#### **CURRICULUM VITAE**

**NAME:** John H. Byrne

**PRESENT TITLE:** Professor and June and Virgil Waggoner Chair

Department of Neurobiology and Anatomy

McGovern Medical School at The University of Texas Health

Science Center at Houston

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 <sup>th</sup> 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

The University of Texas System Regents' Outstanding Teaching Award
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

# 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

### OTHER NATIONAL AND INTERNATIONAL ACTIVITIES (Since 1983):

Invited speaker at the Woods Hole Symposium on the Neural Mechanisms of Conditioning, 1983 Faculty member, Neural Systems and Behavior Course, Marine Biological Laboratory, Woods Hole, 1984-1990

Course co-director, Biology of Learning and Memory, Cold Spring Harbor Laboratory, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001

Invited speaker at the Winter Conference on Brain Research, 1984, 1985, 1986

Invited speaker at the Winter Conference on the Neurobiology of Learning and Memory, 1985, 1987

Invited speaker and discussant at the Dahlem Conference on the Neural and Molecular Bases of Learning, Berlin, 1985

Invited speaker at the Society for Neuroscience Symposium on Cellular Substrates of Learning: Vertebrate and Invertebrate Mechanisms, 1986

Speaker and conference co-organizer, Neural Models of Plasticity: Theoretical and Empirical Approaches, Marine Biological Laboratory, Woods Hole, 1987

Invited speaker at the NATO Advanced Research Workshop on Modulation of Synaptic Transmission and Plasticity in Nervous Systems, Il Ciocco, Italy, 1987

Invited speaker at the Twelfth "Gif Lectures in Neurobiology" on the Neuronal Mechanisms of Long-Lasting Changes in the Nervous System: Facts and Perspectives. Gif-sur-Yvette, France, 1987

Invited speaker at the American Association for Artificial Intelligence Symposium on Parallel Models of Intelligence: How Can Slow Components Think so Fast? Stanford, CA, 1988

Speaker and conference co-organizer, Biotechnology of the Brain: Fundamental Discoveries and Clinical Applications. Houston, TX, 1988

Invited speaker at the Bat-Sheva De Rothschild Foundation Seminar on Neural Network Models and Their Relevance to Biology, Jerusalem, Israel, 1988

Invited speaker at the First International Meeting on The Cell and Molecular Neurobiology of *Aplysia*, Cold Spring Harbor, 1988

Invited speaker at the Twelfth Symposium on Models of Behavior on Neural Network Models of Conditioning and Action, Harvard University, 1989

Invited speaker at the Gordon Conference on Neuronal Plasticity, Wolfboro, N.H., 1989

Invited speaker for the Symposium on Learning and Memory at the Second International Congress of Neuroethology, Berlin, 1989

Invited speaker at the 23<sup>rd</sup> Symposium Medicum Hoechst on the Biology of Memory, Munich, 1989

Invited speaker at the Fifth Annual Spring Neuroscience Symposium on Mechanisms of Learning and Memory, Emory University, 1990

Keynote speaker at the Conference on Activity-Driven CNS Changes in Learning and Development, State University of New York at Albany, 1990

Invited speaker at the 55<sup>th</sup> Symposium on Quantitative Biology: The Brain, Cold Spring Harbor Laboratory, 1990

Faculty member, Computational Neuroscience: Learning and Memory, Cold Spring Harbor Laboratory, 1990

Invited speaker at the Second International Meeting on The Cell and Molecular Neurobiology of *Aplysia*, Cold Spring Harbor, 1990

Invited speaker at the Third Symposium on Molluscan Neurobiology, Amsterdam, 1990

Invited speaker at the Society for Neuroscience and FIDIA Research Foundation Short Course on Neural Computation, Mexico City, 1991

Invited speaker for the Symposium on Recent Advances in the Analysis of Learning at the Annual Meeting of the American Association of Anatomists, Chicago, 1991

Invited speaker at the Gordon Conference on Molecular Pharmacology, Tilton, N.H., 1991

Invited discussant and moderator at the Dahlem Conference on Exploring Brain Functions: Models in Neuroscience, Berlin, 1991

Invited speaker at the Bat-Sheva De Rothschild Foundation Seminar on From Neurons to Network, Jerusalem, Israel, 1991

Faculty member, Molecular Neurobiology: Brain Development and Function, Cold Spring Harbor Laboratory, 1992

Invited speaker for the Symposium on In Vitro Models of Plasticity at the Third International Congress of Neuroethology, Montreal, 1992

Visiting professor of Computational Neuroscience, Freie University of Berlin, 1992

Invited speaker at the Conference on Learning and Memory, Cold Spring Harbor Laboratory, 1992

Invited speaker at the 22<sup>nd</sup> Annual Meeting of the Society for Neuroscience Symposium on Protein Phosphatases and the Regulation of Neural Excitability, 1992

Invited speaker at the Office of Naval Research Symposium on Single Neuron Computation, Elkridge, MD, 1993

Invited speaker at the Third International Meeting on the Cell and Molecular Biology and Behavior of *Aplysia*, Cold Spring Harbor Laboratory, 1993

Invited speaker at the International Federation of Automatic Control Symposium on Modeling and Control of Biomedical Systems, Galveston, 1994

Invited speaker at the First World Congress on Computational Medicine, Public Health and Biotechnology, University of Texas at Austin, 1994

Invited speaker at the Fourth Meeting of the Society for Research on Biological Rhythms, Jacksonville, Florida, 1994

Invited speaker at the Office of Naval Research Accelerated Research Initiative in Dynamical Neural Systems Conference, Delray Beach, Florida, 1994

Invited speaker at the Fourth Conference on Simpler Nervous Systems, Moscow, Russia, 1994

Invited speaker at the Fourth International Symposium on Molluscan Neurobiology, Amsterdam, The Netherlands, 1994

Invited speaker at the Tenth International Symposium of the Tokyo Metropolitan Institute for Neuroscience, Tokyo, Japan, 1994

Conference co-organizer, Learning and Memory, Cold Spring Harbor Laboratory, 1994

Invited speaker at the 23<sup>rd</sup> Göttingen Neurobiology Conference, 1995

Invited speaker at the New York University Symposium on Memory and Brain, New York, New York, 1995

Invited speaker at the Western Washington University Learning Symposium on Cognitive Neuroscience: Its Promise, Its Future, 1995

Workshop speaker at the University of California at San Diego symposium on Nonlinear Dynamics of Small Networks of Neurons, 1995

Invited speaker at the Winter Conference on Neural Plasticity in St. Lucia British West Indies, 1996

Invited speaker at the Meeting of the Office of Naval Research Nonlinear Dynamics Program, Gainesville, Florida, 1996

Invited speaker at the Office of Naval Research workshop on Gene Networks and Cellular Controls, Wilmington, Delaware, 1996

Invited speaker at the Conference on Learning and Memory, Cold Spring Harbor Laboratory, 1996

Invited discussant at the 80<sup>th</sup> Dahlem Conference on the Mechanistic Relationship between Development and Learning: Beyond Metaphor, Berlin, 1997

Invited speaker at the Eighth Annual Spring Brain Conference, Sedona, Arizona, 1997

Conference co-organizer, Fifth International Meeting on the Cell and Molecular Biology of *Aplysia* and Related Invertebrates, Cold Spring Harbor Laboratory, 1997

Invited speaker at the NIH Conference on Control of Genes, Development and Plasticity by Neural Impulses, Bethesda, Maryland, 1997

Invited speaker at the Air Force Office of Scientific Research Chronobiology & Neural Adaptation Program Review in Colorado Springs, Colorado, 1997

Invited participant in the workshop on Human Cognition and How It Fails, Cold Spring Harbor Laboratory, 1997

Invited speaker at the symposium on Neurotrophic Factors and Synaptic Plasticity at Freie University in Berlin, Germany, 1998

Invited speaker at the Fifth International Congress of Neuroethology, San Diego, California, 1998 Invited participant in the NIH Workshop on Non-mammalian Model Organisms, Bethesda, Maryland, 1999

Visiting professor, Department of Physiology and Biochemistry, University of Pisa, Italy, 2000, 2001, 2002, 2004

Conference co-organizer, Learning and Memory, Cold Spring Harbor Laboratory, 2001

Invited speaker at the Sixth Society for Industrial and Applied Mathematics Conference on Applications of Dynamical Systems, Snowbird, Utah, 2001

Invited speaker at the 1st European Conference of Neurobiology, Krakow, Poland, 2001

Co-organizer for sessions on Neural Engineering, Second Joint Meeting of the Engineering in Medicine and Biology Society (EMBS) and the Biomedical Engineering Society (BMES), 2002

Conference co-organizer, Learning and Memory, Cold Spring Harbor Laboratory, 2003

Invited speaker, Symposium on Learning and Memory, Campus Vienna Biocenter, Vienna, Austria, 2003

Invited speaker, RIKEN Brain Research Institute, 2003 Summer Course, Tokyo, Japan, 2003

Invited speaker, Foundation des Treilles conference "Learning and memory, from molecules to mind", Nice, France, 2003

Invited participant, The National Academies 1<sup>st</sup> Annual Keck *Futures Initiative* Conference, 2003 Invited speaker, Inaugural Conference "From Neuron to Mind", The Leslie and Susan Gonda Multidisciplinary Brain Research Center, Bar-Ilan University, Israel, 2004

Conference co-organizer, Learning and Memory, Cold Spring Harbor Laboratory, 2005

Faculty member, Learning and Memory Course, Cold Spring Harbor Laboratory, 2005, 2007, 2009

Invited speaker, CBN Spring Symposium "Neural Mechanisms of Reward and Reinforcement", Center for Behavioral Sciences, Emory University, Atlanta, Georgia, 2006

Invited speaker, Brain Science Day, Weizmann Institute of Science, Rehovot, Israel, 2006

Invited speaker, Friday Harbor Laboratories Centennial Symposium "Gastropod Neuroscience: Past Successes and Future Prospects", Friday Harbor, Washington, 2007

Invited participant the NIH Neuroinformatics Terminology Workshop on Neurobehavior, New York, New York, 2008

Invited speaker, Federation of European Neuroscience Societies (FENS) Forum Symposium and Workshop, Geneva, Switzerland, 2008

Invited speaker, Molluscan Neuroscience Meeting, San Juan, Puerto Rico, 2009

Invited speaker, NSF Workshop on Shared Organizing Principles in the Computing and Biological Sciences, Arlington, Virginia, 2010

Invited speaker, CNS 2011 Workshop on Modeling Central Pattern Generators: Neuronal Network Design Principles and Problems, Stockholm, Sweden, 2011

Invited speaker, Center for NeuroEngineering Symposium, Houston, Texas, 2011

Invited speaker, The Extraordinary Journey of Neuroscience Research, Sponsored by the Region of Tuscany and the University of Pisa, Lunigiana, Italy, 2012

Conference co-organizer, Molluscan Neuroscience, Scripps Research Institute, Jupiter, FL, 2012

Keynote speaker, Symposium on "Biogenic Amines in Insects," Freie University, Berlin, Germany, 2012

Workshop co-organizer, Baylor College of Medicine, Rice University and UTHealth BRAIN Workshop, Houston, Texas, 2013

Invited speaker, Annual Pavlovian Society meeting, Austin, Texas, 2013

Invited speaker, Neuroscience 2013 Workshop: "Are printed textbooks obsolete?" Society for Neuroscience, 2013

Invited speaker, Gulf Coast Cluster for 4<sup>th</sup> Annual NeuroEngineering Symposium, Houston, Texas, 2014

Keynote speaker, MCB Brain Plast International Conference on Brain Plasticity linking Molecules, Cells & Behavior, Magdeburg, Germany, 2017

#### 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, UTHealth 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

1988-1993
1988-1993
1990-1994
1992-1995
1992-1997
1995-1999
1996-2001
2001-2004
1998-2005
2001-2006
1999-2006
2000-2006
2006-2009
2005-2011
2009-2017
2010-2017
2016-present
2018-present

## 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
<b>Θ</b> <sup>γ</sup>	

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 patterngenerating neurons underlying respiratory pumping in *Aphysia 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.
- 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.

- Walters, E.T. and Byrne, J.H. Slow depolarization produced by associative conditioning of *Aplysia* sensory neurons may enhance Ca<sup>++</sup> 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.
- Walsh, J.P. and Byrne, J.H. Forskolin mimics and blocks a serotonin-sensitive decreased K<sup>+</sup> 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<sub>B</sub>. *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<sub>i</sub>) 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<sub>B</sub> (SCP<sub>B</sub>) 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<sup>+</sup> currents. *Science* 240:1664-1666, 1988.
- 41. Walsh, J.P. and Byrne, J.H. Modulation of a steady-state Ca<sup>2+</sup> activated, K<sup>+</sup> 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 (IP<sub>3</sub>) 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<sup>+</sup> 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. Serotoninergic 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<sub>K,Ca</sub> 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 FMRFamide 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<sup>+</sup> 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 factorβ 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-β1 in *Aplysia*: Role of long-term changes in the excitability of sensory neurons and distribution of TβR-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. *Bltn. 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-β1 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 *Drosphila* 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 dopamine<sub>1</sub>-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-β1-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-β2 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. PMCID: 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. PMCID: 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. PMCID: 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. PMCID: 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. PMCID: 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. PMCID: 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. PMCID: 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 mitogenactivated protein kinase. *J. Neuroscience*, 34:13289-13300, 2014. PMCID: 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. PMCID: 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. PMCID: 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. PMCID: 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. PMCID: 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. 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.
- 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.

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/abecc6

#### **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 (SNNAP): Description and application. In: *Methods in Molecular Biology: Neuroinformatics*, ed. Crasto, C. Totowa: The Humana Press Inc., pp. 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. PMCID: PMC2815214
- 32. Fioravante, D. and Byrne, J.H. Protein degradation and memory formation. *Brain Research Bulletin*, 85:14-20, 2011. PMCID: PMC3079012
- 33. Byrne, J.H. and Hawkins, R.D. Nonassociative learning in invertebrates. *Cold Spring Harbor Perspectives in Biology*, 7:a021675, 2015. PMCID: PMC4448621
- 34. Hawkins, R.D. and Byrne, J.H. Associative learning in invertebrates. *Cold Spring Harbor Perspectives in Biology*, 7:a021709, 2015. PMCID: 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. PMCID: 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. <u>Chapters</u>:

- 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 *Hermissenda*. 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 *Hermissenda*. 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, <a href="https://doi.org/10.1016/B978-0-12-809324-5.02675-4">https://doi.org/10.1016/B978-0-12-809324-5.02675-4</a>, 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*<a href="http://nba.uth.tmc.edu/neuroscience/">http://nba.uth.tmc.edu/neuroscience/</a>
  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. PMCID: 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. PMCID: 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.

## OTHER EDUCATIONAL, OUTREACH AND MENTORING ACTIVITIES:

- Faculty member, Neural Systems and Behavior Course, Marine Biological Laboratory, Woods Hole, 1984-1990
- Co-course director, Biology of Learning and Memory, Cold Spring Harbor Laboratory, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001
- Mentor, 1989 UT Summer Research Program for First-Year Medical Students (Edie E. Shulman, University of Texas Medical School at Houston)
- Faculty member, Computational Neuroscience: Learning and Memory, Cold Spring Harbor Laboratory, 1990
- Lecturer on emerging principles of learning and memory to the National Association of Biology Teachers, 1990

Mentor, 1990 UT Summer Research Program for Undergraduates (Barbara Wells, Princeton University)

Lecturer for the Society for Neuroscience and FIDIA Research Foundation Short Course on Neural Computation, Mexico City, 1991

Invited Lecturer at the Bat-Sheva De Rothschild Foundation Course on From Neurons to Network, Jerusalem, Israel, 1991

Faculty member, Molecular Neurobiology: Brain Development and Function, Cold Spring Harbor Laboratory, 1992

Visiting Professor of Computational Neuroscience, Freie University of Berlin, 1992

Laboratory demonstrations for students of Ross Sterling High School, February 1992

Laboratory demonstrations for students of Kemper High School, March 1992

Mentor, 1992 UT Summer Research Program for Undergraduates (Joseph Maliakkal, UT Austin; Stuart Wagner, California Institute of Technology)

Laboratory demonstrations for students of Lamar, Klein and the High School for Health Professions, October 1992

Laboratory demonstrations for biology students of Cypress Fair High School, December 1992

Lecture on learning and memory to the Adult Learning Program Seminar (ALPS) series of St. John Vianney Church, April 1993

Laboratory demonstrations for Honors II Biology students of Scarborough High School, April 1993

Mentor, 1993 UT Summer Research Program for First-Year Medical Students (Jeffrey M. Sorenson, University of Texas Medical School at Houston)

Mentor, 1993 UT Summer Research Program for Undergraduates (Kathryn Verhey, Hope College)

Laboratory demonstrations for the UT-Houston Medical School Summer Program for High School Seniors, July 1993

Interview with Mr. Noah Smith, student at Clear Lake High School, for his Biology project on learning and memory, 1993

Lecture on learning and memory to the New Horizons Singles Group of St. John Vianney Church, December 1993

Mentor, "Winter Term Away" Winifred Amaya, Oberlin College, 1994

Mentor, 1994 UT Summer Research Program for Undergraduates (Andrew Adams, Rice University; Rollin Hawkins, Texas Southern University; Leroy Jackson, M.I.T.; Winifred Amaya, Oberlin College)

Laboratory demonstrations for students from the Upward Bound Regional Math/Science Center at East Central University; Ada, Oklahoma, July 1994

Mentor, Communities in Schools Houston Summer Youth Employment and Training Program (Eloy Montes, Mary Gutierez), 1994

Laboratory demonstrations for undergraduate faculty from University of Texas System colleges, sponsored by the University of Texas-Houston Graduate School of Biological Sciences, October 1994

Member of the jury for the doctoral defense of Romuald Nargeot, University of Bordeaux I, February 1995

Reviewer, National Student Research Forum, 1995

Interview on Learning and Memory on radio station KNUZ, February 1995

Laboratory demonstrations for the UT-Houston Medical School Summer Program for High School Seniors, June 1995

Laboratory demonstration for students from the National Youth Leadership Forum on Medicine, July 1995

Laboratory demonstrations for students from the Upward Bound Regional Math/Science Center at East Central University, Ada, Oklahoma, July 1995

Mentor, Communities in Schools Houston Summer Youth Employment and Training Program (Laura Garcia, Mary Gutierez), 1995

Laboratory demonstrations for Biology Professors from Texas undergraduate institutions, 1995 Invited speaker at Edgewood Elementary School, "How Our Brain Works", 1995

Laboratory demonstrations for members of Leadership North Houston, January 1996

Judge at St. Thomas High School Science Fair, 1996

Organizer, UT-Houston Public Forum on the Brain held in conjunction with Brain Awareness Week, 1996-present

Laboratory demonstrations for students from the National Youth Leadership Forum on Medicine, July 1996

Mentor, 1996 UT Summer Research Program for Undergraduates (Sarah Dunning, Rice University; Nicole Rust, University of Idaho)

Laboratory demonstration for the UT-Houston Medical School Summer Program for High School Seniors, July 1996

Discussions and demonstrations at Edgewood Elementary School, "How Our Brain Works", November 1996

Interview on Learning and Memory on radio station KTRH, February 1997

Mentor, 1997 UT Summer Research Program for Undergraduates (Rachel Tuuri, Rice University; Barry Trachtenberg, University of Pennsylvania)

Laboratory demonstration for students of the Piney Woods Area Health Education Center (AHEC), July 1997

Host of video production for area Junior High and High Schools on role models in brain research, entitled "Explorers of the Mind", October 1997

Discussions and demonstrations at Buffalo Creek Elementary School, "How Our Brain Works", November 1997

Guest Speaker, President's Executive Luncheon, The University of Texas-Houston Health Science Center, April 1998

Guest Speaker, Rotary Club of Houston, May 1998

Interview on the Talk America Medical Networks Syndicated Radio Talk Show, "America Talks Health, with Dr. Keith Robinson", June 1998

Laboratory demonstrations for area high school students, July 1998

Laboratory demonstrations for River Oaks Elementary School students, "Neuroscientist for a Day", January 1999

Guest speaker, University Classified Staff Council Workshop, the University of Texas-Houston Health Science Center, March 1999

Interview with Jim Bell on Public Radio Station KUHF, April 1999

Mentor, 1999 UT Summer Research Program for Undergraduates (Marcelle Rousseau, Tulane University; Melissa Scherr, University of Wyoming; Elizabeth Wilkinson, Mount Holyoke College)

Interview on learning and memory with Elizabeth Varela for "Centro Medico" on public television station KTMD, September 1999

Guest speaker, Houston Philosophical Society, Rice University, "How we remember, how we forget", October 1999

Laboratory demonstrations for area high school students, July 2000

Interview on National Public Radio program, "The Infinite Mind" with Dr. Fred Goodwin, July 2000

Interview on mathematical modeling of gene networks with Dallas Morning News reporter, Sue Goetink, August 2000

Speaker and co-organizer with the Dana Alliance for Brain Initiatives, University of Texas-Houston Medical School, Public Forum for Brain Awareness Week, "The Brain: How it Works, How it Fails", March 2001

Speaker for Partners in Education "Brain Night", Museum of Health and Medical Science, March 2001

Laboratory demonstrations for area high school students in conjunction with Partners in Education and the LEARN Project, March 2001

Training video for Partners in Education, March 2001

Interview on memory with Dave Fehling for television station, KHOU Houston, May 2001

Guest speaker for Epilepsy Family Conference, "Memory: How it Works, How it Fails", September 2001

Interview with Kelly Hearn of United Press International regarding brain information networks, October 2001

Interview on circadian rhythms with Leslie George for radio station KTRH Houston, November 2001

Interview on circadian rhythms with Lanny Griffith for FOX Television station KRIV Houston, November 2001

Interview on circadian rhythms with Todd Ackerman for the *Houston Chronicle*, January 2002 Interview on circadian rhythms with Jim Bell for Public Radio Station KUHF Houston, January 2002

Mentor, 2002 UT Summer Research Program for Undergraduates (Carla Mendoza, St. Edwards University)

Speaker and co-organizer with the Dana Alliance for Brain Initiatives, University of Texas-Houston Medical School, Public Forum for Brain Awareness Week, "Genes and The Brain", March 2002

Speaker for Partners in Education "Brain Night", Museum of Health and Medical Science, March 2002

Laboratory demonstrations for area high school students in conjunction with Partners in Education and the LEARN Project, April 2002

Live interview for "Staying Sharp" Forum with José Griñan and Linda Cheek Heinrich for FOX Television Station KRIV Houston, April 2002

Interview for "Staying Sharp" Forum with Paul Pendergraft for Public Radio Station KUHF Houston, April 2002

Featured panelist in AARP Andrus Foundation and DANA Alliance "Staying Sharp" Forum in Houston, April 2002

Live interview on circadian rhythms with Anderson Cooper for CNN, American Morning, May 2002

Laboratory demonstrations for area high school students, June 2002

Lectures to middle and high school science teachers from the Rio Grande Valley area for the Graduate School of Biomedical Sciences Outreach Program, July 2002

Guest speaker for senior citizen forum on memory sponsored by the OASIS Institute, October 2002

Laboratory demonstrations for Alvin High School students, January 2003

Laboratory demonstrations for Thompson Elementary School students, March 2003

Interview on circadian rhythms with Krista Marino for NBC television station KPRC, March 2003

Guest Speaker, President's Executive Luncheon, The University of Texas Health Science Center at Houston, April 2003

Invited speaker at the "Lunch and Learn" Program at Chancellor's Fitness Center, June 2003 Laboratory demonstrations for Spring Branch middle school science teachers, June 2003

Mentor, 2003 UT Summer Research Program for Undergraduates (Hyun Park, University of Texas at Austin)

Invited speaker, RIKEN Brain Research Institute, 2003 Summer Course, Tokyo, Japan, 2003

Invited speaker, Speaking of Women's Health Conference, Houston, TX, 2003

Interview on circadian rhythms with Barry Yeoman for Reader's Digest, November 2003

Laboratory demonstrations for Brookline Elementary School students, "Neuroscientist for a Day", April 2004

Guest speaker at the Southside Place Women's Civic Club, "Memory: How it works and how to keep it strong into middle age and beyond", Houston, TX, April 2004

Laboratory demonstrations for University of Houston students, May 2004

Mentor, 2004 UT Summer Research Program for Undergraduates (Patricia Hayes)

Mentor, 2004 Biomedical Engineering Summer Internship Program for Undergraduates (David Irwin and Scott Lundy)

Invited speaker, Speaking of Women's Health Conference, Houston, TX, 2004

Invited speaker and discussant, Scholar Weekend Program for middle school and high school students, Museum of Health and Medical Science, November 2004

"Dining with the Doctors" discussion session through "Leaders of Tomorrow" event, February 2005

Interview on "The Aging Brain" with Jim Bell for Public Radio Station KUHF of Houston, March 2005

Faculty member, Cellular and Molecular Biology of Learning and Memory, Cold Spring Harbor Laboratory, 2005, 2007, 2009

Laboratory demonstrations for Houston area Girl Scouts through GSBS Outreach Program, June 2005

Mentor, 2005 Biomedical Engineering Summer Internship Program for Undergraduates (Junho Lee, Rice University; and Ranita Patel, University of Texas at Austin)

Mentor, 2005 UT Summer Research Program for Undergraduates (John R. Jefferson, University of Texas Medical School at Houston; and Raul Ossio, Instituto Tecnologico y De Estudios Superiores De Monterrey)

Interview with Patrick Kurp of the Houston Chronicle on the Neuroscience Research Center's outreach activities during Brain Awareness Week, March 2006

Interview about Memory with Carey Goldberg of The Boston Globe, August 2006

Mentor, 2006 Biomedical Engineering Summer Internship Program for Undergraduates (Rebecca Lee, University of Texas at Austin; and Naveen Yadav, Rice University)

Invited participant in the Staying Sharp: Current Advances in Brain Research Session at AARP's Life@50+ event, Anaheim, California, 2006

Interview with Ashley Gwilliam of the University Star at Texas State University regarding Brain Awareness Week, March 2007

External Examiner, Thesis Defense of Guy Houeland, University of Montreal, Quebec, Canada, March 2007

Invited speaker at the Health Museum, "Brain Basics" Series, "Memory: How it Works and How it Fails", Houston, March 2007

- Organizer, 12<sup>th</sup> Annual UT-Houston Public Forum on CNS Trauma and Rehabilitation, Brain Awareness Week, March 2007
- Mentor, 2007 UT Summer Research Program for Undergraduates (Michael E. Rodriguez, University of Texas at El Paso)
- Mentor, 2007 UT Summer Research Program for First-Year Medical Students (Peter A. Bourell, UT Medical School at Houston)
- Invited speaker at The Plaza at The Buckingham, Learning and Memory, Houston, October 2007 Interview on Cognitive Enhancers with Christi Myers for ABC Television Station KTRK, Houston, November 2007
- Interview on Memory Drugs with Leigh Frillici for CBS Television Station, KHOU, January 2008
- Interview with science writer with Dana Foundation, Brenda Patoine, on Learning and Memory Mechanisms, March 2008
- Laboratory demonstrations for Greater Houston area elementary and secondary grade students through the Health Museum, June 2008
- Mentor, 2008 UT Summer Research Program for First-Year Medical Students (Arjun Tarakad, UT Medical School at Houston)
- Invited speaker, Dinner with the Docs, "Brain and Memory: Are You Losing Your Mind or Just Your Car Keys?", Houston, May 2009
- Mentor, 2009 UT Summer Research Program for First-Year Medical Students (Irving Basanez, UT Medical School at Houston)
- Mentor, 2009 UT Summer Research Program for International Medical Students (Yu Ling Liu, China Medical University, Taiwan)
- Mentor, 2009 UT Summer Research Program for Undergraduates (Sung Ji Ahn, University of Texas at Austin)
- Mentor, 2009 Theoretical and Computational Neuroscience REU Summer Program (Drew Thompson, University of Utah)
- Mentor, 2009 Rice University Course, BIOS 310: Laboratory Research Experience for Undergraduates in Biochemistry and Cell Biology (Danielle Axelson)
- Interview on Brain Health on "Living Smart with Patricia Gras", for KUHT TV, Houston PBS, January 2010 (Aired May 2010)
- Interview with Flori Meeks, Reporter for *Houston Chronicle*, on Brain Research and Brain Awareness Activities, January 2010
- Member, Evaluation Committee for the Habilitation á Diriger des Recherches of Romuald Nargeot, University of Bordeaux, France, March 2010
- Mentor, 2010 UT Summer Research Program for First-Year Medical Students (George Heberton, UT Medical School at Houston; Aaron Russell, UT Medical School at Houston; Willie Marquez, UT Medical School at Houston)
- Mentor, 2010 Theoretical and Computational Neuroscience REU Summer Program (Hadas Friedman, Illinois Institute of Technology)
- Interview on Neuronal Networks with David H. Freedman, freelance journalist for MIT's *Technology Review*, October 2010
- Interview with Eric Berger, Reporter for the *Houston Chronicle*, on Recovery from Tropical Storm Allison, May 2011
- Mentor, 2011 UT Summer Research Program for First-Year Medical Students (Alex Dalke, UT Medical School at Houston; Alexander Frolov, UT Medical School at Houston; Cathy Zhou, UT Medical School at Houston)

Mentor, 2011 Theoretical and Computational Neuroscience REU Summer Program (Heather Brooks, University of Utah)

Live interview on Brain Health on "Staying Sharp on RFD-TV's *AARP LIVE*!" with Mark Oppold, Nashville, TN, August 2011

Interview on Memory for CBS Television Station, KHOU, September 2011

Lecturer, Continuing Studies Course on Mysteries of Memory, Rice University, Susanne M. Glasscock School of Continuing Studies, September 2011

Laboratory demonstrations for area high school students in conjunction with Worthing Rice Apprentice Program (WRAP), October 2011

Interview with Laura Sanders, Ph.D., Neuroscience Writer for *Science News*, on memory mechanisms, December 2011

Interview with Amos Aikman, Journalist for *The Australian*, on memory enhancement, December 2011

Interview on memory enhancement with Jim Forsyth of WOAI News Radio Station in San Antonio, TX, December 2011

Interview with Kevin Charles and Carolyn Campbell of News92FM-Houston on memory enhancement, December 2011

Interview on memory enhancement with Joseph Castro, reporter for LiveScience.com, December 2011

Interview with Gary Stix, Senior Editor for *Scientific American*, on memory enhancement, January 2012

Interview on memory enhancement with Andrew McIntosh, Ivanhoe Broadcast News, Inc., February 2012

Interview with Maria Todd of News92FM-Houston on Partners in Education "Brain Night," Museum of Health and Medical Science, March 2012

Mentor, 2012 UT Summer Research Program for First-Year Medical Students (Christopher Wilkerson, UT Medical School at Houston)

Interview with Patrick Hruby of *The Washington Times* on neuroplasticity and aging, September 2012

Recognition of the Neuroscience Research Center as a Mental Health Makes A Difference Community Honoree by the Mental Health America of Greater Houston, 2012

Laboratory demonstrations for area high school students in conjunction with Worthing Rice Apprentice Program (WRAP), October 2012

Interview on concussions for CBS Television Station, KHOU, February 2013

Interview with Maria Todd of News92FM-Houston on the Neuroscience Research Center's "Brain Night," Museum of Health and Medical Science, March 2013

Interview with Nikki Courtney of AM740 KTRH NewsRadio, June 2013

Live interview on the future of brain research with Matt Patrick of AM740 KTRH NewsRadio, June 2013

Mentor, 2013 UT Summer Research Program for First-Year Medical Students (Kurt Fraivillig, UT Medical School at Houston)

Invited Speaker for the LivingTheCRWay Expert Teleconference Series, July 2013

Laboratory demonstrations for KIPP Sunnyside high school students in conjunction with Rice University BrainSTEM program, March 2014

Interview with Nikki Courtney of AM740 KTRH NewsRadio on the Neuroscience Research Center Public Forum on multiple sclerosis, March 2014

Live interview with Sherry Williams of KHOU Channel 11 on the Neuroscience Research Center Public Forum on multiple sclerosis, March 2014

- Mentor, 2014 UT Summer Research Program for First-Year Medical Students (Ross Kennamer-Chapman, UT Medical School at Houston)
- Laboratory demonstrations for KRIV FOX 26 TV "Boot Camp" for incoming graduate students, August 2014
- Interview with Clare O'Reilly of *The Sun* (London) on brain research, August 2014
- Interview with Jill Carroll, Ph.D., for the *Houston Chronicle* HealthZone section, on chemo brain and invertebrate research, October 2014
- Interview with Tiffany Zhang of KTBU iTV Channel 55.5 on chemo brain and invertebrate research, October 2014
- Live Interview with Craig Cohen of Houston Public Media News 88.7FM KUHF "Houston Matters," on chemo brain and invertebrate research, October 2014
- Interview with Lori Ferguson of *PittMed* on the life and work of Stanley G. Schultz, M.D., November 2014
- Laboratory demonstrations for KIPP Sunnyside high school students in conjunction with Rice University BrainSTEM program, December 2014
- Interview with Scott Crowder of AM740 KTRH NewsRadio on memory research, January 2015
- Interview with Theran Nicholas of AM740 KTRH NewsRadio on new technologies for the recording of brain activity, January 2015
- Mentor, 2015 UT Summer Research Program for First-Year Medical Students (Tahseen Karim, Victor Liu and Samantha Royalty, UT Medical School at Houston)
- Lecturer, CampNeuro for high-school students, University of St. Thomas, Houston, July 2015
- Laboratory demonstrations for Neuroscience Program "Boot Camp," for incoming Graduate School of Biomedical Sciences students, August 2015
- Invited speaker for Bite of Science Teacher Enrichment Program of the Center for Excellence in Education (event held at UTHealth), January 2016
- Live interview with Sally MacDonald of Fox 26 News on Brain Night for Kids at The Health Museum, March 2016
- Interview with Dale Forbis of AM740 KTRH NewsRadio on memory deterioration, April 2016
- Mentor, 2016 UT Summer Research Program, for Pre-Matriculate Students (Amber Darr, The University of Texas at Austin)
- Lecturer, Neuroscience elective for high-school seniors, The Kinkaid School, Houston, October 2016
- Live interview with Rita Garcia and José Griñan of Fox 26 News on Brain Night for Kids at The Health Museum, March 2017
- Invited speaker, "Under the Microscope" Biology Speaker Series, Houston Baptist University, Houston, March 2017
- Laboratory demonstrations for Rice University Neuroscience Society students, March 2017
- Lecturer, Neuroscience elective for high-school seniors, The Kinkaid School, Houston, March 2017
- Laboratory tour for UTHealth Development Board member Janice Griffin and spouse John Griffin, April 2017
- Mentor, 2017 UT Summer Research Program, for First-Year Medical Students (Ryan Coburn, McGovern Medical School)
- Lecturer, Neuroscience elective for high-school seniors, The Kinkaid School, Houston, November 2017
- Invited speaker, Chevron and Texas Association of School Administrators Leadership Forum, "Every School a STEM School," Houston, January 2018

- Invited speaker, Parkway Place Retirement Home, "Memory: How it works and how it fails," Houston, February, 2018
- Organizer, UTHealth Neuroscience Research Center Brain Night for Children, Brain Awareness Week, Houston Health Museum, 2007-present
- Organizer, UTHealth Neuroscience Research Center Public Forum on the Brain, Brain Awareness Week, Houston, 1995-present
- Live interview with Sally MacDonald of Fox 26 News on Brain Night for Kids at The Health Museum, March 2018
- Mentor, 2018 UT Summer Research Program for First-Year Medical Students (Panayotis Apokremiotis, Vijay Dharmaraj and Anamaria Dragan, McGovern Medical School)
- Invited speaker, Thomas A. Glazier Senior Education Center, "Memory: How it works and how it fails," Houston, October, 2018
- Lecturer, Neuroscience elective for high-school seniors, The Kinkaid School, Houston, October 2018
- Live interview with Lina de Florias of Fox 26 News on Brain Night for Kids at The Health Museum, March 2019
- Lecturer, Neuroscience elective for high-school seniors, The Kinkaid School, Houston, April 2019
- Invited speaker, The Village of River Oaks Senior Center, "Memory: How it works and how it fails," Houston, July, 2019
- Invited speaker, Thomas A. Glazier Senior Education Center, "Memory: How it works and how it fails," Houston, September, 2019
- Lecturer, Neuroscience elective for high-school seniors, The Kinkaid School, Houston, October, 2019
- Invited speaker, Chevron Phillips Chemical Company, "Memory: How it works and how it fails," The Woodlands, Texas, December, 2019
- Mentor, 2021 McGovern Medical School Summer Research GradSURP Program for undergraduates (Rodrigo Gonzales-Rojas, Rice University)

#### **CURRENT GRANT SUPPORT:**

# 1. NIH Research Grant (Principal Investigator)

- 1. Title: Analysis of the Neural Control of Behavior
- 2. Grant number: R01 NS19895-35
- 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 NS101356-01
- 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 NS102490-01
- 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 NS118606-01
- 3. Period of support: September 30, 2020 to June 30, 2023
- 4. Total direct costs: \$3,022,127

#### PREVIOUS GRANT SUPPORT:

# 1. <u>NIH Individual Postdoctoral Fellowship</u>

- 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. <u>University of Texas Biomedical Research Support Grant</u>

- 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 or 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<sup>+</sup> 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. <u>NIMH Postdoctoral Fellowship (to Joseph Pieroni)</u>

- 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. <u>Augmentation Award for Science and Engineering Research Training (ASSERT) from the</u> 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. <u>Advanced Research Program: Texas Higher Education Coordinating Board (Principal Investigator)</u>

- 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>U.S. Israel Binational Science Foundation Award (Co-Principal Investigator)</u>

- 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. <u>United States Air Force Research Laboratory (Principal Investigator)</u>

- 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. NCRR 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. <u>The University of Texas System – Neuroscience and Neurotechnology Research Institute</u> 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