

MARK D. KIRK

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EDUCATION B.Sc. in Life Sciences (Cum Laude), Missouri State University
 M.A. in Biology, Rice University
 Ph.D. in Biology, Rice University

RESEARCH AND PROFESSIONAL APPOINTMENTS

NIH Predoctoral Trainee: *Neural Processing in The Crayfish Visual System*, Rice University, Department of Biology, Dr. Raymon M. Glantz, Professor (Advisor), 1978-1982

Grass Foundation Fellowship: *Development of Larval Lobster Neuromuscular Systems*, Marine Biological Laboratories, Woods Hole, MA, Dr. C.K. Govind, Professor (Advisor), Summer 1982

NIH Postdoctoral Fellowship: *Presynaptic Inhibition in the Crayfish CNS*, Stanford University, Department of Psychology, Dr. Jeffrey J. Wine, Professor (Advisor), 1982-84

Postdoctoral Research Associate: *Physiological Actions of Neuropeptides in Aplysia*, Stanford University, Department of Biological Sciences, Dr. Richard H. Scheller, Professor (Advisor), 1984-86

Assistant Professor Tenure-Track, *Physiology of Neuropeptides in the Feeding System of Aplysia*, Boston University, Department of Biology, 1986-89

Associate Program Director, Grass Foundation, Marine Biological Laboratory, Woods Hole, MA, Neuroscience Fellowship Program: Administered research and laboratory support for 15 summer graduate students and postdoctoral fellows, coordinated research and educational missions of the Grass Program in collaboration with the Program Director (Dr. Ron Hoy, Cornell University), and worked 'side-by-side' with Summer Fellows in the Grass Research Lab, Summer 1988

Assistant Professor Tenure-Track, *Functional Neural Plasticity in the Feeding System of Aplysia*, University of Missouri, Division of Biological Sciences, 1989-93

Visiting Scholar, Stanford University, Dept. Molecular & Cellular Physiology, Research Development Leave, *Cloning and In vitro Expression of Rat Sec8: a Late Acting Protein in Neural Secretion*, September 1994 - May 1995

Associate Professor with Tenure, *Functional Neural Plasticity in the Feeding System of Aplysia and Stem Cell Biology and Therapies for Neurodegenerative Disorders and Brain Tumors*, University of Missouri, Division of Biological Sciences, 1993 - 2005

AAAS Science & Technology Policy Fellow (On Leave From University of Missouri), National Institutes of Health, National Institute on Alcohol Abuse & Alcoholism, Office of Science Policy & Communications: Administered Extramural Advisory Board, Coordinated Institutional Policy with Grant Program Administration, Composed 'Science Highlights' of NIH Sponsored Research for NIH Director's Office, 2008-2009

Program Director (On Leave From University of Missouri), US National Science Foundation, Biology Directorate, Division of Integrative Organismal Systems, Neural Systems Cluster- Research Program Administration, Selection of Expert Proposal Review Panelists, Chaired Review Panels, Provided Review Guidance and Advice Including Proposal Compliance, Review of Ranked Research Proposals, Selection of Most Meritorious Proposals for Award, Pre- and Post-Award Administration, Chair of IGERT Pre-Proposal Panel, Chair of CRCNS Proposal Panel, Contributed to Collaborative Programs and Development of New Initiatives within the Biology Directorate, 2009-2010

Program Director (Expert Appointment, Consultant) US National Science Foundation, Biology Directorate, Division of Integrative Organismal Systems, Neural Systems Cluster, January – September, 2013

Faculty Fellow, Office of Research, Administered Research Council Review Process, Developed Revised Guidelines for Research Council Programs, Contributed to Grant-Writing Workshops, Mentored Faculty on Grantsmanship, University of Missouri, 2013 to **Present**

Full Professor with Tenure, *Structural and Functional Changes in the Nervous System Associated with Behavioral Plasticity*, University of Missouri, Division of Biological Sciences, 2005 to **Present**

FELLOWSHIPS AND TRAINING AWARDS

NIH Predoctoral Trainee, 1979-82

Workshop on Photoreception - Scholarship, International School of Biophysics, Erice, Sicily, Summer 1981

Grass Foundation Fellowship, Summer 1982

NIH Postdoctoral Fellowship (NRSA), 1982-84

EXTERNAL FUNDING

NSF Award, P.I., Symposium- "Molecular and Cellular Events in Neural Development and Regeneration" 1991

NIH FIRST Award, P.I., "Behavioral Roles of Peptides: Physiology and Biophysics" 1987-93

NIH NINDS R01 Award, P.I., "Functional Neural Regeneration in *Aplysia*" 1992-98

Children's Brain Diseases Foundation, P.I., "Stem Cell Replacement Therapy for Retinal Degeneration" 2001-2002

Batten Disease Research and Support Association, Co-P.I., "Stem Cell Therapy for the Ceroid-Lipofuscinoses" 2001-2003

Rockefeller Brothers Fund, "P.I., "Stem Cell Replacement Therapy For Retinal Degeneration" 2001-2002

Children's Brain Diseases Foundation, P.I., "Stem Cell Therapies for the Neuronal Ceroid Lipofuscinoses" 2003-2004

NIH NINDS R01 Award, P.I., "Stem Cell Therapies for Batten Disease", 2004-2009

NIH NEI R01 Award, Co-P.I., (Dr. Martin Katz, P.I.) "Mesenchymal Stem Cells for Treatment of Retinal Diseases", 2009-2012

INTERNAL FUNDING

NIH Small Instrumentation Grant, Boston University (BU) - 1987

Assistant Professor Travel Award, University of Missouri (MU) - 1991

NIH Small Instrumentation Grant, MU - 1991

Research Council Summer Research Fellowship, MU - 1992

Development Leave (Visiting Scholar, Stanford University), MU - 1994-1995

MU Alumni Association Research Incentive Award - 2000, 2008

Research Council Grants, MU - 1997, 1999, 2001

Big 12 Faculty Exchange Award (Iowa State University) - 2002

University of Missouri Research Board Grants, 1996-1997; 2003-2004, 2009-2011

COURSES TAUGHT AND TEACHING AND ADVISING AWARDS - SEMESTER SYSTEM

(BU, Boston University; MU, University of Missouri):

Topics in Neurobiology, Graduate Seminar (BU) - 1987, 1988

Neurobiology, Undergraduate/Graduate Level-Lecture/Lab (BU) - 1987, 1988

Neurobiology, Undergraduate/Graduate Level-Lecture Only (MU) - 1990, 1999

Nerve Cells and Behavior, Undergraduate/Graduate Level- Lecture/Discussion (BU) - 1988 (MU) - 1990, 1992, 1995, 1996, 1998, 2000, 2003, 2004, 2006, 2013, 2015

Neurobiology Lab, Undergraduate/Graduate Level-Lecture/Lab (MU) - 1991, 1992, 1994, 1997

Senior Seminar, Undergraduate Seminar (MU) - 1991

Readings in Biological Literature, Undergraduate Level Discussion (MU) - 1991, 1992, 1999, 2000

Animal Physiology-General Honors, Undergraduate Level-Lecture/Lab (MU) - 2001

Tropical Neuroethology (Contributing Faculty), University of Puerto Rico, San Juan, PR - Summers 1998, 1999

Neurobiochemistry (Contributing Faculty), Graduate level lecture course, Dr. Grace Sun course director, 2003

Block 3, M-1 MU Medical Students (one lecture), Dr. George Kracke course director, 2004

Graduate Seminar in Area of Specialization-Neurobiology (MU) - 1989, 1990, 1996, 2000, 2001, 2005

Animal Physiology, Undergraduate Level-Lecture/Lab (MU) - 1993, 1994, 1997, 1999, 2001, 2002, 2004, 2006, 2010, 2011, 2012, 2013, 2014

Entering Mentoring, Faculty Instructor/Facilitator, Informal Graduate/Postdoctoral Workshop for 8 Weeks, 2010, 2014

Stem Cell Biology & Society, Undergraduate Lecture/Discussion Course (MU) - Intersessions 2008, 2014

Stem Cell Biology, Graduate Level Lecture/Discussion Course (MU) - Winter 2005, 2007, 2008, 2011

Preparing Future Faculty (contributing lecturer), Graduate Level Discussion Course (MU) - Winter 2014

Preparing Tomorrow's Leaders for Science, CAFNR, Graduate Level Discussion Course (MU) - February 2015

- University of Missouri Student Association Certificate for Outstanding Teaching (MU) - 1993
- Outstanding Greek Faculty Teaching Award (MU) - 1997
- College of Arts & Science Purple Chalk Award for Excellence in Teaching (MU) - 2000
- Provost's Faculty Excellence in Undergraduate Advising Award, Campus-Wide (MU) - 2014

ACADEMIC SERVICEUndergraduate

Curriculum Committee, (Divisional) Boston University, 1986-1989
 Student Organizations, Governments, and Activities Committee, (Campus) University of Missouri, 1989-1992
 Curriculum for Undergraduate Education Committee (Campus) University of Missouri, 1997-1998, 2003
 Residential Life Committee, (Campus) University of Missouri, 1998-2000
 Undergraduate Curriculum Committee, (Divisional) University of Missouri, 1995-2008
 Director of Undergraduate Honors Program, (Divisional) University of Missouri, 2006-2008, 2010-2011
 Faculty Advisor for Tri-Beta Honors Society - Life Science Majors, (Campus) University of Missouri, 2006-2008, 2010-2011
 Judge, Life Sciences Week Poster Session and/or Undergraduate Research Forum, (Campus) University of Missouri, 1998, 2000, 2003, 2006, 2011, 2012
 Panelist, Celebration of Teaching: "Evaluating Teaching", (Campus) University of Missouri, 2013
 Life Sciences Undergraduate Research Opportunities Internship Program, Review Committee, (Campus) University of Missouri, 2011- 2014
 Judge, Life Sciences Week Poster Session and/or Undergraduate Research Forum, (Campus) University of Missouri, 1998, 2000, 2003, 2006, 2011, 2012
 Judge, Annual Biomedical Research Conference For Minority Students, St. Louis, MO, 2011
 Faculty Advisor, Alpha Phi Omega, Service Learning Fraternity, (Campus) University of Missouri, 2014-Present

Graduate

Graduate Affairs Committee, Boston University, Department of Biology, 1986-1989
 Graduate Affairs Committee, University of Missouri, Division of Biological Sciences, 1990-1992
 Curriculum Committee, Interdisciplinary Graduate Program in Neuroscience, University of Missouri, 2001-2002
 Graduate Faculty Senate (elected), University of Missouri, 2001-2003
 Web Site Coordinator, Interdisciplinary Graduate Program in Neuroscience, University of Missouri, 2001-2003
 Graduate Faculty Senate (elected), Academic Affairs Subcommittee, University of Missouri, 2001-2003
 Graduate School Student Awards and Scholarships Committee, University of Missouri, 2001-2003
 Presenter, Workshop on 'Government Positions and Your PhD: AAAS Policy Fellowships, NSF and NIH', MU Science Career Conference, Life Sciences Week, University of Missouri, 2012
 Preparing Future Faculty Advisory Committee, Graduate School, University of Missouri, 2011-2014

Faculty

Faculty Search Committees, Boston University, Department of Biology, 1987, 1988, 1993, 1996
 Faculty Search Committees, University of Missouri, Division of Biological Sciences, 1987, 1988, 1993, 1996
 Divisional Council (elected), University of Missouri, Division of Biological Sciences, 1993-1995, 2004-2006
 College of Arts & Science Promotion, Tenure and Membership Committee (elected), University of Missouri, 2007- 2009
 Faculty Responsibility Committee, College of Arts & Science, University of Missouri, 2010-2014
 Faculty Mentoring Oversight Committee (currently Chair), Division of Biological Sciences, University of Missouri, 2011-Present
 College of Arts & Science Executive Committee (elected), University of Missouri, 2014-Present

Research

Facilities Committee, Boston University, Department of Biology, 1986-1989
 President of Central Missouri Chapter of the Society for Neuroscience, 1992-1993
 Vice Provost's Faculty Development Advisory Committee, University of Missouri, 1996-2006
 Chairman of Vice Provost's Faculty Development Advisory Committee, University of Missouri, 2003-2006
 Embryonic Stem Cell Research Oversight (ESCRO) Committee, University of Missouri, 2006-2014
 Panel Member, Office of Research workshop on NSF Broader Impacts, (Campus) University of Missouri, 2010
 University Animal Care & Use Committee, University of Missouri, 2010-2011
 Member of Research Board and Life Sciences Subcommittee, University of Missouri System, 2011- 2012
 Research Responsibility Committee (elected), College of Arts & Science, University of Missouri, 2011-2014
 Panel Member, MU Grant Writers Network, 'Writing Your Proposal with the Reviewer in Mind', 2012
 Panel Member, MU Grant Writers Network, 'NSF's Pre-Proposal Process from the Reviewer's Perspective', 2012
 Reviewer for Major Grant Pre-Proposals, MU Office of Research, University of Missouri, 2012-Present
 Panelist, Office of Research, Broader Impacts Summits and Broader Impacts Resource Fairs, University of Missouri, 2013-2015

PROFESSIONAL SERVICE, TRAINING & CONSULTING

Technical Review Committee for the Grass Foundation, 1987
 Associate Program Director (MBL Fellowship Program), Grass Foundation, Marine Biological Labs, Woods Hole, MA 1988
 Judge, Biological Sciences, Missouri Academy of Sciences, Collegiate Division, 1996

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Journal Ad Hoc Reviewer- Developmental Dynamics, Archives of Ophthalmology, Journal of Comparative Physiology, Journal of Neurophysiology, Journal of Neurobiology, Canadian Journal of Physiology and Pharmacology, Journal of Experimental Zoology, Journal of Neuroscience, Brain Research, Biological Signals, Journal of Comparative Neurology, American Zoologist, Mechanisms of Development, Experimental Eye Research, Transplantation, Current Opinion in Molecular Therapeutics, Stem Cells, Journal of Cellular and Molecular Medicine, Journal of Neuroscience, Nature Biotechnology, Stem Cells & Development, Neurotherapeutics
Guest Editor, Journal of Experimental Zoology "Molecular and Cellular Events in Neural Development and Regeneration", 1992

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Editorial Board - Invertebrate Neuroscience, 2002 – 2005
Editorial Board – Recent Patents on Regenerative Medicine, 2010- 2014
Editorial Board - Clinical Rehabilitative Tissue Engineering Research, 2007- Present
Editorial Board - Stem Cells International, 2009- Present
Editorial Board - The Open Stem Cell Journal, 2009 – Present

Natural Sciences and Engineering Research Council of Canada (NSERC), Ad Hoc Reviewer 1994, 1997
US-Israeli Binational Science Foundation, Ad Hoc Reviewer 1996, 1997
US National Science Foundation, Ad Hoc Reviewer 1994-2006
Contributing Author, Campbell & Reece, Biology, Chapter 48 (Nervous Systems), 7th Edition (2005)
Grant review panel, American Institute of Biological Sciences (AIBS), New Jersey Commission on Science and Technology (NJCSST): Stem Cell Initiative, 2005
British Medical Research Council, Ad Hoc Reviewer, 2005, 2007
Irish Health Research Board, Ad Hoc Reviewer, 2006
Chairman, Grant Review Panel, American Institute of Biological Sciences (AIBS), New Jersey Commission on Science and Technology (NJCSST): Stem Cell Initiative, 2007
NIH Neurogenesis and Cell Fate Study Section, Ad Hoc Member 2006-2008
Strategic Persuasion Workshop: A Seminar in Negotiation Skills and Conflict Resolution, Mizzou Advance Program, 2007
NIH Molecular and Integrative Signal Transduction Study Section (Retinopathy Special Section), Ad Hoc Member, 2008
AAAS Science & Technology Policy Fellowship - EPA, ORD, National Center for Environmental Assessment, 2008-2009 (Offer Declined)
Congressional Operations Seminar, Georgetown University, The Governmental Affairs Institute, July 13-17, 2009
Chairman, Grant Review Panel, American Institute of Biological Sciences (AIBS), New York Stem Cell Initiative (NYSTEM), Stem Cell Characterization Panel, 2009
Swiss National Research Programme, Ad Hoc Reviewer, 2009
Welcome Trust Foundation, Ad Hoc Reviewer, 1987-2005, 2010, 2011
Panelist, Cell Biology Review Panel, US National Science Foundation Graduate Research Fellowships Program, January 2012
Panelist, Neural Systems Cluster, Organization Program, Pre-Proposal Panel, US National Science Foundation, March 2012
Panelist, Neural Systems Cluster, Organization Program, Full-Proposal Panel, US National Science Foundation, October 2012
Program Director (1/2 time appointment), US National Science Foundation, Biology Directorate, Division of Integrative Organismal Systems, Neural Systems Cluster, 2015 (Offer Declined)

MEMBERSHIPS in PROFESSIONAL SOCIETIES & GRADUATE PROGRAMS

International Society for Neuroethology, 1984-2004
Missouri Academy of Sciences, 1990-2005
Microscopy Society of America, 2005-2008
American Association for the Advancement of Science, 1982-Present
Society for Neuroscience, 1980-Present
International Society for Stem Cell Research, 2002-Present
MU Graduate Faculty, 1990-Present
MU Biological Sciences Graduate Program, 1989-Present
MU Interdisciplinary Neuroscience Graduate Program, 1995- Present
MU Molecular Biology and Genetics Area Graduate Program, 1990-Present

INVITED SEMINARS AND SYMPOSIA/CONFERENCE PROFESSIONAL PRESENTATIONS

1986 Boston University, Department of Biology
University of Illinois at Chicago, Department of Biology
University of Miami, Department of Biology
Southwest Missouri State University, Department of Biology
1987 Brandeis University, Neuroscience Program

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- 1988 Marine Biological Laboratories, Boston University Marine Program, Woods Hole, MA
Cold Spring Harbor Symposium on Cell and Molecular Neurobiology of *Aplysia*
Connecticut College, Department of Biology
- 1988 University of Missouri-Columbia, Div. Biological Sciences
- 1989 Northeastern University, Department of Biology, Boston, MA
Symposium- *Crustacean Pioneer Systems in Neurobiology*, International Society for Neuroethology, Hamburg, FRG
- 1990 Truman State University, Dept. of Natural Sciences
- 1991 Satellite Symposium, Society for Neuroscience, Univ. Missouri-Columbia
- 1992 University of Missouri-St. Louis, Dept. of Biology
University of Missouri-Columbia, Dept. Veterinary Biomedicine
University of Oklahoma, Dept. of Zoology
Westminster College, Dept. of Biology, Fulton, MO
- 1993 University of Missouri-Columbia, Div. Biological Sciences
- 1995 Stanford University, Dept. Molecular and Cellular Physiology
- 1997 Workshop on Invertebrate Synapses, Univ. Toronto, Toronto, Canada
- 1999 Southwest Missouri State University, Dept. of Biomedical Sciences
University of Illinois-Urbana, Neuroscience Program
University of Puerto Rico, Institute of Neurobiology, San Juan, PR
- 2000 University of Toronto, Department of Zoology
University of Toronto, Department of Physiology
- 2001 University of Missouri-Columbia, Dept. of Pharmacology
- 2002 Iowa State University, Dept. of Zoology & Genetics/Neuroscience Program
University of Missouri-Columbia, Interdisciplinary Neuroscience Program
- 2003 Rutgers University, Dept. Cell Biology and Neuroscience, Piscataway, NJ
- 2004 University of Missouri-Kansas City, Dept. of Pharmacology
- 2005 Central Methodist University, Dept. of Biology
Dalton Research Center Science Teacher's Symposium
- 2006 Medical University of South Carolina, Neuroscience Institute, Research Day Conference
- 2007 Missouri State University, Department of Biology, Springfield, Missouri
University of Missouri-Columbia, Department Veterinary Biomedicine
- 2008 Interstate Alliance For Stem Cell Research, NAS's Keck Center, Washington, DC
- 2009 National Science Foundation, BIO Directorate, Division of Integrative Organismal Systems, Arlington, VA
Society For Neuroscience, Annual Meeting, Chicago, IL (NSF Outreach)
- 2010 Council for Undergraduate Research (CUR) Dialogues, Washington, DC (NSF Outreach)
University of Missouri-Kansas City, School of Pharmacy, Kansas City, MO (Research Seminar)
University of Missouri-Kansas City, School of Pharmacy, Kansas City, MO (NSF Outreach)
- 2011 University of Missouri, Saturday Morning Science, Columbia, MO
- 2012 Center for Translational Neuroscience, University of Missouri, Columbia, MO
Missouri Cures Educational Foundation, Public Lecture, Boone County Library, Columbia, MO (Science Outreach)
Office of Sponsored Programs Administration, University of Missouri, Columbia, MO (NSF Outreach)
- 2013 Plant Biology & Public Policy Workshop, University of Missouri, Columbia, MO (NSF Outreach)
Panelist, Broader Impacts Summit, University of Missouri
- 2014 MU Grant Writer Network Campus-Wide Training Presentation, 'Maximizing Impact: NSF Review Criteria'
- 2015 MU Office of Research 'Let's Talk Research' Series, Workshop Panelist, 'Broader Impacts For NSF Applications'

UNDERGRADUATE RESEARCH INTERNS MENTORED INDIVIDUALLY IN MY LAB:

93

(59 Females, 17 Underrepresented Minorities)

GRADUATE STUDENTS TRAINED (12 Females, 5 Underrepresented Minorities)

<u>Boston University (BU)</u>	<u>University of Missouri-Columbia (MU)</u>	<u>Graduate Rotation Students (Since 2002)</u>
Paul Cirenza (MA 1990)	Tanza Ross (MA 1993)	Kristy Wendt (MA 2002)
Keith McAvoy (MA 1988)	Marsha Scott (PhD 1994)	Katie Capkovic (PhD 2005)
	Jose Antonio Sanchez (PhD 2001)	Catherine Clark (PhD 2005)
	Bina Vanmali (MA 2002)	Theresa Dinh (Prep Scholar, 2004-2005)
	Jason Meyer (PhD 2004)	Militza Bonet (Prep Scholar, 2007)
	Chris Pierret (PhD 2008)	Brandie Morgan (PhD 2009)
	Prakash Rath (PhD 2009)	William S. Swatson (PhD 2010)
	Cheryl Dunham (MA 2011)	Mingtao Zhao (PhD 2013, Animal Sciences)
	Katie Spears (PhD 2011)	Desirè Buckley (PhD 2014-2015)

POSTDOCTORAL FELLOWS / RESEARCH ASSOCIATES

Dr. Mark Plummer (BU, 1987-1988)
 Dr. YongSheng Li (MU, 1992-1994)
 Dr. Peter Serfozo (MU, 2002-2005)
 Dr. Jason Meyer (MU, 2004-2005)
 Dr. Greg Tullis (MU Visiting Research Associate Professor, 2011- 2014)

PUBLICATIONS (ABSTRACTS & CONFERENCE PRESENTATIONS NOT LISTED)

* = Peer-Reviewed Articles; **Bold** = graduate student author; Underline = undergraduate student author

- *1. Glantz, R.M. and Kirk, M.D. (1980) Intercellular dye migration and electrotonic coupling within neuronal networks of the crayfish brain. J. Comp. Physiol. 140: 121-133.
- *2. Kirk, M.D. and Glantz, R.M. (1981) Impulse pattern generation in a crayfish abdominal postural motoneuron. J. Comp. Physiol. 141: 183-196.
- *3. Glantz, R.M., Kirk, M.D. and Viancour, T. (1981) Interneurons of the crayfish: the relationship between dendrite location and afferent input. J. Neurobiol. 12: 311-328.
- *4. Kirk, M.D., Waldrop, B. and Glantz, R.M. (1982) The crayfish sustaining fibers. I. Morphological representation of visual space in the second optic neuropil. J. Comp. Physiol. 146: 175-179.
- *5. Kirk, M.D., Waldrop, B. and Glantz, R.M. (1983) The crayfish sustaining fibers. II. Responses to illumination, membrane properties and adaptation. J. Comp. Physiol. 150: 419-425.
- *6. Glantz, R.M., Kirk, M.D. and Arechiga, H. (1983) Light input to crustacean neurosecretory cells. Brain Res. 265: 307-311.
- *7. Kirk, M.D., Waldrop, B. and Glantz, R.M. (1983) A quantitative correlation of contour sensitivity and dendritic density in the crayfish visual system. Brain Res. 274: 231-237.
- *8. Kirk, M.D. and Govind, C.K. (1983) Innervation and motor patterns of the abdominal superficial flexor muscles in larval lobsters. J. Neurobiol. 14: 399-405.
- *9. Kirk, M.D., Prugh, J.I. and Glantz, R.M. (1983) Retinal illumination produces synaptic inhibition of a neurosecretory organ in the crayfish, *Pacifastacus leniusculus* (Dana) J. Neurobiol. 14: 473-480.
- *10. Kirk, M.D. and Wine, J.J. (1984) Identified interneurons produce both primary afferent depolarization and presynaptic inhibition. Science. 225: 854-856.
- *11. Kirk, M.D. (1985) Presynaptic inhibition in the crayfish CNS: pathways and synaptic mechanisms. J. Neurophysiol. 54: 1305-1325.
- *12. Kirk, M.D., Dumont, J.P.C. and Wine, J.J. (1986) Local inhibitor of the crayfish telson-flexor motor giant neurons: morphology and physiology. J. Comp. Physiol. 158: 69-79.
- *13. Kirk, M.D. and Scheller, R.H. (1986) Egg-laying hormone of *Aplysia* induces a voltage-dependent slow inward current carried by Na⁺ in an identified motoneuron. Proc. Natl. Acad. Sci. (USA) 83: 3017-3021.
- *14. Scheller, R.H. and Kirk, M.D. (1987) Neuropeptides in identified *Aplysia* neurons: precursor structure, biosynthesis and physiological actions. Trends Neurosci. 10(1): 432-438.
- *15. Sossin, W.S., Kirk, M.D. and Scheller, R.H. (1987) Peptidergic modulation of neuronal circuitry controlling feeding in *Aplysia*. J. Neurosci. 7(3): 671-681.
- *16. Kreiner, T., Kirk, M.D. and Scheller, R.H. (1987) Cellular and synaptic morphology of a feeding motor circuit in *Aplysia californica*. J. Comp. Neurol. 264: 311-325.
- *17. Kirk, M.D., Taussig, R., and Scheller, R.H. (1988) Egg-laying hormone, serotonin, and cyclic nucleotide modulation of ionic currents in the identified motoneuron B16 of *Aplysia*. J. Neurosci. 8(4): 1181-1193.

- *18. Govind, C.K., Kirk, M.D., and Pearce, J. (1988) Highly active neuromuscular system in developing lobsters with programmed obsolescence. J. Comp. Neurol. 272: 437-449.
- *19. Rathouz, M.M. and Kirk, M.D. (1988) Localization of catecholamines in the buccal ganglia of *Aplysia californica*. Brain Res. 458: 170-175.
- *20. Kirk, M.D. (1989) Premotor neurons in the feeding system of *Aplysia*. J. Neurobiol. 20(5): 497-512.
- *21. Plummer, M.R. and Kirk, M.D. (1990) Premotor neurons B51 and B52 in the buccal ganglia of *Aplysia californica*: Synaptic connections, effects on ongoing rhythms, and peptide modulation. J. Neurophysiol. 63 (3): 539-558.
22. Kirk, M.D. and Govind, C.K. (1990) Presynaptic inhibition of primary afferent synapses in the crayfish, In Frontiers in Crustacean Neurobiology, Ed. by K. Wiese, W.-D. Krenz, J. Tautz, H. Reichert, B. Mulloney, Birkhauser Verlag, Berlin, pp. 140-151.
- *23. Church, P.J., Cohen, K.P., Scott, M.L., and Kirk, M.D. (1991) Peptidergic motoneurons in the buccal ganglia of *Aplysia californica*: Immunocytochemical, morphological, and physiological characterizations. J. Comp. Physiol. 168: 323-350.
- *24. Scott, M.L., Govind, C.K., and Kirk, M.D. (1991) Neuromuscular organization of the buccal system in *Aplysia californica*. J. Comp. Neurol. 312: 207-222.
25. Nambu, J. and Kirk, M.D. (1992) Molecular biology and function of neuropeptides in *Aplysia*, in Techniques for the Genetic Analysis of Brain and Behavior: Focus on the Mouse, D. Goldowitz, D. Wahlsten, and R. Wimer, Eds., Elsevier Press, New York.
26. Kirk, M.D., McClellan, A., and Harrelson, A. (1992) Introduction: Molecular and Cellular Events in Neural Development and Regeneration. J. Exp. Zool. 261: 233.
- *27. Kirk, M.D. and Govind, C.K. (1992) Early innervation of abdominal swimmeret muscles in developing lobsters. J. Exp. Zool. 261: 298-309.
- *28. Govind, C.K., Blundon, J., and Kirk, M.D. (1992) Functional degeneration of central stumps of transected sensory axons in the crayfish. J. Comp. Neurol. 322: 111-120.
- *29. Scott, M.L. and Kirk, M.D. (1992) Recovery of consummatory feeding after bilateral lesions to the cerebral-buccal connectives in *Aplysia californica*. Brain Res. 585: 272-274.
- *30. Jordan, R., Cohen, K.P., and Kirk, M.D. (1993) Control of intrinsic buccal muscles by motoneurons B11, B15, and B16 in *Aplysia californica*. J. Exp. Zool. 265: 496-506.
- *31. Katz, P.S., Kirk, M.D., and Govind, C.K. (1993) Facilitation and depression at different branches of a motor axon: evidence for presynaptic differences in release. J. Neuroscience. 13(7): 3075-3089.
- *32. Ross, T., Govind, C.K., and Kirk, M.D. (1994) Neuromuscular regeneration by buccal motoneuron B15 after peripheral nerve crush in *Aplysia californica*. J. Neurophysiology. 72 (4): 1897-1910.
- *33. Lee, M.T., Glidden, R., Young, S.M., Jackson, D.A., and Kirk, M.D. (1995) Pathways mediating abdominal phasic flexor muscle activity in crayfish with chronically cut nerve cords. J. Comp. Physiology. 176: 91-102.
- *34. Scott, M., Li, Y., and Kirk, M.D. (1995) Functional neural regeneration in the feeding system of *Aplysia*: Behavioral recovery correlated with changes in buccal motor output. J. Neurophysiology. 73 (1): 39-55.
- *35. Ting, A.E., Hazuka, C.D., Hsu, S., Kirk, M.D., Bean, A.J. and Scheller, R.H. (1995) rsec6 and rsec8, mammalian homologs of yeast proteins essential for secretion. Proc. Natl. Acad. Sci. (USA) 92: 9613-9617.
- *36. Scott, M.L., Danzer, S.C., Govind, C.K. and Kirk, M.D. (1997) Morphological correlates of neural regeneration in the feeding system of *Aplysia californica* after CNS lesions. J. Comp. Neurol. 387: 279-290.
- *37. Johnson, S.L., Schroeder, M.L., Sánchez, J. A. D. and Kirk, M.D. (1999) Axonal regeneration in the central nervous system of *Aplysia californica* determined by anterograde transport of biocytin. J. Comp. Neurol. 406 (4): 476-486.
- *38. Sánchez, J.A.D. and Kirk, M.D. (2000) Short-term synaptic enhancement modulates ingestion motor programs of *Aplysia*. J. Neuroscience. 20: RC85 (1-7).

- *39. **Sánchez, J.A.D.**, Li, Y. and Kirk, M.D. (2000) Regeneration of cerebral-buccal interneurons and recovery of ingestion buccal motor programs in *Aplysia* after CNS lesions. J. Neurophysiology. 84: 2961-2974.
- *40. Kirk, M. D., **Meyer, J. S.**, Miller, M. W. and Govind, C.K. (2001) Dichotomy in phasic-tonic neuromuscular structure of crayfish inhibitory axons. J. Comp. Neurology. 435: 283-290.
- *41. **Sánchez, J.A.D.** and Kirk, M.D. (2001) Cerebral-buccal pathways in *Aplysia californica*: synaptic connections, cooperative interneuronal effects and feedback during buccal motor programs. J. Comp. Physiol. 187: 801-815.
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