Circadian rhythms: restoration by neural grafts
1994: NATO Grant (with Dr. Serviere, INRA, France)
1992: NATO Grant (with Dr. Serviere, INRA, France)
1989: Irna and Jacob Michael Visiting Professor
Weizmann Institute, Israel
1986-1987: Whitehall Foundation Grant
Encephalic photoreceptors
1982-1985: Whitehall Foundation Grant
Neural mechanisms of parental behavior
1981: NSF Grant TF1 8100678
Acquisition of a centrifuge and accessories
1978: NSF Grant BNS 7816287
Wild doves in Africa: Field validation of laboratory studies

Educational and Training Awards:
2015: Beckman Award to Amen Wiqas
2015: Hughes Science Pipeline: Pooja Patel
2014: Postdoctoral Fellows: Fellowship awarded by Mexican Government- Claudia Juárez Portilla; Elvira Morgado-Viveros
2013: Vassiliki Papagermanos Hughes Science Pipeline
2012: Vassiliki Papagermanos Amgen
2011: Research sponsor of Margaret Robotham- Recipient of Amgen award
2009: Research sponsor of Megan Manganaro- Recipient of Amgen award
2006: Michael Weintraub APS undergraduate student research award
2002-2004: NIH Grant
Support for students and infrastructure for the meeting of the Society for Research in Biological Rhythms
2002: NASA Grant
Support for students and infrastructure for the meeting of the Society for Research in Biological Rhythms

2002: NSF Grant
Graduate student and post-doc support for attendance at the Society for Research in Biological Rhythms meeting in May 2002
2002: American Physiological Society Award to sponsor of 2 undergraduate students (Taslima Bhuiyan, Lucila Martinez)
1998: NSF Grant: Workshop on "The CSF as a communication pathway of the brain"
Workshop held in association with the Society for Neurosciences meeting
1996: NSF Grant
Support for student travel to Behavioral Endocrinology Conference in Turin
1990-1994: ONR Grant NOO14-91-5-1314
Predictions of scientific career orientation among able college women
1981-1984: NSF CAUSE Grant
Comprehensive improvements in curriculum and instructional technology (Co-Director)
1977-1982: NSF Grant SED 7712124 and 79-09032
Development of the instructional films in ethology: Behavior of the ring dove

Service to Government

2010-2012: Chair, Council of Scientists, Human Frontiers Science Program
2008-2012: US Representative to the Council of Scientists, Human Frontiers Science Program
2006-2012: Institute of Medicine of the National Academics, Forum Member, Planning Committee
2006-2007: Senior Advisor, National Science Foundation, Office of the Director
2002: Chair, Research Maximization and Prioritization Committee, NASA
2001: Committee member, NASA: International Space Station Cost and Management Evaluation Task Force

Service to the Scientific and Research Community

2018: SBN representative to FABBS Committee
2018: NIH ETTN-D Study Section, Spring 2018
2017-2018: Reviewer for Ricerca Research Grant
2017: NIH IAM reviewer ZRG1 IFCN-Z (02) panel member
2016: External Reviewer NURR grants
2015: Society for Society for Research on Biological Rhythms; Mentor for Career Development Round Table
2015: President elect: Society for Behavioral Neuroendocrinology
2015: Society for Neuroscience; Host for topic Career Development Topics
2015 March: Panel member National science foundation modulation panel
2014: Society for Neuroscience; Host for topic Career Development Topics
2012-2016: Chair of Education Committee, Society for Behavioral Neuroendocrinology
2013: Committee Member, Society for Research on Biological Rhythms, Search for a New Editor for Journal of Biological Rhythms
2010: Co-Chair National Academy of Science Institute of Medicine Forum: Sex Differences and Implications for Translational Neuroscience Research - A workshop, San Francisco, CA
2010 March 3-6: Frontiers of Science Meeting: Human Frontiers Science Program: Rapporteur, Strasbourg, France

2006-present: Forum Member, Institute of Medicine Forum on Neuroscience, National Academy of Science
2004-2006: Chair, BRS review panel National Institute of Health
2005-2006: External Advisory Board member NSF Center for Behavioral Neuroscience Georgia State, Emory and other colleges
2004-2007: Society for Neuroscience Education Committee
2003-2005: FO2A Fellowships Study section, ad hoc member
2005: Chair NIH IFCN3 NIH review panel
2000-2005: Special emphasis panel member NIH IFCN3
1999-2005: Advisory Board, International Society for Chronobiology
2001-2004: Member, Society for Neuroscience Program committee (Chair, Theme E - Autonomic and Limbic System)
2003: Panel member, Ford Foundation Minority Fellowship Review panel
2003: Panel member, ZRIG AARR-5 Center for Scientific Research
2000-2002: President, Society Research in Biological Rhythms
1991-2002: Chair, External Advisory Committee, NSF Center for the Study of Biological Rhythms, University of Virginia
2001: Panel member, Ford Foundation Minority Fellowship Review panel
1999: Program Chair, International Congress of Chronobiology, Washington D.C.
1999: Program Chair, Society for Behavioral Neuroendocrinology
1999-present: Panel member, IFCN3 CSR National Institute of Health
1999: Chair, Search Committee for editor of Journal of Biological Rhythms
1997: Chair, Search Committee for editor of Journal Hormones and Behavior
1997: Neuroscience Working Group: Integrative, Regulatory and Behavioral Neurosciences - charged with writing first draft of charter for Neuroscience study sections (March)
1994-1997: Member-at-Large, American Psychological Association
1993-1997: Advisory Committee Member, International Ornithological Society
1996-present: Society for Behavioral Neuroendocrinology, Advisory Board Member
1996: Member at Large, Society for Chronobiology
1994-1996: Panel Member, NIMH Psychobiology, Behavior, and Neurosciences 1995: Panel Member, NSF, Undergraduate Education and Instrumentation
1994-1996: Member-at-Large, Society for Research in Biological Rhythms
1995: Panel Member, Careers for Scientists, Bank Street School for Children
1995: Member, Committee of visitors for the Neuroscience Cluster NSF (June)
1995: Rapporteur, American Physiological Society, Conference on "Understanding the Biological Clock - from Genetics to Physiology"
1994: Program Chair, American Psychological Association
1994: Elected Member, American Ornithological Union
1993-1994: Panel Member, NIMH Behavioral Neurosciences
1992-1994: Member, Advisory Committee, Society for Research in Biological Rhythms
1988-1989: Chair, Psychology Department, Barnard College
1989: Member, Search Committee: Director of the Institute of Animal Behavior-Rutgers University
1987-1989: Panel Member, Sensory & Integrative Systems, NSF

1987: Panel Member, Panel on Mathematics Education, Oberlin College
1986-1987: Panel Member, Psychobiology, NSF
1979-1983: Panel Member, Neuropsychology Panel, NIMH

Service to Educational Community:
2017: Review of the graduate program at the University Of Amherst
2017: Advisory Board for CUNY National Science Foundation Research Traineeship
2017: Mentor Dr Helen Causton Columbia Medical School
2017: Society for Neuroscience Faculty mentor
2007: Invited Participant: launch of PhD program at University of Jalapa, Jalapa Mexico
2007: External Review Committee, Psychology Department, Berkeley, CA
2005: Member, External reviewer for Training Grant in Neuroscience at Hunter College
2005: External Review Committee: Brooklyn College of City University
2002: Review of Psychobiology Program at Hunter College
2001: Review of Biology Departments of Stern College and Yeshiva University
1998: Review of Psychology and Computer Science Departments at University of Toronto
1990: Selection committee for Chair of Institute of Animal Behavior

Editorial Boards
2014-present: Receiving editor, eNeuro a journal of the Society for Neuroscience
2004-present: Receiving editor, European Journal of Neuroscience
2016-present: Biological Rhythm Research Advisory board
1997-present: Biological Rhythm Research editorial board
1996-present: Hormones and Behavior
1995-present: Journal for Research in Biological Rhythms
2006-2009: Editorial Board, Endocrinology
1985-1989: Journal of Comparative Psychology

Service to University Community
2017-2018: SP2 Committee
2017-2018: Computer Science Endowed Chair Search committee
2016-2018: Co-Organizer (with Nim Tottenham) of Colloquia at Columbia Psychology Department
2016-present: Member of SP2 program
2016-present: Member of Computer Sciences Chair search Committee
2016: Chair: Computer Sciences Chair search Committee
2016-2017: Organizer of Colloquia at Columbia Psychology Department
2015: Chair for promotion committee for Dr Carl Hart
2013: Chair- preparation of tenure dossier for Dr Frances Champagne (CU)
2013: Committee member: Preparation of dossier for promotion to Professor of Dr Sarah Woolley
2010-2013: Director, Neuroscience Program at Barnard College during leave
2010-2011: Grants Post-Award workshop, Math and Science Enhancement (MASE) program
2008-2009: Search Committee for Head of Department of Veterinary Medicine, Columbia Presbyterian Hospital
2004-2006: Director, Graduate Program in Psychology
2000-2006: Director, Neuroscience and Behavior Program, Barnard College
2002-2004: Member, Grants Committee, Barnard College
2001-2004 Member: Program Committee Society for Neuroscience

2003-2004: Director of Graduate Program in Psychology (CU)
2002: Member, Grants Committee, Barnard College
1998-2001: Member, Barnard Medalist committee
1995: Chair, Provost Search Committee, Barnard College
1992-1994: Member, Committee on Instruction, Barnard College
1986-2001: Member, Animal Care Committee, Columbia University
1989-1993: Chair, Psychology Department at Barnard
1984-1987: Member, Faculty Planning Committee
1983-1988: (First) Director of Quantitative Reasoning Program, Barnard College
1985: Responsible for establishing the program for the first academic computer centers, Barnard College
1983-1984: Member, Faculty Executive Committee
1983-1986: Member, Executive Committee, Health and Society Program
1982-present: University Ad Hoc Committees (approximately 1/year since 1982)

Professional Associations (Alphabetical order)
Fellow of the American Academy of Arts and Sciences (2003- present)
American Association for the Advancement of Science (Fellow)
American Ornithological Union (Fellow, 1994)
American Physiological Society
American Psychological Association (Fellow-Division 6, 1984)
American Psychological Society (Charter Member and Fellow, 1989)
Endocrine Society
Federation of American Societies for Experimental Biology
International Ornithological Society
International Society for Chronobiology
Society for Behavioral Neuroendocrinology
Society for Neurosciences
Society for Research in Biological Rhythms

Scientific publications (~200 papers in forward chronological order)

1 LeSauter, J., Balsam, P., Simpson, E., Silver, R., et al. (2018). Overexpression of Striatal D2 Receptors Reduces Motivation Thereby Decreasing Food Anticipatory Activity. *European Journal of Neuroscience*. doi: 10.1111/ejn.14219. PMID: 30362616

2 Varadarajan, S., Tajiri, M., Jain, R., Holt, R., Ahmed, Q., LeSauter, J., & Silver, R. (2018). Connectome of the Suprachiasmatic Nucleus: New Evidence of the Core-Shell Relationship. *eNeuro*, *5*(5), ENEURO.0205–18.2018. doi:10.1523/ENEURO.0205-18.2018. PMID: 30283813

3 Silver, R., Taub., A, Li, A. (2018). Suprachiasmatic Nucleus Anatomy, Physiology, and Neurochemistry. *Oxford Research Encyclopedia of Neuroscience: Neuroendocrine and Autonomic Systems*. Edited by Randy Nelson. Print encyclopedia as part of larger digital project, headed by Editor in Chief Murray Sherman. doi:10.1093/acrefore/9780190264086.013.27

4 Juárez-Portilla, C., Pitter, M., Kim, R., Patel, P., Ledesma, R., LeSauter, J., & Silver R. (2018). Brain activity during methamphetamine anticipation in a non-invasive self-administration paradigm in mice. *eNeuro*, 5(2), ENEURO.0433-17.2018. doi:10.1523/ENEURO.0433-17.2018.

5 Silver R. (2017). Cells have sex chromosomes and circadian clocks: Implications for organismal level functions. *Physiology and Behavior, 187*, 6-12. doi:10.1016/j.physbeh.2017.11.016. PMID:29155247

6 Bousleiman, J., Pinsky, A., Ki, S., Su, A., Morozova, I., Kalachikov, S., … Austin, R. N. (2017). Function of Metallothionein-3 in Neuronal Cells: Do Metal Ions Alter Expression Levels of MT3? *International Journal of Molecular Sciences*, *18*(6), 1133. doi:10.3390/ijms18061133. PMID: 28587098

7 Juárez-Portilla, C., Kim, R.D., Robotham, M., Tariq, M., Pitter, M., LeSauter, J., Silver, R. (2017). Voluntary inhalation of methamphetamine: a novel strategy for studying intake non-invasively. *Psychopharmacology (Berl), 234*(5), 739-747. doi:10.1007/s00213-016-4510-8. Epub 2016 Dec 27.

8 Riddle, M., Mezias, E., Foley, D., LeSauter, J., Silver, R. (2016). Differential localization of PER1 and PER2 in the brain master circadian clock. *The European Journal of Neuroscience, 45*(11), 1357-1367. doi:10.1111/ejn.13441. PMID: 27740710

9 Pauls, S., Honma, S., Honma, K-I., Silver, R. (2016). Deconstructing Circadian Rhythmicity with Models and Manipulations. *Trends in Neurosciences, 39*(6), 405-419. doi:10.1016/j.tins.2016.03.006. Epub 2016 Apr 15

10 Kennedy, R., & Silver, R. (2016). Neuroimmune Signaling: Cytokines and CNS. In D. Pfaff & N. Volkow (Eds.), *Neuroscience in the 21st Century: From Basic to Clinical* (pp. 1-41). New York, NY: Springer.

11 Karatsoreos, I., & Silver, R. (2016). Body clocks in Health and Disease. In Conn & Michael (Eds.), *Disease Models for Neuroscience*: Academic Press.

12 Lokshin, M., LeSauter, J., & Silver, R. (2015). Selective Distribution of Retinal Input to Mouse SCN Revealed in Analysis of Sagittal Sections. *J Biol Rhythms, 30*(3), 251-257. doi:10.1177/0748730415584058. PMID: PMC Journal – In Process

13 Bailey, M. R., Jensen, G., Taylor, K., Mezias, C., Williamson, C., Silver, R., Balsam, P. D. (2015). A novel strategy for dissecting goal-directed action and arousal components of motivated behavior with a progressive hold-down task. *Behav Neurosci, 129*(3), 269-280. doi:10.1037/bne0000060. PMID: 4451610

14 Yan, L., & Silver, R. (2015). Neuroendocrine underpinnings of sex differences in circadian timing systems. *J Steroid Biochem Mol Biol*. doi:10.1016/j.jsbmb.2015.10.007. PMID: 4841755

15 Antle, M. C., & Silver, R. (2015). Circadian Insights into Motivated Behavior. *Curr Top Behav Neurosci*. doi:10.1007/7854_2015_384.

16 Morgado, E., Portilla, C., & Silver, R. (2015). Relevance of the network organization in SCN clock function. In R. Aguilar (Ed.), *Mechanisms of Circadian Systems in Animals and Their Clinical Relevance* (pp. 149-175): Springer.

17 Colwell, C. S., Witkovsky, P., & R., S. (2015). The suprachiasmatic nucleus (SCN): Critical points. In C. S. Colwell (Ed.), *Circadian Medicine* (pp. 37-55): Wiley Blackwell.

18 Keith, D. R., Hart, C. L., McNeil, M. P., Silver, R., & Goodwin, R. D. (2015). Frequent marijuana use, binge drinking and mental health problems among undergraduates. *Am J Addict, 24*(6), 499-506. doi:10.1111/ajad.12201. PMID: 4551615

19 Model, Z., Butler, M. P., LeSauter, J., & Silver, R. (2015). Suprachiasmatic nucleus as the site of androgen action on circadian rhythms. *Horm Behav, 73*, 1-7. doi:10.1016/j.yhbeh.2015.05.007. PMID: 4546904

20 Bailey, M. R., et al. (2015). A novel strategy for dissecting goal-directed action and arousal components of motivated behavior with a progressive hold-down task. *Behavioral Neuroscie*nce, 129(3), 269-280. doi:10.1037/bne0000060. PMID: 26030428

21 Bailey, M., & Silver, R. (2014). Sex differences in circadian timing systems: implications for disease. *Front Neuroendocrinol, 35*(1), 111-139. doi:10.1016/j.yfrne.2013.11.003. PMID: 4041593

22 Pauls, S., Foley, N. C., Foley, D. K., LeSauter, J., Hastings, M. H., Maywood, E. S., & Silver, R. (2014). Differential contributions of intra-cellular and inter-cellular mechanisms to the spatial and temporal architecture of the suprachiasmatic nucleus circadian circuitry in wild-type, cryptochrome-null and vasoactive intestinal peptide receptor 2-null mutant mice. *Eur J Neurosci, 40*(3), 2528-2540. doi:10.1111/ejn.12631. PMID: 4159586

23 Silver, R., & Kriegsfeld, L. J. (2014). Circadian rhythms have broad implications for understanding brain and behavior. *Eur J Neurosci, 39*(11), 1866-1880. doi:10.1111/ejn.12593. PMID: 4385795

24 Knolhoff, A. M., Nautiyal, K. M., Nemes, P., Kalachikov, S., Morozova, I., Silver, R., & Sweedler, J. V. (2013). Combining small-volume metabolomic and transcriptomic approaches for assessing brain chemistry. *Anal Chem, 85*(6), 3136-3143. doi:10.1021/ac3032959. PMID: 3605826

25 Ren, H., Plum-Morschel, L., Gutierrez-Juarez, R., Lu, T. Y., Kim-Muller, J. Y., Heinrich, G., Accili, D. (2013). Blunted refeeding response and increased locomotor activity in mice lacking FoxO1 in synapsin-Cre-expressing neurons. *Diabetes, 62*(10), 3373-3383. doi:10.2337/db13-0597. PMID: 3781468

26 Silver, R., & Curley, J. P. (2013). Mast cells on the mind: new insights and opportunities. *Trends Neurosci, 36*(9), 513-521. doi:10.1016/j.tins.2013.06.001.

27 Keith, D. R., Hart, C. L., Robotham, M., Tariq, M., LeSauter, J., & Silver, R. (2013). Time of day influences the voluntary intake and behavioral response to methamphetamine and food reward. *Pharmacol Biochem Behav, 110*, 117-126. doi:10.1016/j.pbb.2013.05.011. PMID: 4459644

28 Silver, R., & Witkovsky, P. (2012). Phase waves in the suprachiasmatic nucleus (commentary on Hong et al.). *Eur J Neurosci, 35*(9), 1416. doi:10.1111/j.1460-9568.2012.08115.x.

29 Butler, M. P., Karatsoreos, I. N., LeSauter, J., & Silver, R. (2012). Dose-dependent effects of androgens on the circadian timing system and its response to light. *Endocrinology, 153*(5), 2344-2352. doi:10.1210/en.2011-1842. PMID: 3339642

30 Butler, M. P., Rainbow, M. N., Rodriguez, E., Lyon, S. M., & Silver, R. (2012). Twelve-hour days in the brain and behavior of split hamsters. *Eur J Neurosci, 36*(4), 2556-2566. doi:10.1111/j.1460-9568.2012.08166.x. PMID: 4014115

31 Nautiyal, K. M., Dailey, C. A., Jahn, J. L., Rodriquez, E., Son, N. H., Sweedler, J. V., & Silver, R. (2012). Serotonin of mast cell origin contributes to hippocampal function. *Eur J Neurosci, 36*(3), 2347-2359. doi:10.1111/j.1460-9568.2012.08138.x. PMID: 3721752

32 LeSauter, J., Lambert, C. M., Robotham, M. R., Model, Z., Silver, R., & Weaver, D. R. (2012). Antibodies for assessing circadian clock proteins in the rodent suprachiasmatic nucleus. *PLoS One, 7*(4), e35938. doi:10.1371/journal.pone.0035938. PMID: 3338757

33 Silver, R., & Rainbow, M. (2012). The suprachiasmatic nucleus and the circadian timekeeping system of the body. In D. W. Pfaff (Ed.), *Neuroscience in the 21st Century: From Basic to Clinical*: Springer.

34 Butler, M. P., & Silver, R. (2011). Divergent photic thresholds in the non-image-forming visual system: entrainment, masking and pupillary light reflex. *Proc Biol Sci, 278*(1706), 745-750. doi:10.1098/rspb.2010.1509. PMID: 3030845

35 Karatsoreos, I. N., Butler, M. P., LeSauter, J., & Silver, R. (2011). Androgens modulate structure and function of the suprachiasmatic nucleus brain clock. *Endocrinology, 152*(5), 1970-1978. doi:10.1210/en.2010-1398. PMID: 3075936

36 LeSauter, J., Silver, R., Cloues, R., & Witkovsky, P. (2011). Light exposure induces short- and long-term changes in the excitability of retinorecipient neurons in suprachiasmatic nucleus. *J Neurophysiol, 106*(2), 576-588. doi:10.1152/jn.00060.2011. PMID: 3154817

37 Silver, R., Balsam, P. D., Butler, M. P., & LeSauter, J. (2011). Food anticipation depends on oscillators and memories in both body and brain. *Physiol Behav, 104*(4), 562-571. doi:10.1016/j.physbeh.2011.05.034. PMID: 3378387

38 Butler MP, Lesauter J, Sichel AN, Silver R. Targeted mutation of the calbindin D(28k) gene selectively alters nonvisual photosensitivity. Eur J Neurosci. 2011;33:2299-307.

39 Foley, N. C., Tong, T. Y., Foley, D., LeSauter, J., Welsh, D. K., & Silver, R. (2011). Characterization of orderly spatiotemporal patterns of clock gene activation in mammalian suprachiasmatic nucleus. *Eur J Neurosci, 33*(10), 1851-1865. doi:10.1111/j.1460-9568.2011.07682.x. PMID: 3423955

40 Oakeshott, S., Balci, F., Filippov, I., Murphy, C., Port, R., Connor, D., Brunner, D. (2011). Circadian Abnormalities in Motor Activity in a BAC Transgenic Mouse Model of Huntington's Disease. *PLoS Curr, 3*, RRN1225. doi:10.1371/currents.RRN1225. PMID: 3072044

41 Nautiyal, K. M., Liu, C., Dong, X., & Silver, R. (2011). Blood-borne donor mast cell precursors migrate to mast cell-rich brain regions in the adult mouse. *J Neuroimmunol, 240-241*, 142-146. doi:10.1016/j.jneuroim.2011.09.003. PMID: 3230722

42 Mong, J. A., Baker, F. C., Mahoney, M. M., Paul, K. N., Schwartz, M. D., Semba, K., & Silver, R. (2011). Sleep, rhythms, and the endocrine brain: influence of sex and gonadal hormones. *J Neurosci, 31*(45), 16107-16116. doi:10.1523/JNEUROSCI.4175-11.2011. PMID: 3249406

43 Yan, L., Silver, R., & Gorman, M. (2010). Reorganization of suprachiasmatic nucleus networks under 24-h LDLD conditions. *J Biol Rhythms, 25*(1), 19-27. doi:10.1177/0748730409352054. PMID: 3275439

44 Drouyer, E., LeSauter, J., Hernandez, A. L., & Silver, R. (2010). Specializations of gastrin-releasing peptide cells of the mouse suprachiasmatic nucleus. *J Comp Neurol, 518*(8), 1249-1263. doi:10.1002/cne.22272. PMID: 2880332

45 Mason, A. O., Duffy, S., Zhao, S., Ubuka, T., Bentley, G. E., Tsutsui, K., Kriegsfeld, L. J. (2010). Photoperiod and reproductive condition are associated with changes in RFamide-related peptide (RFRP) expression in Syrian hamsters (Mesocricetus auratus). *J Biol Rhythms, 25*(3), 176-185. doi:10.1177/0748730410368821. PMID: 3266107

46 Ruggiero, L., & Silver, R. (2010). Circadian and Circannual Rhythms and Hormones. In J. C. Wingfield (Ed.), *Encyclopedia of Animal Behavior* (pp. 274-281): Elsevier.

47 Silver, R., & Balsam, P. (2010). Oscillators entrained by food and the emergence of anticipatory timing behaviors. *Sleep Biol Rhythms, 8*(2), 120-136. doi:10.1111/j.1479-8425.2010.00438.x. PMID: 3085253

48 Silver, R., & Piggins, H. (2009). Suprachiasmatic nucleus *Encyclopedia of Neuroscience* (3907-3909 ed.).

49 Piggins, H., & Silver, R. (2009). Gating *Encyclopedia of Neuroscience* (pp. 1672-1674).

50 Butler, M., Kriegsfeld, L., & Silver, R. (2009). Circadian regulation of endocrine functions. In D. W. Pfaff, A. P. Arnold, A. M. Etgen, S. E. Fahrbach, & R. R.T. (Eds.), *Hormones, Brain and Behavior* (2nd ed., pp. 473-505). San Diego: Academic Press.

51 Nautiyal, K. M., McKellar, H., Silverman, A. J., & Silver, R. (2009). Mast cells are necessary for the hypothermic response to LPS-induced sepsis. *Am J Physiol Regul Integr Comp Physiol, 296*(3), R595-602. doi:10.1152/ajpregu.90888.2008. PMID: 2665855

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News and Press Items

Welsh, David K. “Gate Cells See the Light.” Journal of Biological Rhythms 22 (2007): 26-28.

"A Timely Reminder." Nature Structural & Molecular Biology 14 (2007): 569.

Sanders, Robert. “Brain hormone puts brakes on reproduction.” UC Berkeley Press Release. Feb 2006

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Nicholson, C. “Signals that go with the flow.” TINS 22 (1999): 143-145.

Lamberg, Lynne. "Researchers Dissect the Tick and Tock of the Human Body’s Master Clock." JAMA 278 (1997): 1049-1051.

Movies and Television Appearances

2013: Sciencia en todos lados: Interview on Spanish speaking television on sleep.
1999: Research on Circadian rhythms was filmed for a BBC production for the Discovery Series show on Circadian rhythms; air dates Jan 1999 (Britain), July 1999 (USA) (Film)
1999: Played myself in the Comedy Central Show on the bioethics of animating mannequins; with Vance Degeneres and Jon Stewart (Television)
1997: Played myself in the Comedy Central Show on Circadian rhythms; with Whitney Brown and Jon Stewart (Television)
1988: Research on circadian rhythms in doves and in hamsters, a sequence filmed for: Rhythms and Moods, In: "The Mind" (Producer, Martin Freeth) BBC. (Produced by BBC) (Film)
1985: The Reproductive Behavior of the Ring Dove. A 20 minute classroom film. Funded by NSF 1981 (Film) (Won 2nd prize at the Animal Behavior Society)
1980: The Dove Story: One hour film produced for Mike Mansfield, Executive Producer at NOVA, funded by NSF and NOVA (Film)

Invited Addresses and Symposia

2019 Fordham University, NY
April Soughou, China

2018 May SRBR
June Portland, OR
June Kassell, Germany
June Munich, Germany

Sept. RgPep Acapulco, Mexico
Sept. UNAM Mexico City, Mexico

2017 Invited Speaker, Jaseong Hospital, Seoul, South Korea
Plenary Lecture, European Brain Research Society Amsterdam
Plenary Speaker, American University Symposium on Sex Differences

2016 May Quebec City, Canada
May Meet the faculty panel, Sex differences research promise round table, Transitioning from Post-doc to faculty mentoring, and Poster with Malini Riddle (BC 2017) & Erica Mezias (BC 2016), Tampa, Florida

2015 Feb. Torino, Italy
March Columbia Psychology Department
June SBN Asilomar, Pacific Grove, CA
Sept. Sapporo, Japan
Dec. NYC Weill Cornell Psychiatry Department-Sleep division

2014 April Pullman
May SRBR Mentoring Post-Doctoral Students
May Society for Research in Biological Rhythms
June Human Frontiers Program Meeting
Oct. Jalapa, Mexico
Nov. Lecture series at Fukoka, Japan, School of Pharmacology
Nov. International Society for Chronobiology, Japan
Nov. SFN Career Development Topics

2013 Jan. Teacher's College, Program in Neuroscience
March University of Pennsylvania Center for Sleep Research
Oct. Winthrop Hospital
Nov. History of Neuroscience presentation with Michael Young and Dustin T.
Nov. Career Development Topics: A Mentoring and Networking Event at the San Diego Convention Center
Nov. Society for Neuroscience European Journal of Science Board Meeting
Nov. Society for Neuroscience Health and Behavior Board Meeting

2012 Jan. "Building a brain clock from genes to cells to tissue" Doctoral Program in Neurobiology and Behavior at Columbia University, Department of Neuroscience
April "Brain mast cells and serotonin" Howard University, Washington, D.C.
June "Functions and failures of the brain's circadian clock: From cell division to jet lag" Seoul, South Korea
June Human Frontiers Science Program: Chair of Datablitz session, Daegu, South Korea
June "Sex differences in brain and behavior: Milestones and Millstones" Invited Lecturer at Society for Behavioral Neuroendocrinology, Madison, WI
Sept. "Role of external and internal signal integration in oscillation of the SCN" Meeting of Japanese Society for Chronobiology, Sapporo, Japan
Sept. "Phase waves of gene expression in SCN: a tale of clusters, coupling and boundaries" Japanese Neuroscience Society Meeting, Nagoya, Japan

Nov. "Research on Violence Against Children: Recent Findings from Neuroscience, the Social Sciences and Public Health" Social Justice for Children: To End Child Abuse and Violence Against Children, New York, NY

2011 March "Understanding Brain's Cells and Circuits of the Brain's Circadian Clock" Georgia State University, Atlanta, GA
April "Neurons and Networks of the Brain's Circadian Clock" Duquesne University, Pittsburgh, PA
May "Circuitry of the SCN: Impact of Circadian Clock Functions on Health" World Conference in Chronobiology, Cholula, Puebla, Mexico
May "Neurons and Networks of the Brain's Circadian Clock" 3WCC, Puebla Mexico
May Latin American Symposium on Chronobiology
June "Integration and Synthesis of Gordon Research Conference" Session Chair with Dr. Gene Block
June "Mast Cells in the Brain" UIUC Neuroproteomics Center on Cell-Cell Signaling, University of Illinois, Champaign-Urbana, IL
June Current status of SCN architecture, University of Illinois, Department of Cell and Developmental Biology, Department of Molecular and Integrative Physiology
June Human Frontiers Science Program: Chair of Datablitz session, Montreal Canada
June Society for Behavioral Neuroendocrinology and Pre-Meeting Workshop, Juriquilla Campus of the Universidad Nacional Autonoma de Mexico (UNAM), Queretaro City, Mexico
Aug. Panelist for "Sex specific reporting policies: Implications for research." IOM workshop Sex specific reporting of scientific research, Washington, D.C.
Nov. Touchstone: The "Lateral Hypothalamic Syndrome" in the Study of Motivated Behavior Fetschrift for Dr Phillip Teitelbaum
Nov. "SCN control circadian rhythmicity in brain of split hamsters" Society for Neuroscience 429.05
Nov. "Androgen Regulation of Circadian Timing: Mechanisms and Consequences" Mini-Symposium: Sleep, Rhythms, and the Endocrine Brain: Influence of Sex and Gonadal Hormones, Society for Neuroscience, Washington, D.C.

2010 Jan. Santa Fe Institute
March HFSP Workshop, Strasbourg, France
March University of Vienna
March "When does sex matter for stakeholders in FDA, Pharma, Journals, Funding agencies, citizen advocates-private foundations" National Academy of Science Meeting, San Francisco, CA
April Concordia University, Montreal
April NIDDK Workshop, Washington, D.C.
June Mexico
June SRBR
July SSIB
Aug. Leiden, Netherlands
Sept. Tokyo, Japan
Nov. India

2009 London, Ontario
European Rhythms Meeting, Strasbourg, France
Tokyo, Japan
Sapporo, Japan

Department of Neuroscience, CNRS, Strasbourg, France
Winter Conference on Brain Research
Department of Anatomy, University of Western Ontario

2008 Beijing, China
Kumming, China
HSCU Medical School, LSU, New Orleans, LA

2007 Rockefeller University
"Neurotech for Neuroscience: Unifying Concepts, Organizing Principles, and Emerging Tools" Co-Chair with Dr. Kathie Olsen, Society for Neuroscience Symposium
President's Science Advisory Council
Latin American Physiology 50TH year Celebration Conference, Puebla, Mexico
Clocks Symposium, Cold Spring Harbor, NY
Arousal Course: "Cells and Circuits of the Suprachiasmatic Nucleus, Circadian Timing in Brain Circuits Workshop," Cold Spring Harbor, NY
Gatsby Institute Conference on Quantitative Biology, London
Gordon Conference on Chronobiology

2005 Lehigh University
University of Massachusetts
University of Veracruz at Jalapa, Mexico
Mast Cells in Health and Disease Meeting, Department of Neuroscience, Eilat, Israel
Department of Neuroscience, University of Chicago, IL
Rockefeller University
University of Halifax
Gordon Conference on Chronobiology, RI
University of Puerto Rico
Presentation of Beach Award to Lance Kriegsfeld, Society for Neuroscience Meeting, University of Toronto

2004 Speaker (with Nawshin Hoque and Jennifer Nunez) at President's Advisory Council, Barnard College, NY
Invited keynote address for Presidential Symposium, Eastern Psychological Association, Washington, D.C.
Co-Chair and Speaker, Japanese Anatomy Meeting Kyoto, Japan
Invited Address on Brain Mast Cells, Keystone Conference, Taos, NM
Invited Symposium Participant, Winter Brain Research Conference
Keynote Speaker at Presidential Lecture, Society for Research in Biological Rhythms, Whistler, Vancouver
Keynote Speaker on Circadian Control of Hormone Secretion, Society for Behavioral Neuroendocrinology, Lisbon, Portugal
Biology Department, Smith College, Northampton, MA

2003 Organizer and Chair of NIMH workshop, NIH meeting on Circadian Rhythms, Sapporo, Japan
University of Minnesota
Vanderbilt University, Nashville, TN
Indiana University, Bloomington, IN
University of Hawaii, Honolulu, HI

2002 Jan. Center for Biological Timing, University of Virginia
Jan. NIMH: "The Effects of Psychological Variables on the Progression of HIV Disease"
Feb. University of Michigan
March University of Texas at College Station
June Université de Tours École Doctorale, Tours, France
June Biology Department, New York University
July Neuroscience Program, University of Alaska in Fairbanks
Sept. University of North Carolina at Chapel Hill
Sept. Andechs Germany Summer School Lecture
Oct. Beijing University, Beijing, China
Nov. Japanese Society for Chronobiology, Nagoya, Japan
Nov. University of Sapporo, Sapporo, Japan

2001 March Keystone Symposium on Biological Clocks
June American Academy of Sleep Medicine, Chicago, IL
June Society for Behavioral Neuroendocrinology
July Fairbanks First Annual Neuroscience Program, University of Alaska
Sept. Clock Symposium and Molecular Clock Symposium, Japanese Neuroscience Meeting

2000 University of Fairbanks, AK
Health Sciences Center, Oregon State Health Sciences University, OR
Society for Research in Biological Rhythms, Jacksonville, FL
Department of Neonatology, Columbia Health Sciences, NY
Dartmouth Symposium for the Life Sciences, Dartmouth University, NH

1999 Jan. Annual National Institute on the Teaching of Psychology
Feb. Williams College
March Hamilton College
April Workshop on steroid hormones and brain function, Breckenridge, CO
April Gordon Research Conference, Barga, Italy
June Institut National pour Recherche Agricole, Nouzilly, France
Sept. Department of Anatomy and Cell Biology, CPMC, University of Delaware
Oct. Sleep and Vigilance at the American Physiological Society, Fort Lauderdale, FL
Dec. Biology Department, Puerto Rico

1998 Jan. University of Pennsylvania
Feb. University of Houston
March New York University
March American Society for Neurochemistry, Denver, CO
May NYU Post-Graduate-Medical School and New York Neuropsychology Group
May Society for Research in Biological Rhythms
June Society for Behavioral Endocrinology, Atlanta, GA
June INRA, Nouzilly, France
July University of Vera Cruz, Vera Cruz, Mexico
Nov. Biology Department, City College
Nov. Workshop Organizer, “The CSF as a communication pathway of the brain” Society for Neuroscience Meeting
Dec. Department of Psychiatry, New York State Psychiatric Institute

1997 Feb. Department of Neurosciences, Concordia University
March NSF-NIH panel on immune-neuroendocrine interactions
March Biological Rhythms: Physiological and Molecular Mechanisms, NSF/CNRH Sponsored Conference, Lyons, France
April University of Maryland, Baltimore
April Neuroscience Seminar Series, University of Massachusetts
April Department of Medicine, Brookhaven National Laboratory
May Georgia State University, Atlanta, GA
Aug. Gordon Conference on Chronobiology
June Distinguished Visiting Speaker, Laboratory of Neuroendocrinology, Brain Research Institute, UCLA, CA
Sept. International Society for Chronobiology, Paris, France

1996 Feb. American Association for the Advancement of Science, Baltimore Speaker and Co-chair for symposium: The Mind's Clocks-Circadian and Interval Timing Mechanisms, Baltimore
May Human Frontiers Conference: Photic control of Seasonal Cyclicity - Lyons, France
June Society for Research on Biological Rhythms
Aug. International Conference on the study of Hormones, Brain and Behavior, Turin, Italy
Sept. Department of Anatomy and Cell Biology, Columbia College of Physicians and Surgeons
Nov. School of Medicine, University of Cincinnati, Ohio

1995 Symposium on role of the SCN in Circadian Rhythmicity, Sapporo Symposium on Biological Rhythms, Sapporo, Japan
Symposium on Biological Rhythms, Toya Conference, Toya National Park, Japan
Discussant on GnRH neurons Panel, Conference on reproductive behavior, Boston, MA
Rapporteur on Cellular Basis of Biological Clocks, American Physiological Society Symposium, Hanover, NH
Keystone Symposium on encapsulation of biological tissue for transplantation, Frisco, CO
Invited address on brain-immune interactions, American Psychological Association, Hunter College, NY

1994 Organizer and speaker, NIMH workshop on Mast Cells, Washington, D.C.
Plenary Speaker, International Ornithological Union, Vienna, Austria
Participant in workshop on photoreception and Session Chair of "Ontogeny of the SCN", Society for Research on Biological Rhythms, FL
Invited symposium speaker, Conference on Reproductive Behavior
Chair of Social Event for Behavioral Neuroendocrinology, Society for Neurosciences
Biology Department, Brooklyn College
Biology Department, Columbia University
University of Tlaxcala, Mexico

1993 Gordon Conference on Biological Timing, Vermont
Conference on Hormones, Brain, and Behavior, Tours, France
World Conference of Sleep Research, Hawaii
Neuroscience Program, Johns Hopkins University
Neuroscience Program & Biology Department, University of Washington, Seattle

Department of Anatomy and Cell Biology, Columbia University School of Medicine
Neurosciences Program, Princeton University

1992 Conference on Circadian Rhythms - Fondation pour L'Etude du Systeme Nerveux Central et Peripherique
Neurosciences Department, University of Connecticut
Biology Department, Wellesley College
Biology Department, Cornell University
Neurosciences Program, Albert Einstein School of Medicine
Michigan State University
Vth International Avian Endocrinology Conference, Edinburgh
NSF Science and Technology Center for the Study of Biological Timing, University of Virginia at Charlottesville

1991 Visiting lecturer, Guadalajara, Mexico
Gordon Research Conference, Irsee, Germany
Session Chairman and Speaker, 20th International Conference on Chronobiology, Tel Aviv, Israel
INRA, Laboratoire de Physiologie Sensorielle, Jouy-en-Josas, France
Session Chairman and Organizer, 100th Anniversary celebration of the University of Goteborg, Goteborg, Sweden
Visiting Professor, University of Tlaxcala, Tlaxcala, Mexico
European Winter Brain Conference on Endocrine and Peptidergic Control of Sexual Behavior, Crans-Montana, Switzerland
Biobehavioral Research Center, Bloomington, Indiana
Mount Sinai School of Medicine, Department of Medicine
Biology Department, Columbia University
Rockefeller University Field Research Center

1990 Session Chair and Speaker, Developmental Psychobiology Meeting, Puerto Rico
Society Biological Rhythms, Florida
New York State Department of Psychiatry
Psychology Department, Binghamton, NY.
Society for Research in Biological Rhythms, Fla.
Biology Department, State University of New York at Albany
Neurosciences Program, University of Illinois at Champaign
Psychology Department, Concordia University
Biology Department, Neuroscience Colloquium, City University of New York
Department of Biology, Rutgers University, New Brunswick