

CURRICULUM VITAE

NAME: John H. Byrne
PRESENT TITLE: Director, Neuroscience Research Center
The University of Texas Health Science Center at Houston
Professor and June and Virgil Waggoner Chair
Department of Neurobiology and Anatomy
McGovern Medical School
P. O. Box 20708, Houston, Texas 77225
713-500-5602

CITIZENSHIP: U.S.

UNDERGRADUATE EDUCATION:

1963-1968 New York University Tandon School of Engineering
B.S., 1968 (Electrical Engineering)

GRADUATE EDUCATION:

1968-1970 New York University Tandon School of Engineering
M.S., 1970 (Bioengineering)
Advisor: Sid Deutsch

1970-1973 New York University Tandon School of Engineering
Ph.D., 1973 (Bioengineering)
Advisor: Eric Kandel

POSTGRADUATE TRAINING:

6/73-9/74 Research Fellow, Department of Neurobiology and Behavior
Public Health Research Institute, New York
Advisor: Eric Kandel

8/73-6/75 Research Fellow, Department of Psychiatry
College of Physicians & Surgeons of Columbia University, New York, and
Department of Behavioral Physiology, New York State Psychiatric Institute,
New York
Advisor: Eric Kandel

6/75-12/75 Research Fellow, Division of Neurobiology and Behavior
Department of Physiology, College of Physicians & Surgeons of Columbia
University, New York
Advisor: Eric Kandel

ACADEMIC APPOINTMENTS:

1976-1981	Assistant Professor, Department of Physiology, School of Medicine, University of Pittsburgh
1981-1982	Associate Professor, Department of Physiology, School of Medicine, University of Pittsburgh
1981-1982	Vice Chairman (Neuroscience), Department of Physiology, School of Medicine, University of Pittsburgh
1982-1985	Associate Professor, Department of Physiology and Cell Biology, McGovern Medical School (formerly The University of Texas Medical School at Houston)
1982-present	Member, Graduate School of Biomedical Sciences, The University of Texas Health Science Center at Houston
1985-1987	Professor, Department of Physiology and Cell Biology, McGovern Medical School
1987-present	Professor, Department of Neurobiology and Anatomy, McGovern Medical School
1987-2018	Chairman, Department of Neurobiology and Anatomy, McGovern Medical School
1992-present	Director, Neuroscience Research Center, The University of Texas Health Science Center at Houston
1994-present	Adjunct Professor, Department of Psychology, Rice University, Houston, Texas
1994-2021	Adjunct Professor, Department of Electrical and Computer Engineering, Rice University, Houston, Texas
2001-2003	June and Virgil Waggoner Distinguished Professor, McGovern Medical School
2003-present	June and Virgil Waggoner Chair, McGovern Medical School
2004-2011	Assistant Dean for Research, McGovern Medical School
2005-2018	Director, Office of Postdoctoral Affairs, The University of Texas Health Science Center at Houston
2008-2021	Adjunct Professor, Department of Biomedical Engineering, The University of Texas at Austin
2011-present	Associate Dean for Research, McGovern Medical School

PROFESSIONAL ORGANIZATIONS:

1973-present	American Association for the Advancement of Science (Chair, Section on Neuroscience, 2008-2009)
1973-present	Sigma Xi
1974-present	Society for Neuroscience (Treasurer, 1992-1993)
1976-present	American Physiological Society
1976-present	Biophysical Society
1987-2011	Association of Anatomy, Cell Biology, and Neurobiology Chairpersons (Councilor, 2006-2008)
1992-2016	International Neural Network Society
1994-present	Dana Alliance for Brain Initiatives
1995-2016	International Society for Neuroethology
1995-2009	Society for Research on Biological Rhythms
2003-2018	Association of Medical School Neuroscience Department Chairpersons (President, 2008, 2009)
2009-present	Molecular and Cellular Cognition Society
2017-present	Alpha Omega Alpha Honor Society

HONORS AND AWARDS:

1969	NIH Predoctoral Fellowship
1973	NIH Postdoctoral Traineeship
1975	NIH Postdoctoral Fellowship
1978	NIH Research Career Development Award
1986	NIMH Research Scientist Development Award (Level II)
1986	Jacob Javits Neuroscience Investigator Award
1987	Dean's Lecture, McGovern Medical School
1992	Fellow, Japan Society for the Promotion of Science
1992	Special Lecture, 35 th Annual Meeting of the Japanese Neurochemical Society
1993	NIMH Research Scientist Award
1993	Outstanding Faculty Award, Graduate School of Biomedical Sciences, The University of Texas Health Science Center at Houston
1998	President's Scholar Award for Research, The University of Texas Health Science Center at Houston
2001	June and Virgil Waggoner Distinguished Professorship, McGovern Medical School (formerly The University of Texas Medical School at Houston)
2001	Fellow, American Association for the Advancement of Science
2003	June and Virgil Waggoner Chair, McGovern Medical School
2004	Hebb Award, International Neural Network Society
2006	President's Award for Mentoring Women, The University of Texas Health Science Center at Houston
2007	Award for Education in Neuroscience, Society for Neuroscience
2012	Innovations in Health Science Education Award, The University of Texas System
2014	President's Scholar Award for Teaching, The University of Texas Health Science Center at Houston
2017	Member, Alpha Omega Alpha Honor Society

2017 The University of Texas System Regents' Outstanding Teaching Award
2021 Chair, NIH Neurobiology of Learning, Memory and Decision
Neuroscience

EDITORIAL POSITIONS:

Editorial Board: *Journal of Neurobiology*, 1985-1986
Editorial Board: *Journal of Neurophysiology*, 1986-1992
Editorial Board: *Journal of Neuroscience*, 1989-1994
Editorial Board: *The Encyclopedia of Learning and Memory*, 1992
Editorial Board: *Learning and Memory*, 1993-present
Assistant Editor: *News in Physiological Sciences*, 1994-2003
Editorial Board: *Behavioral Neuroscience*, 1994-2001
Editor-In-Chief: *Learning and Memory*, 1996-present
Editorial Board: *Journal of Neural Engineering*, 2003-2006
Editorial Board: *Physiological Reviews*, 2004-2010
Guest Editor: *Current Opinion in Neurobiology*, 2006
Editor-In-Chief: *Comprehensive Learning and Memory*, 2006
Scientific Advisor: Dana Foundation's Brain Connections, 2010-present
Editorial Board: Oxford University Press, *Oxford Handbooks Online*, 2014-present
Senior Editor *Oxford Handbook of Invertebrate Neurobiology*, 2015-2019
Editor-In-Chief: *Learning and Memory: A Comprehensive Reference*, Second Edition, Elsevier, 2015-2017
Editorial Board: *Oxford Research Encyclopedia of Neuroscience*, 2021-present

SERVICE ON NATIONAL AND INTERNATIONAL GRANT REVIEW PANELS, STUDY SECTIONS, AND COMMITTEES:

Ad hoc member Neurology B Study Section, 1983, 1992
Member, National Science Foundation Advisory Panel for Integrative Neural Systems, 1983-1986
Member, Presidential Nominating Committee of the Society for Neuroscience, 1989
Member, Public Information Committee of the Society for Neuroscience, 1990-1993
Member, Board of Visitors for Review of Division of Cognitive and Neural Sciences, Office of Naval Research, 1991
Member, Evaluation Panel in Biomedical Sciences for the National Science Foundation Minority Graduate Fellowship Program, 1991-1993
Treasurer-Elect, Society for Neuroscience, 1991-1992
Treasurer, Society for Neuroscience, 1992-1993
Chairman, Finance Committee, Society for Neuroscience, 1992-1993
Member, Program Committee, 1993 World Congress on Neural Networks
Member, Special NIH Study Section on Neurobiology of Cognition and Behavior, 1993
Member, Biology II Panel for the International Science Foundation, 1993, 1994
Member, Selection Committee for the Society for Neuroscience Young Investigator Award, 1994-1997
Member, Advisory Committee, John Sealy Memorial Endowment Fund for Biomedical Research, 1994-1998
Member, Nominating Committee for officers for the AAAS Section of Neuroscience, 1995
Member of the Outside Review Committee, Columbia University NIMH Program Project, 1995

Member of the National Institute of Neurological Disorders and Stroke Special Review Committee on Conferences, 1995

Member, Neuroscience Advisory Committee for the Cold Spring Harbor Laboratory, 1995

Member-at-Large, Section Committee of the Section on Neuroscience, American Association for the Advancement of Science, 1996-2001

Member, Special NIH Study Section on Genetics, 1997

Member, Scientific and Academic Advisory Committee, Weizmann Institute of Science, 1997, 2006

Member, Site Visit Team, Laboratory of Developmental Neurobiology, National Institute of Child Health and Development, 1998

Member, Howard Hughes Predoctoral Fellowships in Biological Sciences Evaluation Panel, 1999, 2000

Member, Steering Committee, Houston Society for Engineering in Medicine and Biology, 1999-2004

Member, Committee of Visitors for the Neuroscience Cluster, National Science Foundation, 1999

Member, Special Emphasis Review Panel for Training Grants, National Institute of Mental Health, 1999

Member, Special Emphasis Review Panel, Neuroinformatics Initiative, National Institute of Mental Health, 2000

Member, Molecular, Developmental and Cellular Neuroscience-7 Review Panel, National Institutes of Health, 2001

Chairman, External Review Committee for the Neuronal Circuit Mechanisms Research Group, RIKEN Brain Research Institute, 2002, 2007

Member, Site Visit Team, Laboratory of Cellular and Synaptic Neurophysiology, National Institute of Child Health and Human Development, 2002

Member, Molecular, Developmental and Cellular Neuroscience-5 Review Panel, National Institutes of Health, 2003

Member, Finance Committee, Society for Neuroscience, 2003-2008

Member, Review Committee, Dart Scholars Program in Learning and Memory at Marine Biological Laboratory, 2004-2006

Councilor, Association of Anatomy, Cell Biology, and Neurobiology Chairpersons, 2006-2008

Member, Committee on Committees, Society for Neuroscience, 2006-2010

Member, Scientific and Academic Advisory Committee, Weizmann Institute of Science, 2006

Member, Special Emphasis NIH Review Panel, IFCN, 2007

Chair-Elect, Section on Neuroscience, American Association for the Advancement of Science, 2007

Chair, Section on Neuroscience, American Association for the Advancement of Science, 2008-2009

External Reviewer, Seymour Fisher Academic Excellence Award in Neuroscience at the University of Texas Medical Branch at Galveston, 2007-2017

Chairman, External Review Committee for the Neuronal Circuit Mechanisms Research Group, RIKEN Brain Research Institute, 2007

Chairman, Ralph W. Gerard Prize Selection Committee, Society for Neuroscience, 2007-2009

Member, Special Emphasis NIH Review Panel, ZNS1 SRB-M for K99 Awards, 2007

President, Association of Medical School Neuroscience Department Chairpersons, 2008, 2009

Member, External Review Panel, Okinawa Institute of Science and Technology, 2008

Member, Special Emphasis NIH Review Panel, ZRG1 IFCN, 2008

Chairman, Swartz Prize Selection Committee, Society for Neuroscience, 2009-2011

Member, Special Emphasis NIH Review Panel, ZRG1 IFCN-H, 2009
Member, External Review Panel, University of Massachusetts Medical School, Department of Neurobiology, 2009
Member, AAMC MR5 Behavioral and Social Sciences Working Group, 2010-2011
Member, AAMC Leadership Forum on Medical Education, 2010
Member, Molecular Neurogenetics Study Section, MNG, 2011
Society for Neuroscience Representative to the Section Committees of the American Association for the Advancement of Science, 2012-Present
Member, NIH Director's New Innovator Award Program Review Committee, 2012-2013
Temporary member, NIH Neurobiology of Learning and Memory Study Section, 2016-2017
Permanent Member, NIH Neurobiology of Learning, Memory and Decision Neuroscience Study Section, 2017-present
Member, Government and Public Affairs Committee, Society for Neuroscience, 2017-2021
Member, Special Emphasis NIH Review Panel, 08 ZRG1 IFCN-K (56) R, 2019
Member, Special Emphasis NIH Review Panel, 10 ZRG1 IFCN-K (55) R, 2019
Member, Special Emphasis NIH Review Panel, ZRG1 IFCN-K 07 S, 2021
Chair, NIH Study Section on Neurobiology of Learning, Memory and Decision Neuroscience, 2021-present

SERVICE ON MCGOVERN MEDICAL SCHOOL COMMITTEES:

Curriculum Committee, 1983-1986
Curriculum Committee, Chairman, 1985-1986
Interviewer for Admissions Committee, 1983-2003
Interviewer for M.D./Ph.D. Program, 1984-present
Faculty Senate, 1985-1987
Search Committee for Chair, Department of Internal Medicine, 1988
Search Committee for Chair, Department of Psychiatry and Behavioral Science, 1988
Research Committee, 1987-present
Research Committee, Chairman, 1989-1993, 1996-present
LCME Self-Study Committee on Resources for the Education Programs, Chairman, 1989
Search Committee for Director, Division of Neurosurgery, 1989-1990
Search Committee for Chair, Department of Pharmacology, Chairman, 1990
M.D./Ph.D. Program Committee, 1990-1993; 2008-2011
Total Quality Improvement/Research Steering Committee, 1992-1995
Member, Ad Hoc Committee for Faculty Incentive Plan, 1996
Dean's Strategic Advisory Group, 1997-1998
Graduate Student Education Committee, 1997-present
Dean's Budget and Compensation Committee, 1996-2003
Chair, Internal Consultant Committee for the Review of the Department of Neurology, 1998-1999
Indoor Air Quality Task Force, 1998-2002
Member, Cooper Lecture Committee, 1997-2008
LCME Self-Study Committee on Institutional Setting, 2002-2004
Search Committee for Commencement Speaker, 2004-2006
Search Committee for Chair, Department of Pediatrics, 2005
Search Committee for Chair, Department of Integrative Biology and Pharmacology, Chairman, 2005-2007

Search Committee for Project Excellence for the New Research Replacement Facility, 2006-2008
Search Committee for Chair, Department of Psychiatry and Behavioral Sciences, 2007-2009
Member, 3T MRI Center Executive Committee, 2007-2013
Member, Mischer Neuroscience Institute Research Committee, 2008-2011
Member, Area Concentrations Advisory Committee, 2009-present
Member, LCME Accreditation Self-Study Committee on Faculty, 2010-2012
Member, LCME Accreditation Self-Study Committee on Research Activity, 2011-2012
Member, LCME Accreditation Steering Committee, 2011-2012
Search Committee for Director, The Brown Foundation Institute of Molecular Medicine, Co-Chair, 2011-2012
Member, Scientific Review Board for the Bentsen Stroke Center, 2011-2014
Member, Search Committee for Chair, Department of Neurology, 2013-2015
Member, Scholarly Concentration Program Advisory Committee, 2017-
Member, LCME Accreditation Research Strategic Planning Committee, 2018-2020
Member, Medical Student Research Advisory Committee, 2020- present

SERVICE ON THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON COMMITTEES:

President's Committee for Neuroscience, 1984-1987
Scientific Council, 1988-1990
President's Neuroscience Planning Task Force, 1991
Health Science Center Task Force on Faculty Salary, 1991-1996
Planning Task Force for Consolidating Basic Sciences, 1993
Member, HSC Scientific Review Committee, 1994-1999
President's Task Force for the Graduate School of Biomedical Sciences, 1996-1997
Search Committee for Director, Institute of Molecular Medicine, 1998-1999
Member, Research Support Services Analysis Team, 1998-1999
Member, Committee for the Comprehensive Review of the Vice President, 1998-1999
Member, Committee for the Improvement of the Grant Pre-Award Process, 1998-1999
Project mentor, President's Academic Leadership Development Program, 1999-2009
Member, Capital Campaign Planning Group, 2000-2002
Member, Executive Committee for the Center for Computational Biomedicine, 2001-2005
Member, Biotechnology Group for Strategic Planning Committee, 2002
Member, Research Group for Strategic Planning Committee, 2002
Search Committee for Executive Vice President for Research, 2002
Search Committee for Dean of the Dental Branch, 2002-2004
Member, Research Council, 2003-present
Member, HAM-TMC Library Advisory Group, 2004-2010
Member, Faculty Research Advisory Panel, 2004-2008
Member, IT Governance Council, 2004-2010
Search Committee for Director of the UT Center for Neurodegenerative Diseases, 2004-2005
Search Committee for Chair, Department of Biomedical Engineering, 2006-2007
Member, Selection Committee for Presidential Scholar Award, 2006-present
Member, Biomedical Engineering Curriculum Committee, 2006-2011
Member, UTHHealth Biomedical Engineering Space and Operation Committee, 2007-2010
Chair, Center for Clinical and Translational Services Neuroscience Focus Group, 2007- 2011

Member, UTHealth SACS Institutional Effective Committee, 2009-2010
Member, UTHealth Research Space Committee, 2009-2011
Member, Search Committee for Dean of the Graduate School of Biomedical Sciences, 2010-2012

SERVICE ON THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON GRADUATE SCHOOL COMMITTEES:

Admissions Committee, 1984-1987
Member, Biomedical Engineering Graduate Studies Committee, University of Texas at Austin, 2001-2021

SERVICE ON THE UNIVERSITY OF TEXAS SYSTEM COMMITTEES:

Member, The University of Texas System Neuroscience Council, 2013-present
Member, Program Committee, and Session Chair, The University of Texas System Texas FreshAIR Conference, 2016

SERVICE ON RICE UNIVERSITY COMMITTEES:

Member, Neurosciences Steering Committee, 2012-2016
Member, Neuroscience/Neuro-X Steering Committee, 2016-present

SPONSORSHIP OF CANDIDATES FOR POSTGRADUATE DEGREE:

Susan Tritt	1977-1982
John Walsh	1980-1985
Kenneth Scholz	1985-1988
Dean Buonomano	1987-1992
Jason Goldsmith	1988-1992
Yanli Xu	1990-1992
Jennifer Raymond	1988-1993
Fidelma Nazif	1988-1993
Shuzo Sugita	1990-1994
Susan Cushman	1992-1995
Fan Zhang	1992-1997
Hilde Lechner	1995-1999
Jeannie Chin	1996-2001
Bill Amini	2001-2004
Fred Lorenzetti	1998-2005
Fredy Reyes	2001-2006
Diasinou Fioravante	1999-2006
Evangelos Antzoulatos	2000-2006
Shreyansh Shah	2006-2009
Anne Netek	2005-2011
Curtis Neveu	2009-2017
Brittany Coughlin	2010-2017
Renan Costa	2016-present
Sagar Patwardhan	2018-2021

SPONSORSHIP OF POSTDOCTORAL FELLOWS:

Edgar T. Walters, Ph.D.	1980-1982
Karen A. Ocorr, Ph.D.	1982-1985
Leonard Cleary, Ph.D.	1984-1987
Stuart Critz, Ph.D.	1988-1991
Shogo Endo, Ph.D.	1989-1991
Joseph Pieroni, Ph.D.	1988-1992
John White, Ph.D.	1990-1992
Florence Noel, Ph.D.	1988-1993
Israel Ziv, Ph.D.	1990-1993
Carmen Canavier, Ph.D.	1991-1993
Susanne Wittstock, Ph.D.	1992-1994
Keiko Nakanishi, M.D.	1993-1995
Han Zhang, M.D.	1994-2001
Carmen Canavier, Ph.D.	1994-1995
Romuald Nargeot, Ph.D.	1995-1998
Evgeni Kabotyanski, Ph.D.	1993-1999
Paul Smolen, Ph.D.	1996-1999
John Burdohan, Ph.D.	1996-1999
Annie Angers, Ph.D.	1998-2000
Suzanne Candy, Ph.D.	1999-2001
David Pettigrew, Ph.D.	2001-2003
Björn Brembs, Ph.D.	2000-2003
Randall Hayes, Ph.D.	2001-2004
Teruyuki Fukushima, Ph.D.	2001-2004
Daniel Wüstenberg	2002-2005
Clyde Steven Miller, Ph.D.	2002-2006
Hao Song, Ph.D.	2004-2006
Gregg Phares, Ph.D.	1997-2006
Riccardo Mozzachiodi, Ph.D.	1999-2007
Rong-Yu Liu, Ph.D.	2002-2008
Fred Lorenzetti, Ph.D.	2005-2010
Yili Zhang, Ph.D.	2008-2012
Hsin-Mei Chen, Ph.D.	2008-2012
Lian Zhou, Ph.D.	2008-2015
Harini Lakshminarasimhan, Ph.D.	2014-2016
Curtis Neveu, Ph.D.	2019-present
Yuto Momohara, Ph.D.	2019-present

SPONSORSHIP OF VISITING SCIENTISTS:

Abraham J. Susswein, Ph.D. (Bar Ilan University, Israel)	1985-1986, 1987 and 1989
Masashi Sawada, Ph.D. (Shimane Medical University, Japan)	1986-1987 and 1987-1988
Zhishen Zhang, M.D. (Capital Institute of Medicine, PR China)	1987-1988
Loon-tzian Lo, M.D. (Fujian Medical College, PR China)	1986-1989
Arnold Eskin, Ph.D. (University of Houston)	1988-1989
Mitsuyuki Ichinose, Ph.D. (Shimane Medical University, Japan)	1989-1990

Boyuan Fang, M.D. (Capital Institute of Medicine, PR China)	1990-1991
Han Zhang, M.D. (Yangzhou Medical College, PR China)	1992-1994

SPONSORSHIP OF VISITING STUDENTS:

Martin Hammer (Freie University of Berlin)	1987-1988
Hilde Lechner (Freie University of Berlin)	1993-1995

TEACHING RESPONSIBILITIES AND DEPARTMENTAL SERVICE AT MCGOVERN MEDICAL SCHOOL:

Lecturer and conference leader, Mammalian Physiology, 1982-1995
Lecturer, graduate course in Mammalian Physiology, 1982-1987
Course Director, Mammalian Physiology, 1984-1985 (voted best first-year course by medical students)
Lecturer, basic science review course for Neurology residents, 1984, 1988, 1989, 1992, 1999
Director, Department Seminar Program, 1983-1984
Lecturer, Medical Neuroscience, 1988-2016
Lecturer, Advanced Neurobiology I, 1990-2003
Lecturer, Advanced Neurobiology II, 1991-2009
Lecturer and conference leader, Medical School Pre-Entry Program, 1991-present
Facilitator, Problem Based Learning Sessions, Fundamentals of Clinical Medicine, 1996-2003
Course Co-Director, Neurobiology of Disease, 1999-present
Lecturer, Current Topics in Neuroscience, 2002-2015
Lecturer, Synaptic Basis of Learning and Memory, 2006, 2007
Lecturer, Department of Neurology, Grand Rounds, 2007, 2014
Lecturer, Cellular Neurophysiology, 2009-2017
Lecturer, Systems Neuroscience, 2010-present
Lecturer, GSBS Foundations Core Course, 2015-present
Lecturer, Foundations of Medicine Module, 2016-present
Lecturer, Nervous System and Behavior Module, 2017

TEACHING RESPONSIBILITIES AT RICE UNIVERSITY:

Lecturer, Biopsychology, 1997-1998
Lecturer, Cognitive Psychology of Memory, 2016

TEACHING RESPONSIBILITIES AND DEPARTMENT SERVICE AT THE UNIVERSITY OF PITTSBURGH:

Lecturer and conference leader, Mammalian Physiology, 1976-1981
Lecturer, undergraduate Course in Mammalian Physiology, 1978-1980
Course Director, Medical Neuroscience, 1980-1982
Lecturer, basic science review course for Neurology residents, 1980-1982
Lecturer, graduate course in Cellular Neurobiology, 1981

PUBLICATIONS:

A. Refereed Original Articles in Journals:

1. Byrne, J.H., Castellucci, V. and Kandel, E.R. Receptive fields and response properties of mechanoreceptor neurons innervating the siphon and mantle shelf of *Aplysia*. *J. Neurophysiol.* 37:1041-1064, 1974.
2. Byrne, J.H. A feedback controlled stimulator that delivers controlled displacements or forces to cutaneous mechanoreceptors. *IEEE Trans. Bio-Med. Eng.* 22:66-69, 1975.
3. Byrne, J.H. Dynamic properties of mechanoreceptor neurons mediating the defensive gill-withdrawal in *Aplysia*. *Brain Research* 114:123-127, 1976.
4. Byrne, J.H. and Koester, J. Respiratory pumping: Neuronal control of a centrally commanded behavior in *Aplysia*. *Brain Research* 143:87-105, 1978.
5. Byrne, J.H., Castellucci, V.F., Carew, T.J. and Kandel, E.R. Stimulus-response relations and stability of mechanoreceptor and motor neurons mediating defensive gill-withdrawal reflex in *Aplysia*. *J. Neurophysiol.* 41:402-417, 1978.
6. Byrne, J.H., Castellucci, V. and Kandel, E.R. Contribution of individual mechanoreceptor sensory neurons to defensive gill-withdrawal reflex in *Aplysia*. *J. Neurophysiol.* 41:418-431, 1978.
7. Carew, T.J., Castellucci, V.F., Byrne, J.H. and Kandel, E.R. Quantitative analysis of relative contribution of central and peripheral neurons to gill-withdrawal reflex in *Aplysia californica*. *J. Neurophysiol.* 42:497-509, 1979.
8. Shapiro, E., Koester, J. and Byrne, J.H. *Aplysia* ink release: Central locus for selective sensitivity to long duration stimuli. *J. Neurophysiol.* 42:1223-1232, 1979.
9. Byrne, J.H., Shapiro, E., Dieringer, N. and Koester, J. Biophysical mechanisms contributing to inking behavior in *Aplysia*. *J. Neurophysiol.* 42:1233-1250, 1979.
10. Byrne, J.H. Analysis of ionic conductance mechanisms in motor cells mediating inking behavior in *Aplysia*. *J. Neurophysiol.* 43:630-650, 1980.
11. Byrne, J.H. Quantitative aspects of ionic conductance mechanisms contributing to firing pattern of motor cells mediating inking behavior in *Aplysia californica*. *J. Neurophysiol.* 43:651-668, 1980.
12. Tritt, S.H. and Byrne, J.H. Motor controls of opaline secretion in *Aplysia californica*. *J. Neurophysiol.* 43:581-594, 1980.
13. Byrne, J.H. Neural circuit for inking behavior in *Aplysia californica*. *J. Neurophysiol.* 43:896-911, 1980.
14. Byrne, J.H. Identification of neurons contributing to presynaptic inhibition in *Aplysia californica*. *Brain Research* 199:235-239, 1980.

15. Byrne, J.H. Comparative aspects of neural circuits for inking behavior and gill-withdrawal in *Aplysia californica*. *J. Neurophysiol.* 45:98-106, 1981.
16. Byrne, J.H. Simulation of the neural activity underlying a short-term modification of inking behavior in *Aplysia*. *Brain Research* 204:200-203, 1981.
17. Milne, R.J. and Byrne, J.H. Effects of hexamethonium and decamethonium on end-plate current parameters. *Molecular Pharmacology* 19:276-281. 1981.
18. Byrne, J.H. Analysis of synaptic depression contributing to habituation of gill-withdrawal reflex in *Aplysia californica*. *J. Neurophysiol.* 48:431-438. 1982.
19. Tritt, S.H. and Byrne, J.H. Neurotransmitters producing and modulating opaline gland contraction in *Aplysia californica*. *J. Neurophysiol.* 48:1347-1361, 1982.
20. Byrne, J.H. Identification and initial characterization of a cluster of command and pattern-generating neurons underlying respiratory pumping in *Aplysia californica*. *J. Neurophysiol.* 49:491-508, 1983.
21. Tritt, S.H., Lowe, I.P. and Byrne, J.H. A modification of the glyoxylic acid induced histofluorescence technique for demonstration of catecholamines and serotonin in tissues of *Aplysia californica*. *Brain Research* 259:159-162, 1983.
22. Walters, E.T. and Byrne, J.H. Associative conditioning of single sensory neurons suggests a cellular mechanism for learning. *Science* 219:405-408, 1983.
23. Walters, E.T., Byrne, J.H., Carew, T.J. and Kandel, E.R. Mechanoafferent neurons innervating the tail of *Aplysia*. I. Response properties and synaptic connections. *J. Neurophysiol.* 50:1522-1542, 1983.
24. Walters, E.T., Byrne, J.H., Carew, T.J. and Kandel, E.R. Mechanoafferent neurons innervating the tail of *Aplysia*. II. Modulation by sensitizing stimulation. *J. Neurophysiol.* 50:1543-1559, 1983.
25. Walters, E.T. and Byrne, J.H. Slow depolarization produced by associative conditioning of *Aplysia* sensory neurons may enhance Ca^{++} entry. *Brain Research* 280:165-168, 1983.
26. Walters, E.T. and Byrne, J.H. Post-tetanic potentiation in *Aplysia* sensory neurons. *Brain Research* 293:377-380, 1984.
27. Walsh, J.P. and Byrne, J.H. Forskolin mimics and blocks a serotonin-sensitive decreased K^{+} conductance in tail sensory neurons of *Aplysia*. *Neuroscience Letters* 52:7-11, 1984.
28. Walsh, J.P. and Byrne, J.H. Analysis of decreased conductance serotonergic response in *Aplysia* ink motor neurons. *J. Neurophysiol.* 53:590-602, 1985.
29. Gingrich, K.J. and Byrne, J.H. Simulation of synaptic depression, post-tetanic potentiation, and presynaptic facilitation of synaptic potentials from sensory neurons mediating gill-withdrawal reflex in *Aplysia*. *J. Neurophysiol.* 53:652-669, 1985.

30. Walters, E.T. and Byrne, J.H. Long-term enhancement produced by activity-dependent modulation of *Aplysia* sensory neurons. *J. Neuroscience* 5:662-672, 1985.
31. Ocorr, K.A., Walters, E.T. and Byrne, J.H. Associative conditioning analog selectively increases cAMP levels of tail sensory neurons in *Aplysia*. *Proc. Natl. Acad. Sci.* 82:2548-2552, 1985.
32. Ocorr, K.A. and Byrne, J.H. Membrane responses and changes in cAMP levels in *Aplysia* sensory neurons produced by 5-HT, tryptamine, FMRFamide and SCP_B. *Neuroscience Letters* 55:113-118, 1985.
33. Critz, S.D., Harper, J.F. and Byrne, J.H. Evidence for the inhibitory subunit of adenylate cyclase (N_i) in nervous and heart tissue of *Aplysia*. *Neuroscience Letters* 64:145-150, 1986.
34. Ocorr, K.A., Tabata, M. and Byrne, J.H. Stimuli that produce sensitization lead to elevation of cyclic AMP levels in tail sensory neurons of *Aplysia*. *Brain Research* 371:190-192, 1986.
35. Ocorr, K.A. and Byrne, J.H. Evidence for separate receptors that mediate parallel effects of serotonin and small cardioactive peptide_B (SCP_B) on adenylate cyclase in *Aplysia californica*. *Neuroscience Letters* 70:283-288, 1986.
36. Scholz, K.P. and Byrne, J.H. Long-term sensitization in *Aplysia*: Biophysical correlates in tail sensory neurons. *Science* 235:685-687, 1987.
37. Gingrich, K.J. and Byrne, J.H. Single-cell neuronal model for associative learning. *J. Neurophysiol.* 57:1705-1715, 1987.
38. Susswein, A.J. and Byrne, J.H. Identification and characterization of neurons initiating patterned neural activity in the buccal ganglia of *Aplysia*. *J. Neuroscience* 8:2049-2061, 1988.
39. Scholz, K.P., Cleary, L.J., Byrne, J.H. Inositol 1,4,5-trisphosphate alters bursting pacemaker activity in *Aplysia* neurons: Voltage clamp analysis of effects on calcium currents. *J. Neurophysiol.* 60:86-104, 1988.
40. Scholz, K.P. and Byrne, J.H. Intracellular injection of cAMP induces a long-term reduction of neuronal K⁺ currents. *Science* 240:1664-1666, 1988.
41. Walsh, J.P. and Byrne, J.H. Modulation of a steady-state Ca²⁺ activated, K⁺ current in tail sensory neurons of *Aplysia*: Role of serotonin and cAMP. *J. Neurophysiol.* 61:32-44, 1989.
42. Sawada, M., Cleary, L.J. and Byrne, J.H. Inositol trisphosphate (IP₃) and activators of protein kinase C (PKC) modulate membrane currents in tail motor neurons of *Aplysia*. *J. Neurophysiol.* 61:302-310, 1989.
43. Eskin, A., Garcia, K.S. and Byrne, J.H. Information storage in the nervous system of *Aplysia*: Specific proteins affected by serotonin and cAMP. *Proc. Natl. Acad. Sci. (USA)* 86:2458-2462, 1989.

44. Hammer, M., Cleary, L.J. and Byrne, J.H. Serotonin acts in the synaptic region of pleural sensory neurons of *Aplysia* to enhance transmitter release. *Neuroscience Letters* 104:235-240, 1989.
45. Baxter, D.A. and Byrne, J.H. Serotonergic modulation of two potassium currents in the pleural sensory neurons of *Aplysia*. *J. Neurophysiol.* 62:665-679, 1989.
46. Canavier, C.G., Clark, J.W. and Byrne, J.H. Routes to chaos in a model of a bursting neuron. *Biophysical J.* 57:1245-1252, 1990.
47. Buonomano, D.V. and Byrne, J.H. Long-term synaptic changes produced by a cellular analogue of classical conditioning in *Aplysia*. *Science* 249:420-423, 1990.
48. Buonomano, D.V., Baxter, D.A. and Byrne, J.H. Small networks of empirically derived adaptive elements simulate some higher-order features of classical conditioning. *Neural Networks* 3:507-523, 1990.
49. Baxter, D.A. and Byrne, J.H. Differential effects of cAMP and serotonin on membrane current, action potential duration, and excitability in somata of pleural sensory neurons of *Aplysia*. *J. Neurophysiol.* 64:978-990, 1990.
50. Baxter, D.A. and Byrne, J.H. Reduction of voltage-activated K⁺ currents by forskolin is not mediated via cAMP in pleural sensory neurons of *Aplysia*. *J. Neurophysiol.* 64:1474-1483, 1990.
51. Ichinose, M., Endo, S., Critz, S.D., Shenolikar, S. and Byrne, J.H. Microcystin-LR, a potent protein phosphatase inhibitor, prolongs the serotonin - and cAMP - induced currents in sensory neurons of *Aplysia californica*. *Brain Research* 533:137-140, 1990.
52. Nazif, F.A., Byrne, J.H. and Cleary, L.J. cAMP induces long-term morphological changes in sensory neurons of *Aplysia*. *Brain Research* 539:324-327, 1991.
53. Ichinose, M. and Byrne, J.H. Role of protein phosphatases in the modulation of neuronal membrane currents. *Brain Research*, 549:146-150, 1991.
54. Zhang, Z., Fang, B., Marshak, D.W., Byrne, J.H. and Cleary, L.J. Serotonergic varicosities make synaptic contacts with pleural sensory neurons of *Aplysia*. *J. Comp. Neurol.* 311:259-270, 1991.
55. Critz, S.D., Baxter, D.A. and Byrne, J.H. Modulatory effects of serotonin, FMRFamide, and myomodulin on the duration of action potentials, excitability, and membrane currents in tail sensory neurons of *Aplysia*. *J. Neurophysiol.* 66:1912-1926. 1991.
56. Canavier, C.C., Clark, J.W. and Byrne, J.H. Simulation of the bursting activity of neuron R15 in *Aplysia*: Role of ionic currents, calcium balance, and modulatory transmitters. *J. Neurophysiol.* 66:2107-2124, 1991.

57. Noel, F., Scholz, K.P., Eskin, A. and Byrne, J.H. Common set of proteins in *Aplysia* sensory neurons affected by an *in vitro* analogue of long-term sensitization training, 5-HT and cAMP. *Brain Research* 568:67-75, 1991.
58. Endo, S., Shenolikar, S., Eskin, A., Zwartjes, R. and Byrne, J.H. Characterization of neuronal protein phosphatases in *Aplysia californica*. *J. Neurochem.* 58:975-982, 1992.
59. Buonomano, D.V., Cleary, L.J. and Byrne, J.H. Inhibitory neuron produces heterosynaptic inhibition of the sensory-to-motor neuron synapse in *Aplysia*. *Brain Research* 577:147-150, 1992.
60. Pieroni, J.P. and Byrne, J.H. Differential effects of serotonin, FMRFamide and small cardioactive peptide on multiple, distributed processes modulating sensorimotor synaptic transmission in *Aplysia*. *J. Neuroscience* 12:2633-2647, 1992.
61. Sugita, S., Goldsmith, J.R., Baxter, D.A. and Byrne, J.H. Involvement of protein kinase C in serotonin-induced spike broadening and synaptic facilitation in sensorimotor connections of *Aplysia*. *J. Neurophysiol.* 68:643-651, 1992.
62. Raymond, J.R., Baxter, D.A., Buonomano, D.V. and Byrne, J.H. A learning rule based on empirically-derived activity-dependent neuromodulation supports operant conditioning in a small network. *Neural Networks* 5:789-803, 1992.
63. Critz, S.D. and Byrne, J.H. Modulation of $I_{K,Ca}$ by phorbol ester mediated activation of PKC in pleural sensory neurons of *Aplysia*. *J. Neurophysiol.* 68:1079-1086, 1992.
64. Goldsmith, J.R. and Byrne, J.H. Bag cell extract inhibits tail-siphon withdrawal reflex, suppresses long-term but not short-term sensitization and attenuates sensory-to-motor neuron synapses in *Aplysia*. *J. Neuroscience* 13:1688-1700, 1993.
65. Noel, F., Nuñez-Regueiro, M., Cook, R., Byrne, J.H. and Eskin, A. Long-term changes in synthesis of intermediate filament protein, actin and other proteins in pleural sensory neuron of *Aplysia* produced by an *in vitro* analogue of sensitization training. *Molecular Brain Research* 19:203-210, 1993.
66. Canavier, C.C., Baxter, D.A., Clark, J.W. and Byrne, J.H. Nonlinear dynamics in a model neuron provide a novel mechanism for transient synaptic inputs to produce long-term alterations of postsynaptic activity. *J. Neurophysiol.* 69:2252-2257, 1993.
67. Cleary, L.J. and Byrne, J.H. Identification and characterization of a multifunction neuron contributing to defensive arousal in *Aplysia*. *J. Neurophysiol.* 70:1767-1776, 1993.
68. White, J.A., Ziv, I., Baxter, D.A., Cleary, L.J. and Byrne, J.H. The role of interneurons in controlling the tail-withdrawal reflex in *Aplysia*: A network model. *J. Neurophysiol.* 70:1777-1786, 1993.
69. Ziv, I., Baxter, D.A. and Byrne, J.H. Simulator for neural networks and action potentials: Description and application. *J. Neurophysiol.* 71:294-308, 1994.

70. White, J.A., Baxter, D.A. and Byrne, J.H. Analysis of the modulation by serotonin of a voltage-dependent potassium current in sensory neurons of *Aplysia*. *Biophysical J.* 66:710-718, 1994.
71. Raymond, J.L. and Byrne, J.H. Distributed input to the tail-siphon withdrawal circuit in *Aplysia* from neurons in the J cluster of the cerebral ganglion. *J. Neuroscience* 14:2444-2454, 1994.
72. Xu, Y., Cleary, L.J. and Byrne, J.H. Identification and characterization of pleural neurons that inhibit tail sensory neurons and motor neurons in *Aplysia*: Correlation with FMRamide immunoreactivity. *J. Neuroscience* 14:3565-3577, 1994.
73. Noel, F., Koumenis, C., Nuñez-Regueiro, M., Raju, U., Byrne, J.H. and Eskin, A. Effects on protein synthesis produced by pairing depolarization with serotonin, an analogue of associative learning in *Aplysia*. *Proc. Natl. Acad. Sci. U.S.A.* 91:4150-4154, 1994.
74. Zhang, F., Goldsmith, J.R. and Byrne, J.H. Neural analogue of long-term sensitization training produces long-term (24 and 48 h) facilitation of the sensory-to-motor neuron connection in *Aplysia*. *J. Neurophysiol.* 72:778-784, 1994.
75. Canavier, C.C., Baxter, D.A., Clark, J.W. and Byrne, J.H. Multiple modes of activity in a model neuron suggest a novel mechanism for the effects of neuromodulators. *J. Neurophysiol.* 72:872-882, 1994.
76. Sugita, S., Baxter, D.A. and Byrne, J.H. Activators of protein kinase C mimic serotonin-induced modulation of a voltage-dependent potassium current in pleural sensory neurons of *Aplysia*. *J. Neurophysiol.* 72:1240-1249, 1994.
77. Sugita, S., Baxter, D.A. and Byrne, J.H. cAMP-independent effects of 8-(4-parachlorophenylthio)-cyclic AMP on spike duration and membrane currents in pleural sensory neurons of *Aplysia*. *J. Neurophysiol.* 72:1250-1259, 1994.
78. Homayouni, R., Byrne, J.H. and Eskin, A. Dynamics of protein phosphorylation in sensory neurons of *Aplysia*. *J. Neuroscience* 15:429-438, 1995
79. Endo, S., Critz, S.D., Byrne, J.H. and Shenolikar, S. Protein phosphatase-1 regulates outward K⁺ currents in sensory neurons of *Aplysia californica*. *J. Neurochem.* 64:1833-1840, 1995.
80. Xu, Y., Pieroni, J., Cleary, L.J. and Byrne, J.H. Modulation of an inhibitory interneuron in the neural circuitry for the tail-withdrawal reflex of *Aplysia*. *J. Neurophysiol.* 73:1313-1318, 1995.
81. O'Leary, F.A., Byrne, J.H. and Cleary, L.J. Long-term structural remodeling in *Aplysia* sensory neurons requires *de novo* protein synthesis during a critical time period. *J. Neuroscience* 15:3519-3525, 1995.

82. Butera, R.J., Clark, J.W., Canavier, C.C, Baxter, D.A. and Byrne, J.H. Analysis of the effects of modulatory agents on a modeled bursting neuron: Dynamic interactions between voltage and calcium dependent systems. *J. Computational Neuroscience* 2:19-44, 1995.
83. Lechner, H.A., Baxter, D.A., Clark, J.W. and Byrne, J.H. Bistability and its regulation by serotonin in the endogenously bursting neuron R15 in *Aplysia*. *J. Neurophysiol.* 75:957-962, 1996.
84. Butera, R.J., Clark, J.W., Byrne, J.H. Dissection and reduction of a modeled bursting neuron. *J. Computational Neuroscience* 3:199-223, 1996.
85. Liu, Q-R., Hattar, S., Endo, S., MacPhee, K., Zhang, H., Cleary, L.J., Byrne, J.H., Eskin, A. A developmental gene (*Tolloid* /BMP-1) is regulated in *Aplysia* neurons by treatments that induce long-term sensitization. *J. Neuroscience* 17:755-764, 1997.
86. Demir, S.S., Butera, R.J., DeFranceschi, A.A., Clark, J.W., Byrne, J.H. Phase sensitivity and entrainment in a modeled bursting neuron. *Biophysical J.* 72: 579-594, 1997.
87. Sugita, S., Baxter, D.A., Byrne, J.H. Differential effects of 4-aminopyridine, serotonin, and phorbol esters on facilitation of sensorimotor connections in *Aplysia*. *J. Neurophysiol.* 77:177-185, 1997.
88. Zhang, F., Endo, S., Cleary, L.J., Eskin, A., Byrne, J.H. Role of transforming growth factor- β in long-term synaptic facilitation in *Aplysia*. *Science* 275:1318-1320, 1997.
89. Homayouni, R., Nunez-Regueiro, M., Cook, R., Byrne, J.H., Eskin, A. Identification of two phosphoproteins affected by serotonin in *Aplysia* sensory neurons. *Brain Research* 750:87-94, 1997.
90. Nakanishi, K., Zhang, F., Baxter, D.A., Eskin, A., Byrne, J.H. Role of calcium-calmodulin-dependent protein kinase II in modulation of sensorimotor synapses in *Aplysia*. *J. Neurophysiol.* 78:409-416, 1997.
91. Sugita, S., Baxter D.A., Byrne, J.H. Modulation of a cAMP/PKA cascade by PKC in sensory neurons of *Aplysia*. *J. Neuroscience* 17:7237-7244, 1997.
92. Nargeot, R., Baxter, D.A., Byrne, J.H. Contingent-dependent enhancement of rhythmic motor patterns: An *in vitro* analog of operant conditioning. *J. Neuroscience* 17:8093-8105, 1997.
93. Canavier, C.C., Butera, R.J., Dror, R.O., Baxter, D.A., Clark, J.W., Byrne, J.H. Phase response characteristics of model neurons determine which patterns are expressed in a ring circuit model of gait generation. *Biol. Cybern.* 77:367-380, 1997.
94. Butera, R.J., Clark, J.W., Byrne, J.H. Transient responses of a modeled bursting neuron: analysis with equilibrium and averaged nullclines. *Biol. Cybern.* 77:307-322, 1997.

95. Kabotyanski, E.A., Baxter, D.A., Byrne, J.H. Identification and characterization of catecholaminergic neuron B65 that initiates and modifies patterned activity in the buccal ganglia of *Aplysia*. *J. Neurophysiol.* 79:605-621, 1998.
96. Smolen, P. Baxter, D.A., Byrne, J.H. Frequency selectivity, multistability, and oscillations emerge from models of genetic regulatory systems. *Am. J. Physiol.* 274:C531-C542, 1998.
97. Zwartjes, R.E., West, H., Hattar, S., Ren, X., Noel, F., Nunez-Regueiro, M., MacPhee, K., Homayouni, R., Crow, M.T., Byrne, J.H. and Eskin, A. Identification of specific mRNAs affected by treatments producing long-term facilitation in *Aplysia*. *Learning & Memory* 4:478-495, 1998.
98. Cleary, L.J., Lee, W.L. and Byrne, J.H. Cellular correlates of long-term sensitization in *Aplysia*. *J. Neuroscience* 18:5988-5998, 1998.
99. Dror, R.O., Canavier, C.C., Butera, R.J., Clark, J.W. and Byrne, J.H. A mathematical criterion based on phase response curves for stability in a ring of coupled oscillators. *Biol. Cybernet.* 80:11-23, 1999.
100. Canavier, C.C., Baxter, D.A., Clark, J.W. and Byrne, J.H. Control of multistability in ring circuits of oscillators. *Biol. Cybernet.* 80:87-102, 1999.
101. Nargeot, R., Baxter, D.A., and Byrne, J.H. *In vitro* analogue of operant conditioning in *Aplysia*. I. Contingent reinforcement modifies the functional dynamics of an identified neuron. *J. Neuroscience* 19:2247-2260, 1999.
102. Nargeot, R., Baxter, D.A., and Byrne, J.H. *In vitro* analogue of operant conditioning in *Aplysia*. II. Modifications of the functional dynamics of an identified neuron contribute to motor pattern selection. *J. Neuroscience* 19:2261-2272, 1999.
103. Nargeot, R., Baxter, D.A., Patterson, G.W. and Byrne, J.H. Dopaminergic synapses mediate neuronal changes in an analogue of operant conditioning. *J. Neurophysiol.* 81:1983-1987, 1999.
104. Lechner, H.A., Squire, L.R. and Byrne, J.H. 100 years of consolidation – remembering Müller and Pilzecker. *Learning & Memory* 6:77-87, 1999.
105. Chin, J., Angers, A., Cleary, L.J., Eskin, A. and Byrne, J.H. TGF- β 1 in *Aplysia*: Role of long-term changes in the excitability of sensory neurons and distribution of T β R-II-like immunoreactivity. *Learning & Memory*, 6:317-330, 1999.
106. Levenson, J., Byrne, J.H. and Eskin, A. Levels of serotonin in the hemolymph of *Aplysia* are modulated by light/dark cycles and sensitization training. *J. Neuroscience* 19:8094-8103, 1999.
107. Smolen, P., Baxter, D. and Byrne, J.H. Effects of macromolecular transport and stochastic fluctuations on the dynamics of genetic regulatory systems. *Am. J. Physiol.* 277:C777-C790, 1999.

108. Baxter, D.A., Canavier, C.C., Clark, J.W. and Byrne, J.H. Computational model of the serotonergic modulation of sensory neurons in *Aplysia*. *J. Neurophysiol.* 82:2914-2935, 1999.
109. Kabotyanski, E.A., Baxter, D.A., Cushman, S.J. and Byrne, J.H. Modulation of fictive feeding by dopamine and serotonin in *Aplysia*. *J. Neurophysiol.* 83:374-392, 2000.
110. Smolen, P., Baxter, D.A. and Byrne, J.H. Modeling transcriptional control in gene networks – Methods, recent results, and future directions. *Bltm. of Mathematical Biol.* 62:247-292, 2000.
111. Lechner, H.A., Baxter, D.A. and Byrne, J.H. Classical conditioning of feeding in *Aplysia*: I. Behavioral analysis. *J. Neuroscience* 20:3369-3376, 2000.
112. Lechner, H.A., Baxter, D.A. and Byrne, J.H. Classical conditioning of feeding in *Aplysia*: II. Neurophysiological correlates. *J. Neuroscience* 20:3377-3386, 2000.
113. Levenson, J., Sherry, D.M., Dryer, L., Chin, J., Byrne, J.H. and Eskin, A. Localization of glutamate and glutamate transporters in the sensory neurons of *Aplysia*. *J. Comp. Neurol.* 423:121-131, 2000.
114. Levenson, J., Endo, S., Kategaya, L.S., Fernandez, R.I., Brabham, D.G., Chin, J., Byrne, J.H. and Eskin, A. Long-term regulation of neuronal high-affinity glutamate and glutamate uptake in *Aplysia*. *Proc. Natl. Acad. Sci. U.S.A.* 97:12858-12863, 2000.
115. Smolen, P., Baxter, D.A. and Byrne, J.H. Modeling circadian oscillations with interlocking positive and negative feedback loops. *J. Neuroscience* 21:6644-6656, 2001.
116. Susswein, A.J., Hurwitz, I., Thorne, R., Byrne, J.H. and Baxter, D.A. Mechanisms underlying fictive feeding in *Aplysia*: coupling between a large neuron with plateau potentials activity and a spiking neuron. *J. Neurophysiol.* 87:2307-2323, 2002.
117. Chin, J., Angers, A., Cleary, L.J., Eskin, A. and Byrne, J.H. TGF- β 1 alters synapsin distribution and modulates synaptic depression in *Aplysia*. *J. Neuroscience* 22:RC220: 1-6, 2002.
118. Brembs, B., Lorenzetti, F.D., Reyes, F.D., Baxter, D.A. and Byrne, J.H. Operant reward learning in *Aplysia*: Neuronal correlates and mechanisms. *Science* 296:1706-1709, 2002.
119. Wainwright, M.L., Zhang, H., Byrne, J.H. and Cleary, L.J. Localized neuronal outgrowth induced by long-term sensitization training in *Aplysia*. *J. Neuroscience* 22:4132-4141, 2002.
120. Chin, J., Burdohan, J.A., Eskin, A. and Byrne, J.H. Inhibitor of glutamate transport alters synaptic transmission at sensorimotor synapses in *Aplysia*. *J. Neurophysiol.* 87:3165-3168, 2002.

121. Angers, A., Fioravante, D., Chin, J., Cleary, L.J., Bean, A.J., and Byrne, J.H. Serotonin stimulates phosphorylation of *Aplysia* synapsin and alters its subcellular distribution in sensory neurons. *J. Neuroscience* 22:5412-5422, 2002.
122. Nargeot, R., Baxter, D.A. and Byrne, J.H. Correlation between activity in neuron B52 and two features of fictive feeding in *Aplysia*. *Neuroscience Letters* 328:85-88, 2002.
123. Smolen, P., Baxter, D.A. and Byrne, J.H. A reduced model clarifies the role of feedback loops and time delays in the *Drosophila* circadian oscillator. *Biophysical J.* 83:2349-2359, 2002.
124. Chen, H., Baozong, Y., Baxter, D.A. and Byrne, J.H. Signal processing and computational model for neural networks. *ICSP'02 Proc.* 2:1532-1535, 2002.
125. Chen, H., Baozong, Y., Baxter, D.A. and Byrne, J.H. Research and implementation of computer simulation system for neural networks. *ICSP'02 Proc.* 2:1834-1837, 2002.
126. Chen, H., Baozong, Y., Baxter, D.A. and Byrne, J.H. Parallel computation in computer simulation for neural networks. *Proc. IEEE TENCON'02*, 1:641-644, 2002.
127. Phares, G.A., Antzoulatos, E.G., Baxter, D.A. and Byrne, J.H. Burst-induced synaptic depression and its modulation contribute to information transfer at *Aplysia* sensorimotor synapses: Empirical and computational analyses. *J. Neuroscience* 23:8392-8401, 2003.
128. Antzoulatos, E., Cleary, L.J., Eskin, A., Baxter, D.A. and Byrne, J.H. Desensitization of postsynaptic glutamate receptors contributes to high-frequency homosynaptic depression of *Aplysia* sensorimotor connections. *Learning and Memory* 10:309-313, 2003.
129. Zhang, H., Wainwright, M., Byrne, J.H. and Cleary, L.J. Quantitation of contacts among sensory, motor and serotonergic neurons in the pedal ganglion of *Aplysia*. *Learning and Memory* 10:387-393, 2003.
130. Mozzachiodi, R., Lechner, H.A., Baxter, D.A., and Byrne, J.H. *In vitro* analogue of classical conditioning of feeding behavior in *Aplysia*. *Learning and Memory* 10:478-494, 2003.
131. Smolen, P., Baxter, D.A. and Byrne, J.H. Reduced models of the circadian oscillators in *Neurospora crassa* and *Drosophila melanogaster* illustrate mechanistic similarities. *OMICS: J. Integrative Biol.* 7:337-354, 2003.
132. Yu, X., Byrne, J.H. and Baxter, D.A. Modeling interactions between electrical activity and second-messenger cascades in *Aplysia* neuron R15. *J. Neurophysiol.* 91:2297-2311, 2003.
133. Luo, C., Clark, J.W., Canavier, C.C., Baxter, D.A., and Byrne, J.H. Multimodal behavior in a four neuron ring circuit: Mode switching. *IEEE Transactions on Biomedical Engineering* 51:205-218, 2004.

134. Smolen, P., Hardin, P.E., Lo, B.S., Baxter, D.A. and Byrne, J.H. Simulation of *Drosophila* circadian oscillations, mutations, and light responses by a model with VRI, PDP-1, and CLK. *Biophys. J.*, 86:2786-2802, 2004.
135. Brembs, B., Baxter, D.A. and Byrne, J.H. Extending *in vitro* conditioning in *Aplysia* to analyze operant and classical processes in the same preparation. *Learning and Memory*, 11:412-420, 2004.
136. Wüstenberg, D.G., Boytcheva, M., Grünewald, B., Byrne, J.H., Menzel, R., and Baxter, D.A. Current- and voltage-clamp recordings and computer simulations of Kenyon cells in the honeybee. *J. Neurophysiol.*, 92:2589-2603, 2004.
137. Wainwright, M.L., Byrne, J.H., and Cleary, L.J. Dissociation of morphological and physiological changes associated with long-term memory in *Aplysia*. *J. Neurophysiol.*, 92:2628-2632, 2004.
138. Khabour, O., Levenson, J., Lyons, L.C., Katagaya, L.S., Chin, J., Byrne, J.H. and Eskin, A. Co-regulation of glutamate uptake and long-term sensitization in *Aplysia*. *J. Neuroscience*, 24:8829-8837, 2004.
139. Pettigrew, D.B., Smolen, P., Baxter, D.A. and Byrne, J.H., Dynamic properties of regulatory motifs associated with induction of three temporal domains of memory in *Aplysia*. *J. Comput. Neurosci.*, 18:163-181, 2005.
140. Cataldo, E., Brunelli, M., Byrne, J.H., Av-Ron, E., Cai, Y. and Baxter, D.A. Computational model of touch mechanoafferent (T cell) of the leech: role of afterhyperpolarization (AHP) in activity-dependent conduction failure. *J. Comput. Neurosci.*, 18:5-24, 2005.
141. Hayes, R.D., Byrne, J.H., Cox, S.J. and Baxter D.A. Estimation of single-neuron model parameters from spike train data. *Neurocomputing*, 65-66C:517-529, 2005.
142. Reyes, F.D., Mozzachiodi, R., Baxter, D.A. and Byrne, J.H. Reinforcement in an *in vitro* analogue of appetitive classical conditioning of feeding behavior in *Aplysia*: Blockade by a dopamine antagonist. *Learning & Memory*, 12:216-220, 2005.
143. Mohamed, H.A., Yao, W., Fioravante, D., Smolen, P.D., Byrne, J.H. cAMP-response elements in *Aplysia creb1*, *creb2*, and *Ap-uch* promoters. *Journal of Biological Chemistry*, 280:27035-27043, 2005.
144. Phares, G. and Byrne, J.H. Analysis of 5-HT-induced short-term facilitation at *Aplysia* sensorimotor synapse during bursts: increased synaptic gain that does not require ERK activation. *J. Neurophysiol.*, 94:871-877, 2005.
145. Lorenzetti, F.D., Mozzachiodi, R., Baxter, D.A., Byrne, J.H. Classical and operant conditioning differentially modify the intrinsic properties of an identified neuron. *Nature Neuroscience*, 9:17-19, 2006.

146. Barbas, D., Zappulla, J.P., Angers, S., Bouvier, M., Mohamed, H.A., Byrne, J.H., Castellucci, V. F., and DesGroseillers, L. An aplysia dopamine₁-like receptor: molecular and functional characterization. *J. Neurochemistry*, 96:414-427, 2006.
147. Fioravante, D., Smolen, P.D., and Byrne, J.H. The 5-HT- and FMRFa-activated signaling pathways interact at the level of the Erk MAPK cascade: Potential inhibitory constraints on memory formation. *Neuroscience Letters*, 396:235-240, 2006. PMID: 16356640
148. Song, H., Smolen, P.D., Av-Ron, E., Baxter, D.A., and Byrne, J.H. Bifurcation and singularity analysis of a molecular network for the induction of long-term memory. *Biophysical Journal*, 90:2309-2325, 2006. PMCID: PMC1403175
149. Smolen, P.D., Baxter, D.A., and Byrne, J.H. A model of the roles of essential kinases in the induction and expression of late long-term potentiation. *Biophysical Journal*, 90:2760-2775, 2006. PMCID: PMC1414565
150. Chin, J., Liu, R.Y., Cleary, L.J., Eskin, A. and Byrne, J.H. TGF- β 1-induced long-term changes in neuronal excitability in *Aplysia* sensory neurons depend on MAPK. *J. Neurophysiology*, 95:3286-3290, 2006. PMID: 16617179
151. Av-Ron, E., Byrne, J.H. and Baxter, D.A. Teaching basic principles of neuroscience with computer simulations. *J. Undergrad. Neurosci. Edu.*, 4:A40-A52, 2006. PMCID: PMC3592631
152. Antzoulatos, E.G., Wainwright, M.L., Cleary, L.J. and Byrne, J.H. Long-term sensitization training primes *Aplysia* for further learning. *Learning and Memory*, 13:422-425, 2006. PMID: 16847306
153. Cataldo, E., Byrne, J.H. and Baxter, D.A. Computational model of a central pattern generator. *Computational Methods in Systems Biology, Proceedings Lec. Not. in Comput. Sci.* 4210:242-256, 2006.
154. Fukushima, T., Liu, R.Y. and Byrne, J.H. Transforming growth factor- β 2 modulates synaptic efficacy and plasticity and induces phosphorylation of CREB in hippocampal neurons. *Hippocampus*, 17:5-9, 2007. PMID: 17094084
155. Antzoulatos, E.G. and Byrne, J.H. Long-term sensitization training produces spike narrowing in *Aplysia* sensory neurons. *J. Neuroscience*, 27:676-683, 2007. PMID: 17234599
156. Baxter, D.A. and Byrne, J.H. Short-term plasticity in a computational model of the tail-withdrawal circuit in *Aplysia*. *Neurocomput.*, 70:1993-1999, 2007. PMID: 17957237
157. Song, H., Smolen, P., Av-Ron, E., Baxter, D.A. and Byrne, J.H. Dynamics of a minimal model of interlocked positive and negative feedback loops of transcriptional regulation by cAMP-responsive element binding proteins. *Biophysical Journal*, 92:3407-3424, 2007. PMCID: PMC2040302

158. Fioravante, D., Liu, R.Y., Netek, A., Cleary, L.J. and Byrne, J.H. Synapsin regulates basal synaptic strength, synaptic depression and serotonin-induced facilitation of sensorimotor synapses in *Aplysia*. *J. Neurophysiology*, 98:3568-3580, 2007. PMID: 17913990
159. Smolen, P., Baxter, D.A. and Byrne, J.H. Bistable MAP kinase activity: a plausible mechanism contributing to maintenance of late long-term potentiation. *Am. J. of Physiology-Cell Physiology*, 294: C503–C515, 2008. PMID: 18057118
160. Liu, R.Y., Fioravante, D., Shah, S. and Byrne, J.H. cAMP response element-binding protein 1 feedback loop is necessary for consolidation of long-term synaptic facilitation in *Aplysia*. *J. Neuroscience*, 28: 1970-1976, 2008. PMID: 18287513
161. Lorenzetti, F.D., Baxter, D.A. and Byrne, J.H. Molecular mechanisms underlying a cellular analogue of operant reward learning. *Neuron*, 59: 815-828, 2008. PMCID: PMC2603610
162. Mozzachiodi, R., Lorenzetti, F.D., Baxter, D.A., and Byrne, J.H. Changes in neuronal excitability serve as a mechanism of long-term memory for operant conditioning. *Nature Neuroscience*, 11:1146-1148, 2008. PMCID: PMC5003050
163. Fioravante, D., Liu, R.Y. and Byrne, J.H. The ubiquitin-proteasome system is necessary for long-term synaptic depression in *Aplysia*. *J. Neuroscience*. 28:10245-10256, 2008. PMCID: PMC2571080
164. Collado, M.S., Khabour, O., Fioravante, D., Byrne, J.H. and Eskin, A. Post-translational regulation of an *Aplysia* glutamate transporter during long-term facilitation. *J. Neurochemistry*. 108:176-189, 2009. PMCID: PMC2684684
165. Smolen, P.D., Baxter, D.A. and Byrne, J.H. Interlinked dual-time feedback loops can enhance robustness to stochasticity and persistence of memory. *Physical Review E*. 79:031902, 2009. PMCID: PMC2742492
166. Zhang, Y., Smolen, P.D., Baxter, D.A. and Byrne, J.H. The sensitivity of memory consolidation and reconsolidation to inhibitors of protein synthesis and kinases: Computational analysis. *Learning and Memory*, 17: 428-439, 2010. PMCID: PMC2948875
167. Liu, R.Y., Shah, S., Cleary, L.J. and Byrne, J.H. Serotonin- and training-induced dynamic regulation of CREB2 in *Aplysia*. *Learning and Memory*, 18:245-249, 2011. PMCID: PMC3072775
168. Liu, R.Y., Cleary, L.J. and Byrne, J.H. The requirement for enhanced CREB1 expression in consolidation of long-term synaptic facilitation and long-term excitability in sensory neurons of *Aplysia*. *J. Neuroscience*, 31:6871-6879, 2011. PMCID: PMC3092379
169. Lorenzetti, F.D., Baxter, D.A. and Byrne, J.H. Classical conditioning analog enhanced acetylcholine responses but reduced excitability of an identified neuron. *J. Neuroscience*, 31:14789-14793, 2011. PMCID: PMC3198865

170. Hart, A.K., Fioravante, D., Liu, R.Y., Phares, G.A., Cleary, L.J., and Byrne, J.H. Serotonin-mediated synapsin expression is necessary for long-term facilitation of the *Aplysia* sensorimotor synapse. *J. Neuroscience*, 31:18401-18411, 2011. PMID: PMC3407595
171. Zhang, Y., Liu, R.Y., Heberton, G.A., Smolen, P.D., Baxter, D.A., Cleary, L.J. and Byrne, J.H. Computational design of enhanced learning protocols. *Nature Neuroscience*, 15:294-297, 2012. PMID: PMC3267874
172. Smolen, P., Baxter, D.A. and Byrne, J.H. Molecular constraints on synaptic tagging and maintenance of long-term potentiation: A predictive model. *PLOS Computational Biology*, 8:e1002620. doi:10.1371/journal.pcbi.1002620, 2012. PMID: PMC3410876
173. Liu, R.Y., Zhang, Y., Baxter, D.A., Smolen, P., Cleary, L.J. and Byrne, J.H. Deficit in long-term synaptic plasticity is rescued by a computationally predicted stimulus protocol. *J. Neuroscience*, 33:6944-6949, 2013. PMID: PMC3690371
174. Zhang, Y., Smolen, P., Baxter, D.A. and Byrne, J.H. Computational analyses of synergism in small molecular network motifs. *PLOS Computational Biology*, 10:e1003524. doi: 10.1371/journal.pcbi.1003524, 2014. PMID: PMC3961176
175. Smolen, P., Baxter, D.A. and Byrne, J.H. Simulations suggest pharmacological methods for rescuing long-term potentiation. *Journal of Theoretical Biology*, 360C:243-250, 2014. PMID: PMC4162763
176. Zhou, L., Baxter, D.A. and Byrne, J.H. Contribution of PKC to the maintenance of 5-HT-induced short-term facilitation at sensorimotor synapses of *Aplysia*. *J. Neurophysiol.*, 112:1936-1949, 2014. PMID: PMC4200012
177. Liu, R.Y., Zhang, Y., Coughlin, B., Cleary, L. and Byrne, J.H. Doxorubicin attenuates serotonin-induced long-term synaptic facilitation by phosphorylation of p38 mitogen-activated protein kinase. *J. Neuroscience*, 34:13289-13300, 2014. PMID: PMC4180468
178. Zhou, L., Zhang, Y., Liu, R.Y., Smolen, P., Cleary, L. and Byrne, J.H. Rescue of impaired long-term facilitation at sensorimotor synapses of *Aplysia* following siRNA knockdown of CREB1. *J. Neuroscience*, 35:1617-1626, 2015. PMID: PMC4308605
179. Zhang, Y., Smolen, P., Alberini, C.M., Baxter, D.A. and Byrne, J.H. Computational model of a positive BDNF feedback loop in hippocampal neurons following inhibitory avoidance training. *Learning and Memory*, 23:714-722, 2016. PMID: PMC5110990
180. Zhang, Y., Smolen, P., Baxter, D.A. and Byrne, J.H. Biphasic regulation of p38 MAPK by serotonin contributes to the efficacy of stimulus protocols that induce long-term synaptic facilitation. *eNeuro*, 4:e0373-16, 2017. PMID: PMC5307297
181. Liu, R.Y., Neveu, C., Smolen, P., Cleary, L.J. and Byrne, J.H. Superior long-term synaptic memory induced by combining dual pharmacological activation of PKA and ERK with an enhanced training protocol. *Learning and Memory*, 24:289-297, 2017. PMID: PMC5473109

182. Lakshminarasimhan, H., Coughlin, B.L., Darr, A.S. and Byrne, J.H. Characterization and reversal of doxorubicin-mediated biphasic activation of ERK and persistent excitability in sensory neurons of *Aplysia californica*. *Scientific Reports*, 7:4533, <https://doi.org/10.1038/s41598-017-04634-4>, 2017. PMCID: PMC5495788
183. Cai, Z., Neveu, C.L., Baxter, D.A., Byrne, J.H. and Aazhang, B. Inferring neuronal network functional connectivity with directed information. *Journal of Neurophysiology*, 118:1055-1069, 2017. PMCID: PMC5547257
184. Neveu, C.L., Costa, R.M., Homma, R., Nagayama, S., Baxter, D.A. and Byrne, J.H. Unique configurations of compression and truncation of neural activity underlie L-DOPA-induced selection of motor patterns in *Aplysia*. *eNeuro*, 4:e0206-17, 2017. PMID: 29071298, PMCID: PMC5654236
185. Smolen, P., Baxter, D.A. and Byrne, J.H. Paradoxical LTP maintenance with inhibition of protein synthesis and the proteasome suggests a novel protein synthesis requirement for early LTP reversal. *Journal of Theoretical Biology*, 457:79-87, 2018. PMID: 30138630.
186. Liu, R.Y., Zhang, Y., Smolen, P., Cleary, L.J. and Byrne, J.H. Role of p90 ribosomal S6 kinase in long-term synaptic facilitation and enhanced neuronal excitability. *Scientific Reports*, 10: 608, 2020. doi: 10.1038/s41598-020-57484-y. PMID: 31953461
187. Costa, R.M., Baxter, D.A. and Byrne, J.H.. Computational model of the distributed representation of operant reward memory: Combinatoric engagement of intrinsic and synaptic plasticity mechanisms. *Learning & Memory*, 27:236-249, 2020. PMID: 32414941.
188. Smolen P., Wood M.A., Baxter D.A., and Byrne J.H. Modeling suggests combined-drug treatments for disorders impairing synaptic plasticity via shared signaling pathways. *Journal of Computational Neuroscience*, 2020. DOI 10.1007/s10827-020-00771-4. PMID: 33175283.
189. Smolen P., Baxter D.A., and Byrne J.H. Comparing theories for the maintenance of late LTP and long-term memory: Computational analysis of the roles of kinase feedback pathways and synaptic reactivation. *Frontiers in Computational Neuroscience*. 2020. DOI 10.3389/fncom.2020.569349. PMID: 33390922.
190. Young, J., Neveu, C. L., Byrne, J. H., Aazhang, B. Inferring functional connectivity through graphical directed information. *Journal of Neural Engineering*, 18 046019. <https://doi.org/10.1088/1741-2552/abec6>. 2021. PMID: 33684898
191. Zhang, Y., Smolen, P.A., Cleary, L.J. and Byrne, J.H. Interactions of PKA and MAPK pathways contribute to complex dynamics of kinase activation after 5-HT treatment in *Aplysia* sensory neurons. *Scientific Reports*, 11(1):14931. 2021. DOI 10.1038/s41598-021-94393-0. PMID: 34294802.

192. Costa, R.M., Baxter, D.A., and Byrne, J.H. Neuronal population activity dynamics reveal a low-dimensional signature of operant learning in *Aplysia*. *Communications Biology*, 5:90, 2022. PMID: 35075264.
193. Momohara, Y., Neveu, C.L., Chen, H-M., Baxter, D.A. and Byrne, J.H. Specific plasticity loci and their synergism mediate operant conditioning. *Journal of Neuroscience*, 42:1211-1223, 2022. PMID: 34992131.

B. Invited Articles in Journals:

1. Kandel, E.R., Brunelli, M., Byrne, J.H. and Castellucci, V. A common presynaptic locus for the synaptic mechanisms underlying short-term habituation and sensitization of the gill-withdrawal reflex in *Aplysia*. *Cold Spring Harbor Symposium on Quantitative Biology*, 40:465-482, 1976.
2. Byrne, J.H. Quantitative reconstruction of the firing pattern of motor neurons mediating a simple behavior of *Aplysia*. *Proceedings of the 1978 Joint Automatic Control Conf.*, 4:53-58, 1978.
3. Byrne, J.H. Ionic currents and behavior. *Trends in Neurosciences*, 2:268-270, 1979.
4. Byrne, J.H. Cellular and biophysical mechanisms contributing to regulation of reflex excitability of inking behavior in *Aplysia*. *Fed. Proc.*, 41:2147-2152, 1982.
5. Byrne, J.H. Neural and molecular mechanisms underlying information storage in *Aplysia*: Implications for learning and memory. *Trends in Neurosciences*, 8:478-482, 1985.
6. Byrne, J.H. Can learning and memory be understood? *News in Physiological Sciences*, 1:182-185, 1986.
7. Byrne, J.H. Cellular analysis of associative learning. *Physiological Reviews*, 67:329-439, 1987.
8. Gingrich, K.J., Baxter, D.A. and Byrne, J.H. Mathematical model of cellular mechanisms contributing to presynaptic facilitation. *Brain Research Bulletin*, 21:513-520, 1988.
9. Byrne, J.H., Eskin, A. and Scholz, K.P. Neuronal mechanisms contributing to long-term sensitization in *Aplysia*. *J. de Physiologie*, 83:141-147, 1988-89.
10. Byrne, J.H., Baxter, D.A., Buonomano, D.V. and Raymond, J.L. Neuronal and network determinants of simple and higher-order features of associative learning: Experimental and modeling approaches. *Cold Spring Harbor Symposium on Quantitative Biology*, 55:175-186, 1990.
11. Cleary, L.J., Baxter D.A., Nazif, F.A. and Byrne, J.H. Neural mechanisms underlying sensitization of a defensive reflex in *Aplysia*. *Biological Bulletin*, 180:252-261, 1991.
12. Baxter, D.A. and Byrne, J.H. Ionic mechanisms contributing to the electrophysiological properties of neurons. *Current Opinion in Neurobiology*, 1:105-112, 1991.

13. Byrne, J.H., Baxter, D.A., Buonomano, D.V., Cleary, L.J., Eskin, A., Goldsmith, J.R., McClendon, E., Nazif, F.A., Noel, F. and Scholz, K.P. Neural and molecular bases of nonassociative and associative learning in *Aplysia*. *Annals of the New York Academy of Sciences*, 627:124-149, 1991.
14. Endo, S., Ichinose, M., Critz, S.D., Eskin, A., Byrne, J.H. and Shenolikar, S. Protein phosphatases and their role in control of membrane currents in *Aplysia* neurons. *Adv. Prot. Phosphatases*, 6:411-432, 1991.
15. Byrne, J.H., Zwartjes, R., Homayouni, R., Critz, S. and Eskin, A. Roles of second messenger pathways in neuronal plasticity and in learning and memory: Insights gained from *Aplysia*. In: *Advances in second messenger and phosphoprotein research*, Vol. 27, ed., A.C. Nairn and S. Shenolikar, New York, Raven Press, pp. 47-108, 1993.
16. Byrne, J.H., Canavier, C.C., Lechner, H., Clark, J.W. and Baxter, D.A. Role of nonlinear dynamical properties of a modeled bursting neuron in information processing and storage. *Netherlands Journal of Zoology*, 44:339-356, 1994.
17. Kabotyanski, E.A., Ziv, I., Baxter, D.A. and Byrne, J.H. Experimental and computational analyses of a central pattern generator underlying aspects of feeding behavior of *Aplysia*. *Netherlands Journal of Zoology*, 44:357-373, 1994.
18. Cleary, L.J., Byrne, J.H. and Frost, W.N. Role of interneurons in defensive withdrawal reflexes in *Aplysia*. *Learning & Memory*, 2:133-151, 1995.
19. Byrne, J.H. and Kandel, E.R. Presynaptic facilitation revisited: state- and time-dependence. *J. Neuroscience*, 16:425-435, 1996.
20. Baxter, D.A. and Byrne, J.H. Complex oscillations in simple neural systems. *Biol. Bltn.*, 192:167-169, 1997.
21. Byrne, J.H. Plastic plasticity. *Nature*, 389:791-792, 1997.
22. Lechner, H.A. and Byrne, J.H. New perspectives on classical conditioning: A synthesis of Hebbian and non-Hebbian mechanisms. *Neuron*, 20:355-358, 1998.
23. Smolen, P., Baxter, D.A. and Byrne, J.H. Mathematical modeling of gene networks. *Neuron*, 26:567-580, 2000.
24. Byrne, J.H. How neuroscientists captured the 2000 Nobel Prize. *Cerebrum*, 3:66-79, 2001.
25. Smolen, P. and Byrne, J.H. Support of progress in clinical neurology by models of genetic regulation. *Archives of Neurology*, 60:1053-1057, 2003.
26. Antzoulatos, E.G. and Byrne, J.H. Learning insights transmitted by glutamate. More than synaptic plasticity: Role of nonsynaptic plasticity in learning and memory. *Trends in Neurosciences*, 27:555-560, 2004.

27. Byrne, J.H. and Suzuki, W.A. Editorial Overview: Neurobiology of behaviour. *Current Opinion in Neurobiology*, 16:668-671, 2006.
28. Baxter, D.A. and Byrne, J.H. Feeding behavior of *Aplysia*: A model system for comparing cellular mechanisms of classical and operant conditioning. *Learning and Memory*, 13:669-680, 2006.
29. Baxter, D.A. and Byrne, J.H. Simulator for neural networks and action potentials: Description and application. In: *Methods in Molecular Biology, Vol 401: Neuroinformatics*, ed. Crasto, C. J., Totowa, NJ, The Humana Press, 127-154, 2007.
30. Av-Ron E., Byrne M.J., Byrne J.H. and Baxter D.A. SNNAP: A tool for teaching neuroscience. Brains, Minds, and Media, Vol.3, bmm1408, in: *Lorenz S, Egelhaaf M (eds): Interactive Educational Media for the Neural and Cognitive Sciences*, Brains, Minds & Media, 2008.
31. Mozzachiodi, R. and Byrne, J.H. More than synaptic plasticity: Role of nonsynaptic plasticity in learning and memory. *Trends in Neurosciences*, 33:17-26, 2010. PMID: PMC2815214
32. Fioravante, D. and Byrne, J.H. Protein degradation and memory formation. *Brain Research Bulletin*, 85:14-20, 2011. PMID: PMC3079012
33. Byrne, J.H. and Hawkins, R.D. Nonassociative learning in invertebrates. *Cold Spring Harbor Perspectives in Biology*, 7:a021675, 2015. PMID: PMC4448621
34. Hawkins, R.D. and Byrne, J.H. Associative learning in invertebrates. *Cold Spring Harbor Perspectives in Biology*, 7:a021709, 2015. PMID: PMC4448622
35. Smolen, P., Zhang, Y. and Byrne, J.H. The right time to learn: mechanisms and optimization of spaced learning. *Nature Reviews Neuroscience*, 17:77-88, 2016. PMID: PMC5126970
36. Smolen, P., Baxter, D.A. and Byrne, J.H. How can memories last for days, years, or a lifetime? Proposed mechanisms for maintaining synaptic potentiation and memory. *Learning and Memory*, 26: 133-150, 2019. PMID: 30992383

C. Chapters:

1. Byrne, J.H. and Koester, J. Neural mechanisms underlying the stimulus control of ink release in *Aplysia*. In: *Molluscan Nerve Cells: From Biophysics to Behavior*, eds., Koester, J. and Byrne, J.H., Cold Spring Harbor: Cold Spring Harbor Press, pp. 157-167, 1980.
2. Byrne, J.H. Intracellular stimulation. In: *Electrical Stimulation Techniques*, eds., Patterson, M.M. and Kesner, R. New York: Academic Press, 37-59, 1981.
3. Walters, E.T. and Byrne, J.H. Activity-dependent neuromodulation: A mechanism for associative plasticity. In: *Neuronal Growth and Plasticity*, ed., Kuno, M. Tokyo: Japan Scientific Societies Press, pp. 219-240, 1984.

4. Byrne, J.H., Ocorr, K.A., Walsh, J.P. and Walters, E.T. Analysis of associative and nonassociative neuronal modifications in *Aplysia* sensory neurons. In: *Neural Mechanisms of Conditioning*, eds., Alkon, D.L. and Woody, C.D. New York: Plenum, pp. 55-73, 1986.
5. Walters, E.T., Byrne, J.H., Carew, T.J. and Kandel, E.R. A comparison of simple defensive reflexes in *Aplysia*: Implications for general mechanisms of integration and plasticity. In: *Comparative Neurobiology: Modes of Communication in the Nervous System*, eds., Strumwasser, F. and Cohen, M. New York: John Wiley and Sons, pp. 181-205, 1986.
6. Baudry, M., Alkon, D.L., Andersen, P.O., Bliss, T.V.P., Byrne, J.H., Carew, T.J., Changeux, J.-P., Gerschenfeld, H.M., Ito, M., Kennedy, M.B., Nicoll, R., Mulle, C., Schmidt, R., Thompson, R.F. and Willmund, R. Activity-dependent regulation of synaptic transmission and its relationship to learning. In: *The Neural and Molecular Bases of Learning*, eds., Changeux, J.-P. and Konishi, M. Dahlem Konferenzen. New York: John Wiley and Sons, pp. 153-175, 1987.
7. Byrne, J.H., Cleary, L.J. and Susswein, A.J. Analysis of associative learning in *Aplysia*: Behavioural and cellular studies. In: *Growth and Plasticity of Neural Connections*, eds., Winlow, W. and McCrohan, C.R. England: Manchester University Press, pp. 186-205, 1987.
8. Byrne J.H., Eskin, A. and Scholz, K.P. Neural and molecular mechanisms of short- and long-term sensitization in *Aplysia*. In: *Modulation of Synaptic Transmission and Plasticity in Nervous Systems*, eds., Hertting, G. and Spatz, H.-Ch. Berlin: Springer-Verlag, 289-304, 1988.
9. Byrne, J.H. *Aplysia*, associative modifications of individual neurons. In: *Encyclopedia of Neuroscience*, ed., Adelman, G. Boston: Birkhauser, pp. 65-67, 1987 and reprinted In: *Comparative Neuroscience and Neurobiology*, ed., Irwin, L.N. Boston: Birkhauser, pp. 1-2, 1988, and In: *Learning and Memory*, ed., Thompson, R.F. Boston, Birkhauser, pp. 25-26, 1989.
10. Byrne, J.H. and Gingrich, K.J. Mathematical model of cellular and molecular processes contributing to associative and nonassociative learning in *Aplysia*. In: *Neural Models of Plasticity*, eds., Byrne, J.H. and Berry, W.O. Orlando: Academic Press, pp. 58-72, 1989.
11. Byrne, J.H., Gingrich, K.J. and Baxter, D.A. Computational capabilities of single neurons: Relationship to simple forms of associative and nonassociative learning in *Aplysia*. In: *Computational Models of Learning in Simple Neural Systems*, eds., Hawkins, R.D. and Bower, G.H. Orlando: Academic Press, pp. 31-63, 1989.
12. Cleary, L.J., Hammer, M. and Byrne, J.H. Insights into the cellular mechanisms of short-term sensitization in *Aplysia*. In: *Perspectives in Neural Systems*, eds., Carew, T.J. and Kelly, D. New York: Alan R. Liss Inc., pp. 105-119, 1989.
13. Byrne, J.H. Learning and memory in *Aplysia* and other invertebrates. In: *Neurobiology of Comparative Cognition*, eds., Kesner, R.P. and Olton, D.S. New Jersey: Lawrence Erlbaum Associates, Inc., pp. 293-315, 1990.

14. Byrne, J.H., Cleary, L.J. and Baxter, D.A. Aspects of the neural and molecular mechanisms of short-term sensitization in *Aplysia*: Modulatory effects of serotonin and cAMP on duration of action potentials, excitability and membrane currents in tail sensory neurons. In: *The Biology of Memory*, eds., Squire, L.R. and Lindenlaub, E. Stuttgart, F.K. Germany: Schattauer Verlag, pp. 7-28, 1990.
15. Baxter, D.A., Buonomano, D.V., Raymond, J.L., Cook, D.G., Kuenzi, F.M., Carew, T.J. and Byrne, J.H. Empirically derived adaptive elements and networks simulate associative learning. In: *Neural Network Models of Conditioning and Action*, eds., Commons, M.L., Grossberg, S. and Staddon, J.E.R. New Jersey: Lawrence Erlbaum Assoc. Inc., pp. 13-52, 1991.
16. Byrne, J.H. and Crow, T. Examples of mechanistic analyses of learning and memory in invertebrates. In: *Learning and Memory: A Biological View*, eds., Martinez, J.L., Jr. and Kesner, R.P. San Diego: Academic Press, pp. 329-358, 1991.
17. Nazif, F.A., Cleary, L.J. and Byrne, J.H. Morphological correlates of long-term sensitization in *Aplysia* are mimicked by cAMP. In: *Molluscan Neurobiology*, eds., Kits, K.S., Boer, H.H. and Joosse, J. Amsterdam: North Holland Publishing Company, pp. 174-178, 1991.
18. Byrne, J.H. Resting potentials and action potentials in excitable cells. In: *Essential Medical Physiology*, ed., Johnson, L.R. New York: Raven Press, pp. 43-60, 1991.
19. Byrne, J.H. Propagation of action potentials. In: *Essential Medical Physiology*, ed., Johnson, L.R. New York: Raven Press, pp. 61-68, 1991.
20. Byrne, J.H. Neuromuscular and synaptic transmission. In: *Essential Medical Physiology*, ed., Johnson, L.R. New York: Raven Press, pp. 69-84, 1991.
21. Byrne, J.H. and Downey, J.M. Electrical activity of the heart. In: *Essential Medical Physiology*, ed., Johnson, L.R. New York: Raven Press, pp. 165-178, 1991.
22. Byrne, J.H. Classical conditioning and operant conditioning. In: *Encyclopedia of Learning and Memory*, ed., Squire, L.R. New York: MacMillan Publishing Company, pp. 44-47, 1992.
23. Byrne, J.H. and Raymond, J.L. Conditioning, cellular and network schemes for higher-order features of classical. In: *Encyclopedia of Learning and Memory*, ed., Squire, L.R. New York: MacMillan Publishing Company, pp. 119-123, 1992.
24. Bauer, K.D., Byrne, J.H., Friedlander, M.J., König, P., Körner, E., Levy, W.B., Mishkin, M., Poggio, T.A., Willshaw, D.J. Group report: Forms and mechanisms of learning. In: *Exploring Brain Functions Models in Neuroscience*, eds., Poggio, T.A. and Glaser, D.A. New York: John Wiley and Sons Ltd., pp. 127-138, 1993.
25. Baxter, D.A. and Byrne, J.H. Learning rules from neurobiology. In: *The Neurobiology of Neural Networks*, ed., Gardner, D. MIT Press/Bradford Books, pp. 71-104, 1993.

26. Byrne, J.H. and Crow, T. Invertebrate models of learning: *Aplysia* and *Hermisenda*. In: *Handbook of Brain Theory and Neural Networks*, ed., Arbib, M. MIT Press/Bradford Books, pp. 487-491, 1995.
27. Byrne, J.H., Sugita, S. and Baxter, D.A. Roles of multiple second messenger systems in the serotonergic modulation of spike duration, membrane currents and synaptic connections of *Aplysia* sensory neurons. In: *Basic Neuroscience in Invertebrates*, eds., Koike, H., Takahashi, K. and Kidokoro, Y. Japan Scientific Societies Press, pp. 229-246, 1996.
28. Byrne, J.H. Resting potentials and action potentials in excitable cells. In: *Essential Medical Physiology*, Second Edition, ed., Johnson, L.R. Philadelphia: Lippincott-Raven Publishers, pp. 67-84, 1997.
29. Byrne, J.H. Propagation of the action potential. In: *Essential Medical Physiology*, Second Edition, ed., Johnson, L.R. Philadelphia: Lippincott-Raven Publishers, pp. 85-92, 1997.
30. Byrne, J.H. Neuromuscular and synaptic transmission. In: *Essential Medical Physiology*, Second Edition, ed., Johnson, L.R. Philadelphia: Lippincott-Raven Publishers, pp. 93-113, 1997.
31. Byrne, J.H. Learning and Memory. In: *Essential Medical Physiology*, Second Edition, ed., Johnson, L.R. Philadelphia: Lippincott-Raven Publishers, pp. 801-812, 1997.
32. Fox, K., Bienenstock, E., Bonhoeffer, T., Byrne, J.H., Davis, M., Frégnac, Y., Gierer, A., Hübener, M., Mauk, M.D., Shatz, C.J., Stryker, M.P. Group report: To what extent are activity-dependent processes common to development and learning? In: *Mechanistic Relationships Between Development and Learning*, eds., Carew, T., Menzel, R. and Shatz, C.J. Chichester: John Wiley & Sons, pp. 163-188, 1998.
33. Byrne, J.H. Postsynaptic potentials and synaptic integration. In: *Fundamental Neuroscience*, eds., Zigmond, M.J., Bloom, F.E., Landis, S.C., Roberts, J.L. and Squire, L.R. San Diego: Academic Press, pp. 345-362, 1998.
34. Beggs, J.M., Brown, T.H., Byrne, J.H., Crow, T., LeDoux, J.E., LaBar, K., Thompson, R.F. Learning and memory: Basic mechanisms. In: *Fundamental Neuroscience*, eds., Zigmond, M.J., Bloom, F.E., Landis, S.C., Roberts, J.L. and Squire, L.R. San Diego: Academic Press, pp. 1411-1454, 1998.
35. Byrne, J.H. *Aplysia*: Neural and molecular mechanisms of simple forms of learning. In: *The Encyclopedia of Neuroscience*, Second Edition, eds., Adelman, G. and Smith, B.H. Amsterdam: Elsevier Science, pp. 114-118, 1999.
36. Byrne, J.H. Invertebrate models of learning. In: *The Encyclopedia of Neuroscience*, Second Edition, eds., Adelman, G. and Smith, B.H. Amsterdam: Elsevier Science, pp. 981-984, 1999.
37. Canavier, C.C., Baxter, D.A., and Byrne, J.H. Repetitive action potential firing. In: *Nature Encyclopedia of Life Sciences*, London: Nature Publishing Group. <http://www.els.net/> [doi:10.1038/npg.els.0000084], 2002, updated 2004.

38. Baxter, D.A., Canavier, C.C., Lechner, H.A., Butera, R.J., DeFranceschi, A.A., Clark, J.W., Byrne, J.H. Coexisting stable oscillatory states in single cell and multicellular neuronal oscillators. In: *Oscillations in Neural Systems*, eds., Levine, D., Brown, V. and Shirey, T. Hillsdale: Lawrence Erlbaum Associates, pp. 51-77, 2000.
39. Lorenzetti, F.D. and Byrne, J.H. Associative modifications of individual neurons. In: *International Encyclopedia of the Social and Behavioral Sciences*, eds., Smelser, N.J. and Baltes, P.B. Oxford: Elsevier Science, 2:849-53, 2001.
40. Phares, G.A. and Byrne, J.H. Heterosynaptic modulation of synaptic efficacy. In: *Nature Encyclopedia of Life Sciences*, London: Nature Publishing Group, 8:634-643, 2002, updated 2004.
41. Lorenzetti, F.D. and Byrne, J.H., *Aplysia*: Classical conditioning and operant conditioning. In: *Learning and Memory*, Second Edition, ed., Byrne, J.H. New York: MacMillan Publishing Company, pp. 33-37, 2003.
42. Phares, G.A. and Byrne, J.H., *Aplysia*: Molecular basis of long-term sensitization. In: *Learning and Memory*, Second Edition, ed., Byrne, J.H. New York: MacMillan Publishing Company, pp. 41-45, 2003.
43. Byrne, J.H., Postsynaptic potentials and synaptic integration. In: *Fundamental Neuroscience*, Second Edition, eds., Squire, L.R., Bloom, F.E., Roberts, J.L., Zigmond, M.J., McConnell, S. K. and Spitzer, N. C. San Diego: Academic Press, pp. 299-317, 2003.
44. Byrne, J.H., Learning and memory: Basic mechanisms. In: *Fundamental Neuroscience*, Second Edition, eds., Squire, L.R., Bloom, F.E., Roberts, J.L., Zigmond, M.J., McConnell, S.K. and Spitzer, N. C. San Diego: Academic Press, pp. 1275-1298, 2003.
45. Byrne, J.H. and Crow, T. Invertebrate models of learning: *Aplysia* and *Hermisenda*. In: *The Handbook of Brain Theory and Neural Networks*, Second Edition, ed., Arbib, M.A. Cambridge: The MIT Press, pp. 581-585, 2003.
46. Hayes, R.D., Byrne, J.H. and Baxter, D.A. Neurosimulation: Tools and resources. In *The Handbook of Brain Theory and Neural Networks*, Second Edition, ed., Arbib, M.A. Cambridge: The MIT Press, pp. 776-780, 2003.
47. Byrne, J.H. Resting potentials and action potentials in excitable cells. In: *Essential Medical Physiology*, Third Edition, ed., Johnson, L.R. San Diego: Academic Press, pp.71-88, 2003.
48. Byrne, J.H. Propagation of the action potential. In: *Essential Medical Physiology*, Third Edition, ed., Johnson, L.R. San Diego: Academic Press, pp. 89-96, 2003.
49. Byrne, J.H. Neuromuscular and synaptic transmission. In: *Essential Medical Physiology*, Third Edition, ed., Johnson, L.R. San Diego: Academic Press, pp. 97-122, 2003.
50. Byrne, J.H. Learning and Memory. In: *Essential Medical Physiology*, Third Edition, ed., Johnson, L.R. San Diego: Academic Press, pp. 905-918, 2003.

51. Byrne, J.H., Postsynaptic potentials and synaptic integration. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 459-478, 2004.
52. Baxter, D.A., Canavier, C.C. and Byrne, J.H. Dynamical properties of excitable membranes. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp.161-196, 2004.
53. Smolen, P., Baxter, D.A. and Byrne, J.H. Mathematical modeling and analysis of intracellular signaling pathways. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 393-429., 2004.
54. Brown, T.H., Byrne, J.H., LaBar, K.S., LeDoux, J.E., Lindquist, D.H., Thompson, R.F. and Tyler, T.J. Learning and memory: Basic mechanisms. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 499-574, 2004.
55. Byrne, J.H., Antzoulatos, E. and Fioravante, D. *Aplysia*: Neural and molecular mechanisms of simple learning. In: *Encyclopedia of Neuroscience*, Third Edition, eds., Adelman, G. and Smith, B.H. Amsterdam: Elsevier Science, 2004.
56. Byrne, J.H. Invertebrate models of learning. In: *Encyclopedia of Neuroscience*, Third Edition, eds., Adelman, G. and Smith, B.H. Amsterdam: Elsevier Science, 2004.
57. Byrne, J.H., Fioravante, D., and Antzoulatos, E.G. Cellular and molecular mechanisms of associative and non-associative learning. In: *Textbook of Neural Repair and Rehabilitation*, eds., Selzer, M., Clarke, S., Cohen, L.G., Duncan, P.W., and Gage, F.H. Cambridge: Cambridge University Press, Vol. I, pp. 79-94, 2006.
58. Byrne, J.H. Plasticity: New concepts, new challenges. In: *Science of Memory: Concepts*, eds., Roediger, H.L., Dudai, Y. and Fitzpatrick, S. Oxford University Press, Inc., pp. 77-82, 2007.
59. Fioravante, D., Antzoulatos, E.G., and Byrne, J.H. Sensitization and habituation: Invertebrate. In: J.D. Sweatt (Ed.), Volume 4 of *Learning and Memory: A Comprehensive Reference*, 4 vols. (J.H. Byrne, Editor). Oxford: Elsevier Science Limited, pp. 31-51, 2008.
60. Lorenzetti, F.D. and Byrne, J.H. Cellular mechanisms of associative learning in *Aplysia*. In: J.D. Sweatt (Ed.), Volume 4 of *Learning and Memory: A Comprehensive Reference*, 4 vols. (J.H. Byrne, Editor). Oxford: Elsevier Science Limited, pp. 149-156, 2008.
61. Mozzachiodi, R. and Byrne, J.H. Plasticity of intrinsic excitability as a mechanism for memory storage. In: J.D. Sweatt (Ed.), Volume 4 of *Learning and Memory: A Comprehensive Reference*, 4 vols. (J.H. Byrne, Editor). Oxford: Elsevier Science Limited, pp. 829-838, 2008.

62. Byrne, J.H. Postsynaptic potentials and synaptic integration. In: *Fundamental Neuroscience*, Third Edition, eds., Squire, L.R., Berg, D, Bloom, F.E., Du Lac, S. Gosh, Spitzer, N. C. San Diego: Academic Press, pp. 227-245, 2008.
63. Byrne, J.H. Learning and memory: Basic mechanisms. In: *Fundamental Neuroscience*, Third Edition, eds., Squire, L.R., Berg, D, Bloom, F.E., Du Lac, S. Gosh, Spitzer, N. C. San Diego: Academic Press, pp. 1133-1152, 2008.
64. Byrne, J.H., Antzoulatos, E.G, and Fioravante, D. Learning and memory in invertebrates: *Aplysia*. In: *Encyclopedia of Neuroscience*, ed., Squire, L.R. Oxford: Elsevier, Volume 5, pp. 405-412, 2009.
65. Mozzachiodi, R. and Byrne, J.H. Plasticity of intrinsic excitability. In: *Encyclopedia of Neuroscience*, ed., Squire, L.R. Oxford: Elsevier, Volume 7, pp. 733-739, 2009.
66. Smolen, P.D. and Byrne, J.H. Circadian rhythm models. In: *Encyclopedia of Neuroscience*, ed., Squire, L.R. Oxford: Elsevier, Volume 2, pp. 957-963, 2009.
67. Byrne, J.H. and Shepherd, G.M. Electronic properties of axons and dendrites. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Second Edition, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 111-132, 2009.
68. Baxter, D.A. and Byrne, J.H. Dynamical properties of excitable membranes. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Second Edition, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 181-216, 2009.
69. Smolen, P.D., Baxter, D.A., and Byrne, J.H. Modeling and analysis of intracellular signaling pathways. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Second Edition, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 413-444, 2009.
70. Byrne, J.H. Postsynaptic potentials and synaptic integration. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Second Edition, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 469-488, 2009.
71. Byrne, J.H. and Shepherd, G.M. Complex information processing in dendrites. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Second Edition, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 489-512, 2009.
72. Byrne, J.H., LaBar, K.S., LeDoux, J.E., Schafe, G.E., Sweatt, J.D., and Thompson, R.F. Learning and memory: Basic mechanisms. In: *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Second Edition, eds., Byrne, J.H. and Roberts, J.L. San Diego: Elsevier, pp. 539-608, 2009.

73. Baxter, D.A., Cataldo, E., and Byrne, J.H. Computational analyses of learning networks. In: *Invertebrate Learning and Memory*, eds., Menzel, R. and Benjamin, P., San Diego: Academic Press, pp. 69-80, 2013.
74. Mozzachiodi, R., Baxter, D.A., and Byrne, J.H. Comparison of operant and classical conditioning in the feeding system of *Aplysia*. In: *Invertebrate Learning and Memory*, eds., Menzel, R. and Benjamin, P., San Diego: Academic Press, pp. 183-193, 2013.
75. Byrne, J.H., Fioravante, D., and Antzoulatos, E.G. Cellular and molecular mechanisms of associative and nonassociative learning. In: *Textbook of Neural Repair and Rehabilitation*, Second Edition, eds., Selzer, M., Clarke, S., Cohen, L., Kwakkel, G., and Miller, R. Cambridge: Cambridge University Press, pp. 63-74, 2014.
76. Smolen, P., Baxter, D.A., and Byrne, J.H. Mathematical modeling and analysis of intracellular signaling pathways. In: Byrne, J.H., Heidelberger, R, and Waxham, M.N. (Eds.), *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Third Edition, San Diego: Elsevier, pp. 175-205, 2014.
77. Baxter, D.A. and Byrne, J.H. Dynamical properties of excitable membranes. Byrne, J.H., Heidelberger, R, and Waxham, M.N. (Eds.), *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Third Edition, San Diego: Elsevier, pp. 409-422, 2014.
78. Heidelberger, R, Shouval, H., Zucker, R., and Byrne, J.H. Synaptic plasticity. In: Byrne, J.H., Heidelberger, R, and Waxham, M.N. (Eds.), *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Third Edition, San Diego: Elsevier, pp. 533-561, 2014.
79. Byrne, J.H., LaBar, K.S., LeDoux, J.E., Schafe, G.E., and Thompson, R.F. Learning and memory: Basic mechanisms. In: Byrne, J.H., Heidelberger, R, and Waxham, M.N. (Eds.), *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Third Edition, San Diego: Elsevier, pp. 591-637, 2014.
80. Smolen, P.D. and Byrne, J.H. Circadian rhythm models. In: *Reference Module in Neuroscience and Biobehavioral Psychology*, ed., Stein, J., Oxford: Elsevier, <https://doi.org/10.1016/B978-0-12-809324-5.02675-4>, 2017.
81. Mozzachiodi, R. and Byrne, J.H. Plasticity of intrinsic excitability as a mechanism for memory storage. In: S.J. Sara (Ed.), *Mechanisms of Memory*, Volume 4 of *Learning and Memory: A Comprehensive Reference*, Second Edition, 4 vols., (J.H. Byrne, Editor). Oxford: Academic Press, pp. 359-369, 2017.
82. Byrne, J.H., Hochner, B. and Kemenes, G. Cellular and molecular mechanisms of memory in molluscs. In: S.J. Sara (Ed.), *Mechanisms of Memory*, Volume 4 of *Learning and Memory: A Comprehensive Reference*, Second Edition, 4 vols., (J.H. Byrne, Editor). Oxford: Academic Press, pp. 453-474, 2017.

83. Mozzachiodi, R. and Byrne, J.H. Plasticity of intrinsic excitability. In: *Reference Module in Neuroscience and Biobehavioral Psychology*, ed., Stein, J., Oxford: Elsevier, <https://doi.org/10.1016/B978-0-12-809324-5.02784-X>, 2017.
84. Knowlton, C.J, Baxter, D.A., and Byrne, J.H. and Canavier, C.C. Repetitive action potential firing. In: *Encyclopedia of Life Sciences*, London: John Wiley & Sons. <https://doi.org/10.1002/9780470015902.a0000084.pub3>.

D. Books:

1. Koester, J. and Byrne, J.H., eds., *Molluscan Nerve Cells: From Biophysics to Behavior*, Cold Spring Harbor: Cold Spring Harbor Press, 1980.
2. Byrne, J.H. and Schultz, S.G. *An Introduction to Membrane Transport and Bioelectricity*, New York: Raven Press, 1988.
3. Byrne, J.H. and Berry, W.O., eds., *Neural Models of Plasticity*, Orlando: Academic Press, 1989.
4. Byrne, J.H. and Schultz, S.G. *An Introduction to Membrane Transport and Bioelectricity, (Foundations of General Physiology and Electrochemical Signalling)*, Second Edition, New York: Raven Press, 1994.
5. Byrne, J.H. and Schultz, S.G. *En bref... Transport Membranaire et Bioélectricité*, Second Edition, Pennsylvania: Lippincott-Raven Publishers, 1997.
6. Byrne, J.H., ed., *Learning and Memory*, Second Edition, New York: J.H. Macmillan Publishing Company, 2003.
7. Byrne, J.H. and Roberts, J.L., eds., *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, San Diego: Elsevier, 2004.
8. Byrne, J.H., Eichenbaum, H., Menzel, R., Roediger, R. and Sweatt, D., eds., *Learning and Memory: A Comprehensive Reference, 4 volumes*, Oxford: Elsevier, 2008.
9. Byrne, J.H., ed., *Concise Learning and Memory - the editor's selection*, Oxford: Elsevier, 2009.
10. Byrne, J.H. and Roberts, J.L., eds., *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Second Edition, San Diego: Elsevier, 2009.
11. Byrne, J. H. (ed.), *Neuroscience Online: An Electronic Textbook for the Neurosciences* <http://nba.uth.tmc.edu/neuroscience/> Department of Neurobiology and Anatomy, McGovern Medical School at The University of Texas Health Science Center at Houston © 1997-2017.
12. Byrne, J.H. *Understanding Electricity with Water*, epub, Lulu.com, 2011.

13. Byrne, J.H., Heidelberger, R, and Waxham, M.N., eds., *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, Third Edition, Elsevier, 2014.
14. Byrne, J.H., ed., *Learning and Memory: A Comprehensive Reference*, Second Edition, Elsevier, 2017.
15. Byrne, J.H., ed., *Oxford Handbook of Invertebrate Neurobiology*, New York: Oxford University Press, 2019.

E. Other:

1. Byrne, J.H. Stimulus funds to provide thousands of science jobs. *Houston Chronicle*, Outlook section: B9, March 11, 2009.
2. Hart, A.K. and Byrne, J.H. Special issue on molecular and cellular cognition. *Learning and Memory*, 19: v, 2012.
3. Hart, A.K. and Byrne, J.H. Special issue on molecular and cellular cognition. *Learning and Memory*, 20: v, 2013.
4. Hart, A.K. and Byrne, J.H. Special issue on molecular and cellular cognition. *Learning and Memory*, 21: v, 2014. PMID: PMC4175500
5. Frizzell, R. and Byrne, J.H. Obituary: Stanley G. Schultz (1931-2014). *The Physiologist*, 58:40-41, 2015.
6. Hart, A.K. and Byrne, J.H. Special issue on molecular and cellular cognition. *Learning and Memory*, 22: v, 2015. PMID: PMC4561411
7. Hart, A.K. and Byrne, J.H. Special issue on molecular and cellular cognition. *Learning and Memory*, 23: v, 2016.
8. Cushman, S. and Byrne, J.H. Special issue on fear and stress. *Learning and Memory*, 24: v, 2017.

CURRENT GRANT SUPPORT:

1. NIH Research Grant (Principal Investigator)
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS19895-38
 3. Period of support: July 15, 2018 to April 30, 2023
 4. Total direct costs: \$1,326,620

2. NIH Research Grant (Principal Investigator)
 1. Title: Analyses of the Distributed Representation of Associative-Learning in an Identified Circuit Using a Combination of Single-Cell Electrophysiology and Multicellular Voltage-Sensitive Dye Recordings
 2. Grant number: R01 NS101356-05
 3. Period of support: February 1, 2018 to December 31, 2022
 4. Total direct costs: \$1,093,750

3. NIH Research Grant (Principal Investigator)
 1. Title: Modeling the Molecular Networks that Underlie the Formation and Consolidation of Memory
 2. Grant number: R01 NS102490-05
 3. Period of support: April 1, 2018 to December 31, 2022
 4. Total direct costs: \$1,093,750

4. NIH Research Grant (Principal Investigator)
 1. Title: A Novel Approach to Analyzing Functional Connectomics and Combinatorial Control in a Tractable Small-Brain Closed-Loop System
 2. Grant number: R01 NS118606-02
 3. Period of support: September 30, 2020 to June 30, 2023
 4. Total direct costs: \$3,022,127

PREVIOUS GRANT SUPPORT:

1. NIH Individual Postdoctoral Fellowship
 1. Title: Central Synaptic Connections of *Aplysia* Touch Receptors
 2. Grant number: F22 NS03076
 3. Period of support:
 4. Total direct costs:
2. NIH Research Grant
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS13511
 3. Period of support: July 1, 1976 to June 30, 1979
 4. Total direct costs: \$87,973
3. NIH Research Career Development Award
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: K04 NS00200
 3. Period of support: January 1, 1977 to December 31, 1982
 4. Total direct costs: \$150,000
4. NIH Research Grant
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS13511
 3. Period of support: July 1, 1979 to June 30, 1982
 4. Total direct costs: \$111,424
5. Research Grant from the Whitaker Foundation
 1. Title: Quantitative Analysis of a Simple Behavior
 2. Grant number: not applicable
 3. Period of support: July 1, 1979 to June 30, 1982
 4. Total direct costs: \$67,958
6. NIH Postdoctoral Fellowship (to Edgar T. Walters)
 1. Title: Fixed Versus Modifiable Responses: Biophysical Analysis
 2. Grant number: F32 NS06455
 3. Period of support: August 1, 1980 to July 31, 1982
 4. Total direct costs: \$37,420
7. University of Texas Biomedical Research Support Grant
 1. Title: Cellular Mechanisms Underlying Slow Synaptic Potentials
 2. Grant number: Not applicable
 3. Period of support: September 1, 1982 to August 31, 1983
 4. Total direct costs: \$4,000

8. NIH Research Grant
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS19895
 3. Period of support: April 1, 1983 to March 31, 1986
 4. Total direct costs: \$156,021
9. NIMH Postdoctoral Fellowship (to Karen Ocorr)
 1. Title: Mechanisms of Associative and Nonassociative Modifications
 2. Grant number: F32 MH09014
 3. Period of support: November 1, 1983 to September 30, 1985
 4. Total direct costs: \$ 34,776
10. NIH Postdoctoral Fellowship (to Leonard Cleary)
 1. Title: Anatomical and Physiological Substrates of Learning
 2. Grant number: F32 NS07432
 3. Period of support: January 15, 1984 to January 14, 1987
 4. Total direct costs: \$59,772
11. Research Grant from the Air Force Office of Scientific Research
 1. Title: Analysis and Synthesis of Adaptive Neural Elements
 2. Grant number: 84-0213
 3. Period of support: August 1, 1984 to July 31, 1987
 4. Total direct costs: \$359,697
12. NIH Research Grant (Jacob Javits Neuroscience Investigator Award)
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS19895
 3. Period of support: April 1, 1986 to March 31, 1993
 4. Total direct costs: \$703,864
13. NIMH Research Scientist Development Award (Level II)
 1. Title: Neural and Molecular Mechanisms of Learning
 2. Grant number: K02 MH 00649
 3. Period of support: September 1, 1986 to August 31, 1991
 4. Total direct costs: \$308,125
14. M.D. Anderson Foundation
 1. Title: Program Development
 2. Grant number: N/A
 3. Period of support: January 15, 1987 to January 14, 1992
 4. Total direct costs: \$500,000
15. Research Grant from the Air Force Office of Scientific Research
 1. Title: Analysis and Synthesis of Adaptive Neural Elements and Assemblies
 2. Grant number: 87-0274
 3. Period of support: August 1, 1987 to September 30, 1990

4. Total direct costs: \$407,592
16. NIH Postdoctoral Fellowship (to Stuart Critz)
 1. Title: Role of K⁺ Channel Modulation in Sensitization
 2. Grant number: F32 NS08579
 3. Period of support: January 1, 1989 to December 31, 1990
 4. Total direct costs: \$39,996
17. NIMH Postdoctoral Fellowship (to Joseph Pieroni)
 1. Title: Cellular Analysis of Dishabituation and Sensitization
 2. Grant Number: F32 MH09884
 3. Period of Support: June 1, 1989 to May 31, 1992
 4. Total direct costs: \$78,250
18. NIMH Predoctoral Fellowship (to Dean Buonomano)
 1. Title: Long-Term Associative Neural Plasticity in *Aplysia*
 2. Grant Number: F31 MH09895
 3. Period of Support: November 1, 1989 to January 3, 1992
 4. Total direct costs: \$34,500
19. NIMH Predoctoral Fellowship (to Fidelma Nazif)
 1. Title: Morphological Basis of Long-Term Sensitization
 2. Grant Number: F31 MH09956
 3. Period of Support: March 1, 1990 to February 28, 1993
 4. Total direct costs: \$34,500
20. Research Grant from the Air Force Office of Scientific Research
 1. Title: Analysis and Synthesis of Adaptive Neural Elements and Assemblies
 2. Grant number: 91-0027
 3. Period of support: October 1, 1990 to September 30, 1993
 4. Total direct costs: \$458,056
21. NIMH Postdoctoral Fellowship (to John White)
 1. Title: Cellular Contributions to Network Models of Plasticity
 2. Grant number: F32 MH10215
 3. Period of support: November 1, 1991 to May 31, 1992
 4. Total direct costs: \$16,133
22. NIMH Predoctoral Fellowship (to Jennifer Raymond)
 1. Title: Modulatory Pathways for Simple Forms of Learning
 2. Grant Number: F31 MH10214
 3. Period of Support: August 1, 1992 to November 30, 1994
 4. Total direct costs: \$27,533

23. Research Grant from the Office of Naval Research
 1. Title: Models of Biophysical and Biochemical Processes Contributing to Computations and Information Processing in Single Neurons
 2. Grant number: N00014-92-J-1152
 3. Period of support: November 1, 1991 to October 31, 1995
 4. Total direct costs: \$308,413
24. Augmentation Award for Science and Engineering Research Training (ASSERT) from the Office of Naval Research
 1. Title: Models of Computations and Information Processing in Single Neurons
 2. Grant number: N00014-93-1-1166
 3. Period of support: September 1, 1993 to August 31, 1996
 4. Total direct costs: \$86,979
25. Research Grant from the Air Force Office of Scientific Research
 1. Title: Analysis and Synthesis of Adaptive Neural Elements and Assemblies
 2. Grant number: F49620-93-1-0272
 3. Period of support: October 1, 1993 to September 30, 1996
 4. Total direct costs: \$340,716
26. NIH Research Grant (Principal Investigator)
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS19895
 3. Period of support: April 1, 1993 to March 31, 1997
 4. Total direct costs: \$568,361
27. Lucille P. Markey Charitable Trust
 1. Title: Support for the Center for the Neurobiology of Learning and Memory
 2. Grant number: N/A
 3. Period of support: February 15, 1995 to February 14, 1998
 4. Total direct costs: \$1,000,000
28. Research Grant from the Office of Naval Research (Principal Investigator)
 1. Title: Neuronal and Network Determinants of Non-Linear Neural Oscillations
 2. Grant number: N00014-95-1-0579
 3. Period of support: March 1, 1995 to February 28, 1998
 4. Total direct costs: \$260,492
29. Research Grant from the Air Force Office of Scientific Research (Principal Investigator)
 1. Title: Analysis of the Genesis and Control of Biological Rhythmicity
 2. Grant number: F49620-97-1-0049
 3. Period of support: January 1, 1997 to December 31, 1997
 4. Total direct costs: \$190,000

30. Advanced Research Program: Texas Higher Education Coordinating Board (Principal Investigator)
 1. Title: Cellular Analysis of Neuronal Analogue of Operant Conditioning
 2. Grant number: 011618-048
 3. Period of Support: January 1, 1996 to December 31, 1997
 4. Total direct costs: \$125,633
31. NIMH Research Scientist Award (Principal Investigator)
 1. Title: Network, Cellular and Molecular Determinants of Learning
 2. Grant number: K05 MH00649
 3. Period of support: July 1, 1993 to June 30, 1998
 4. Total direct costs: \$476,625
32. NIH Research Grant (Co-Principal Investigator)
 1. Title: Computational Models of Adaptive Neural Circuits
 2. Grant number: R01 RR11626-01
 3. Period of support: August 17, 1995 to July 31, 1998
 4. Total direct costs: \$308,917
33. W. M. Keck Foundation Grant
 1. Purpose: To Establish the Center for the Neurobiology of Learning and Memory
 2. Grant number: 971634
 3. Period of support: December 11, 1997 to December 10, 2000
 4. Total direct costs: \$1,275,000
34. NIMH Predoctoral Fellowship (to Jeannie Chin)
 1. Title: Mechanisms of Long-Term Synaptic Plasticity
 2. Grant number: F31 MH12107
 3. Period of support: April 1, 1999 to April 1, 2001
 4. Total direct costs: \$33,320
35. NIH Research Grant (Principal Investigator)
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS19895
 3. Period of support: April 1, 1997 to November 30, 2002
 4. Total direct costs: \$859,680
36. NIH Research Grant (Principal Investigator)
 1. Title: Cellular Mechanisms of Associative Learning
 2. Grant number: R01 MH58321
 3. Period of support: May 1, 1998 to February 1, 2003
 4. Total direct costs: \$695,391

37. NIH Research Grant (Co-Principal Investigator)
 1. Title: Computational Models of Adaptive Neural Circuits
 2. Grant number: R01 RR 11626
 3. Period of support: April 1, 1999 to September 30, 2003
 4. Total direct costs: \$493,459
38. DARPA Research Grant (Principal Investigator)
 1. Title: Bio-spice: A Simulation and Analysis System for Modeling Nonlinear Dynamical Properties of Intracellular Signal Pathways and Genetic Networks
 2. Grant number: N00014-01-1-1031
 3. Period of support: August 8, 2001 to December 31, 2003
 4. Total direct costs: \$1,116,751
39. U.S. Israel Binational Science Foundation Award (Co-Principal Investigator)
 1. Title: The Control of *Aplysia* Feeding Movements by Post-Ingestion Stimuli
 2. Grant number: 2000344
 3. Period of support: August 1, 2002 to November 30, 2004
 4. Total direct costs: \$15,000
40. Mike Hogg Foundation (Principal Investigator)
 1. Title: Role of Dopamine Signaling Cascades in Reward
 2. Period of support: January 1, 2004 to December 31, 2004
 3. Total direct costs: \$24,678
41. NIH Program Project Grant (Principal Investigator)
 1. Title: Neural Models of Plasticity: Molecules to Networks
 2. Grant number: P01 NS38310
 3. Period of support: August 25, 1999 to May 31, 2005
 4. Total direct costs: \$3,587,738
42. NIH Research Grant (Principal Investigator)
 1. Title: Modeling Gene Regulation for Long-Term Plasticity
 2. Grant number: R01 NS50532
 3. Period of support: September 15, 2004 to July 31, 2006
 4. Total direct costs: \$185,000
43. United States Air Force Research Laboratory (Principal Investigator)
 1. Title: User Evaluation of BioSPICE
 2. Grant number: FA8750-04-1-0242
 3. Period of support: June 29, 2004 to February 28, 2006
 4. Total direct costs: \$196,931
44. NIH Training Grant (Co-Principal Investigator)
 1. Title: Training in Neuroplasticity
 2. Grant number: T32 NS041226
 3. Period of support: July 20, 2001 to June 30, 2006
 4. Total direct costs: \$735,275

45. NIH Research Grant (Principal Investigator)
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS19895
 3. Period of support: December 1, 2002 to January 31, 2008
 4. Total direct costs: \$1,187,500
46. NCCR Shared Instrument Grant (SIG) (Principal Investigator)
 1. Title: Confocal Imaging System
 2. Grant number: 1 S10 RR022531-01
 3. Period of support: April 1, 2007 to March 31, 2008
 4. Total direct costs: \$268,895
47. NIH Research Grant (Co-Principal Investigator)
 1. Title: Computational Models of Adaptive Neural Circuits
 2. Grant number: R01 RR011626
 3. Period of support: June 1, 2004 to May 31, 2008
 4. Total direct costs: \$450,000
48. NIH Research Grant (Principal Investigator)
 1. Title: Cellular Mechanisms of Associative Learning
 2. Grant number: R01 MH58321
 3. Period of support: March 1, 2003 to February 28, 2009
 4. Total direct costs: \$1,125,000
49. NIH Program Project Grant (Principal Investigator)
 1. Title: Neural Models of Plasticity: Molecules to Networks
 2. Grant number: P01 NS38310
 3. Period of support: July 15, 2005 to June 30, 2011
 4. Total direct costs: \$3,818,141
50. NIH Research Grant (Principal Investigator)
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS19895-25-29
 3. Period of support: February 1, 2008 to January 31, 2013
 4. Total direct costs: \$1,091,593
51. NIH Research Grant (Principal Investigator)
 1. Title: Cellular Mechanisms of Associative Learning
 2. Grant number: R01 MH58321
 3. Period of support: July 1, 2008 to January 31, 2014
 4. Total direct costs: \$1,168,772
52. The University of Texas System Graduate Programs Initiative (Co-Principal Investigator)
 1. Title: Graduate Program Initiative in Theoretical and Computational Neuroscience
 2. Period of support: February 1, 2009 to January 31, 2014
 3. Total direct costs: \$500,000

53. NIH Research Grant (Principal Investigator)
 1. Title: Modeling Gene Regulation Essential for Long-Term Plasticity
 2. Grant number: R01 NS073974-06-10
 3. Period of support: May 1, 2011 to April 30, 2017
 4. Total direct costs: \$1,125,000

54. The University of Texas System – Neuroscience and Neurotechnology Research Institute
UT BRAIN Seed Grant (Principal Investigator)
 1. Title: Developing Integrated Methods for Analyzing Brain Circuits
 2. Grant number: 362804
 3. Period of support: September 1, 2015 to August 31, 2017
 4. Total direct costs: \$100,000

55. NIH Research Grant (Principal Investigator)
 1. Title: Analysis of the Neural Control of Behavior
 2. Grant number: R01 NS19895-29-34
 3. Period of support: February 1, 2013 to July 14, 2018
 4. Total direct costs: \$1,501,298