CURRICULUM VITAE

John P. Walsh

Associate Professor
Davis School of Gerontology
Andrus Gerontology Center
University of Southern California
Los Angeles, CA 90089-0191
(213) 740-4908, jwalsh@usc.edu
http://www.usc.edu/programs/neuroscience/faculty/profile.php?fid=69
http://www.usc.edu/dept/gero/faculty/Walsh/

Appointments:

Distinguished Fellow, USC Center for Excellence in Teaching (CET) – May 2007-present (permanent appointment)
University of Southern California
http://cet.usc.edu/faculty/walsh.html

Director of the Leonard Davis School of Gerontology – June 2004-June 2006

Associate Professor – July 1996 - Present
Davis School of Gerontology
University of Southern California
Los Angeles, CA 90089-0191

Assistant Professor - January, 1990 - June, 1996
Primary Appointment: Davis School of Gerontology
Affiliate Appointment: Program in Neurosciences
University of Southern California
Los Angeles, CA 90080-0191

Asst. Research Physiologist - November, 1987 - December, 1989
Mental Retardation Research Center
University of California - Los Angeles
Los Angeles, CA 90024

Education and Training:

Postdoctoral Trainee - November, 1985 - November, 1987
Mental Retardation Research Center
University of California - Los Angeles
760 Westwood Plaza
Los Angeles, CA 90024

Ph.D. degree - December 13, 1985
Graduate School of Biomedical Sciences
University of Texas Health Science Center at Houston
Houston, Texas 77025

Neurobiology of Behavior Course, Summer, 1984
Cold Spring Harbor Laboratories
Cold Spring Harbor, New York 11724

B.S. degree (Biology) - 1979
University of California at Irvine
Irvine, California 92717

Honors:

A.P. Giannini Fellowship in Biomedical Research, June, 1988.
USC Andrus Excellence in Teaching Award, 1995
USC Neuroscience Admissions Committee, 1994-6, 1999
USC Neuroscience/Gerontology Search Committee, 2000-01
USC Faculty Senate, 2003
USC Provost Select Committee (CAPT) on Learner-Centered Education, 2005
USC Provost Select Committee (CAPT) on Academic Assessment, 2006
USC Provost Select Committee (CAPT) on Residential Colleges, 2007
USC Center for Excellence in Teaching (CET) Fellow – Appointed 8/07 (Permanent university position)
USC Davis School of Gerontology Faculty of the Year – 2007
USC Provost Prize for Teaching with Technology – 2008
Journal of Neuroscience Education (JUNE) – Editor's Choice Award, 2008
Chair, USC Provost Select Committee (CAPT) on USC Minor's Program 2009
Academic Advisory Board for ANNUAL EDITIONS: AGING – 2009-present
Advisory Board – American Federation on Aging (AFAR) – 2009-present
Chair, Minors & GE Program, USC Western Association of Schools & Colleges (WASC) accreditation committee – 2011
USC Associates Award for Excellence in Teaching - 2013

Teaching Experiences:

USC: BISC 230 Brain, Mind and Machines: Topics in Neuroscience (1 semester); GERO 210 Biology of Development and Aging (15 semesters), GERO 414 Neurobiology of Aging (20 semesters), GERO 310 Physiology of aging (6 semesters), GERO 200 The Science of Adult Development (an Introduction to the field of Gerontology)(22 semesters), GERO 508 (2 semesters). BISC 230 Brain, Minds and Machines (2 semesters). All USC courses were 4 unit courses.
Mind Matters Seminars and Cortext, Inc: CED credit courses "*Aging and Longevity*" and "*Aging brain: Aging mind*". 8 Hour course marketed by a private company. Courses were worth 8 CED units for health-related careers (1993-2000).
UCLA: Medical Physiology Lab (one semester, 1987)
Univ. Texas School of Medicine: Neuroanatomy labs (2 semesters, 1984-1985)

Woods Hole Marine Biology Laboratories: (3 summer courses, 1984-1986)

Professional Service/NIH & NSF Study Sections

NIH - ZNS1, Fall 2005
NIH - ZRG1-F02B-Y-20L, Spring 2008, Fall 2008
NIH - CNNT Spring 2009, Fall 2009
NSF - CCLI Summer 2009
NIH - ZRG1 F02B-D Summer 2013

USC Service/Administrative Experiences:

USC Davis School of Gerontology

Director, Leonard Davis School of Gerontology – 2004-2006
USC Andrus Gerontology Center Faculty Council (1999-2009)
USC Andrus Gerontology Center Personnel Committee (1997-2006; 2009)
USC Andrus Center Heath Sciences Track Undergraduate Advisor (2001-present)
USC Davis School – Chair, Undergraduate committee (2012-present)

USC Neuroscience Program

USC Neuroscience Program Admissions Committee (1993, 1995, 1998)
USC Neuroscience Program Graduate Advisement Committee (1994, 1996-1998, 2002-2006)

USC Provost Office Committees

USC College of Letters, Arts and Sciences Pre-Med Advisement Committee (1996-1999, 2002)
USC Faculty Senate (2002-2003)
USC Undergraduate Curriculum Committee (2003-2004)
USC Provost Committee on Academic Programs (2004-2006)
USC Deans of Faculty Council (2004-2006)
USC Provost Committee on Academic Programs and Teaching (CAPT) 2005-2008
Committee on Learner-Centered Education (05-06)
Committee on Assessment of Teaching and Learning (06-07)
Committee on Residential Living (07-08)
Committee on USC Minor's Program (Chair)(2009)
USC Western Association of Schools and Colleges (WASC) review committee (2009-2010)
USC Provost Oversight Committee for Athletic Academic Affairs (OCAAA)(2009-2013)
USC General Education Committee (2012)
USC Provost oversight committee for the Institute for Multimedia Literacy (IML) 2012-2013

Membership in Professional and Scientific Society

1982 - Present Society for Neuroscience
2008 – Present Faculty for Undergraduate Neuroscience (FUN)

Awards Granted:

Federal Grants Awarded

Title: Electrophysiology of aging in the nigrostriatal system
In: NIA program project grant headed by Dr. Franz Hefti - "Dopaminergic and basal ganglia plasticity in aging"
6-01-91 to 5-31-96 $417,056/5yr

Title: Calcium and synaptic homeostasis in septal aging

NIA Pilot Project - Part of grant for ADRC of Southern California
4-1-95 to 3-31-96 $19,994

Title: Leadership and Excellence in Alzheimer's Disease (LEAD)
Junior Investigator (AG07904)
2-1-95 to 12-31-95 $57,867

Title: Senescence and striatal synaptic plasticity
1R29 AG12679-1A1 (NIA R29)
8-1-95 to 7-31-00 $350,000/5yr

Title: Electrophysiology of aging in the nigrostriatal system
In: NIA program project grant headed by Dr. Tom McNeill - "Dopaminergic and basal ganglia plasticity in aging"
6-01-96 to 5-31-01 $450,000/5yr

Title: Dopamine-radicals cause aging of corticostriatal synapses
Pilot Project – Multidisciplinary Approaches in Biogerontology (NIA/NIH 5 K07 AG00729)
9-01-01 to 8-31-02 $15,000

Title: Mitochondrial inhibition mimics corticostriatal aging
1 RO1 AG021937-01 A1 (NIH/NIA RO1)
8/01/04 – 7/31/08 $175,000/year (4 years)

Title: Minority Access to Research Careers Award
P.I.: Cynthia Crawford, Ph.D., CSU San Bernardino
Source: NIH
Role on Project (Walsh): External Advisor & Serve as a mentor for students interested in learning how to use electrophysiology in biomedical investigations.
Period: 4/1/07 to 3/30/12

Title: Online multimedia teaching tool for neurobiology.
P.I.: John P. Walsh, Ph.D.
Source: National Science Foundation (NSF)
Course, Curriculum, Laboratory Improvement (CCLI) Program
Role on project: To supervise the development of the online multimedia-teaching tool.
Period: 1/01/09 to 12/31/11 $149,571

Title: Glutamate-Dopamine Plasticity in Nigrostriatal Injury: Exercise Enhanced Recovery
Co-P.I.: John P. Walsh, Ph.D.
Source: NIH (NINDS)(NS044327Z)
Role on project: Supervise physiology of exercise-induced recovery from brain damage
Period: 7/01/09 to 8/30/11 $375,000/yr ($750,000)

Title: Mitochondrial inhibition mimics corticostriatal aging
1 RO1 AG021937-01 A1 (NIH/NIA RO1)(administrative supplement)
8/01/09 – 7/31/10 $134,000

Title: Use of multimedia, social media and gaming to teach neuroscience via mobile devices.
P.I.: John P. Walsh, Ph.D.
Source: National Science Foundation (NSF)
Transforming Undergraduate Education in Science (TUES) Program
Role on project: To supervise the development of the online multimedia-teaching tool.
Period: 7/01/13 to 6/30/16 $198,989.00

Foundation/USC Grants Awarded

Title: Neurophysiological analysis of neurons transplanted into autosomal recessive Han-Wistar rats.
Neuropsychiatric Institute Biomedical Research Support Grant.
11/1/86 - 10/31/87 $5,000

Title: Dopaminergic modulation of dye coupling in the neostriatum.
Neuropsychiatric Institute Biomedical Research Support grant.
11/1/87 - 10/31/88 $5,000

Title: Neuronal transplantation and the formation of functional synaptic connections.
Bank of America - Giannini Foundation Fellowships in Medical Research
07/1/88 - 6/30/89 $20,000

Title: Alteration of dopaminergic modulation of neostriatal physiology associated with aging.
USC - Faculty Research Innovation Fund
07/1/90 - 06/30/91 $15,000

Title: Sensitivity of young and aged substantia nigra neurons to anoxia and excitotoxicity.
Sandoz Foundation for Gerontological Research
10/1/90 - 9/30/91 $20,000

Title: Age-dependence of the electrophysiological response to excitotoxicity in the basal forebrain.
American Federation For Aging Research (AFAR), Inc.
9-1-91 to 8-30-92 $21,728

Title: Neurotrophin modulation of nigral calcium currents
Andrus Associates Award
6-1-95 to 5-30-96 $6,000

Title: Striatal neuron visualization and whole cell patch clamp technology
USC James H. Zumberge Fund
7-1-97 to 6-30-98 $21,783/1 yr

Title: Characterization of antioxidant effects produced by vitamins and minerals in a live cell assay system modeled for Alzheimer's Disease.
John Douglass French Foundation

1-01-00 to 6-30-00 $35,000

Title: Exercise Induced Electrophysiological Changes in the Basal Ganglia of the MPTP-lesioned Mouse Model of Dopamine Dysfunction
JAMES H. ZUMBERGE RESEARCH AND INNOVATION FUND (USC)
Collaborative grant with Dr. Michael Jakowec (USC Neurology)
7/01/05 – 6/30/06 $50,000

Title: GERO 414—Multimedia Learning Tool (MLT) to Create Learner-Centered Instruction for Gerontology 414: Neurobiology of Aging.
Fund for Innovative Undergraduate Teaching
USC Center for Excellence in Teaching
7/01/05 – 6/30/06 $14,250

Title: Multi-disciplinary investigation into pathological mechanism of hypoxia and Parkinson's disease
P.I.: John P. Walsh, Ph.D.
Role on project: Serve as mentor for undergraduate research in my laboratory
Period: 7/01/07 to 6/30/08 $10,000
Source: USC Undergraduate Research Program

Title: Proposal to develop a learner-centered on-line education tool for studying diseases of the brain
P.I.: John P. Walsh, Ph.D.
Source: USC Provost Seed Grants for Teaching with Technology
Role on project: To supervise content and format to be used in on-line teaching tool
Period: 7/01/07 to 6/30/08 $50,000

Title: Multi-disciplinary investigation into pathological mechanism of hypoxia and Parkinson's disease
P.I.: John P. Walsh, Ph.D.
Source: USC Undergraduate Research Program
Role on project: Serve as mentor for undergraduate research in my laboratory
Period: 7/01/08 to 12/31/08 $5,000

Rose Hills Foundation Research Fellowship
P.I.: John P. Walsh, Ph.D.
Undergraduate Student: Kristie Wang
Role on project: To supervise training of undergraduate student in research
Period: 9/01/08 to 8/30/09 $5,000

Rose Hills Foundation Research Fellowship
P.I.: John P. Walsh, Ph.D.
Undergraduate Student: Karlton Wong
Role on project: To supervise training of undergraduate student in research
Period: 9/01/08 to 8/30/09 $5,000

USC Undergraduate Research Program

P.I.: John P. Walsh, Ph.D.
Undergraduate Student: Matilde Hoffman
Role on project: To supervise training of undergraduate student in research
Period: 9/01/10 to 8/30/11 $2,000

USC Undergraduate Research Program
P.I.: John P. Walsh, Ph.D.
Undergraduate Student: Jonathan Wilson, Alex
Role on project: To supervise training of undergraduate student in research
Period: 9/01/10 to 8/30/11 $3,000

Provost Research Collaboration Fund at USC
Co-PI: John P. Walsh, Ph.D.
Title: Plasticity and repair in ND disorders
Role on project: Organize meetings and opportunities to spur collaborations in translational neuroscience at USC
Period: 08/01/2011 to 7/31/2012 $20,000

Provost Research Collaboration Fund at USC
Co-PI: John P. Walsh, Ph.D.
Title: Plasticity and repair in ND disorders
Role on project: Organize meetings and opportunities to spur collaborations in translational neuroscience at USC
Period: 08/01/2012 to 7/31/2013 $30,000

Invited Lectures:

Nov. 25, 1985 Analysis of serotonergic modulation of neurons involved in two defensive behaviors in *Aplysia californica.*
Dept. of Physiology and Cell Biology
University of Texas Medical School at Houston,
Houston, Texas 77025

May 16, 1986 Serotonin modulation of motor and sensory neurons in *Aplysia californica.*
Neuropsychiatric Institute, UCLA - Los Angeles,
California 90024-1759

Oct. 18, 1986 Electrophysiological analysis of transplanted neostriatal neurons.
UCLA Mental Retardation Research Center
Annual Conference at Lake Arrowhead, California

Oct. 17, 1987 The Han-Wistar rat: A genetic model for an extrapyramidal brain disorder.
UCLA Mental Retardation Research Center
Annual Conference at Lake Arrowhead, California

Feb. 26, 1988 Neuronal transplantation and the formation of functional synaptic connections.
Bank of America - Giannini Foundation

Pebble Beach, California

Aug. 24, 1988 Neurophysiological development of transplanted striatal neurons in vitro.
8th I.A.S.S.M.D. Congress, Trinity College,
Dublin, Ireland

Oct. 15, 1988 Cholinergic modulation of neocortical neurons.
UCLA Mental Retardation Research Center
Annual Conference at Lake Arrowhead, California

June 11, 1989 Neurophysiological development of feline substantia nigra neurons *in vitro*.
IIIrd International Basal Ganglia Society Meeting
Cagliari, Italy

Aug. 3, 1989 Development and grafting in the basal ganglia.
Ethel Percy Andrus Gerontology Center
University of Southern California
Los Angeles, CA 90089

Mar 6, 1990 Cholinergic modulation of neurons recorded in neostriatal slices from Patients with intractable epilepsy
Ethel Percy Andrus Gerontology Center
University of Southern California
Los Angeles, CA 90089

March 28, 1990 Neuromodulation in the neostriatum
Department of Biology
University of Southern California
Los Angeles, CA 90089

March 9, 1991 Physiology of aging made simple
Update on Geriatric Medicine
Antelope Valley Hospital Medical Center
1600 West Avenue J, Lancaster, CA 93534

Feb 1-2, 1992 Transplantation as a tool for understanding the neurobiology of Huntington's Disease
Heriditary Disease Foundation
Mary Jenifer Selznick Workshop Program
Santa Monica, CA 90401

March 14, 1992 Sensory deprivation / Changes in the elderly
Update on Geriatric Medicine
Antelope Valley Hospital Medical Center
1600 West Avenue J, Lancaster, CA 93534

Nov. 12, 1992 Physiological Correlates of aging and altered motor performance
Multidisciplinary Research Colloquium Series on Aging
Ethel Percy Andrus Gerontology Center
University of Southern California
Los Angeles, CA 90089

March 18, 1993 Electrophysiological correlates of aging in the striatum
Dept. of Cell and Molecular Biology
Tulane University
New Orleans, LA

Sept. 30, 1993 Age-related alterations in calcium homeostasis in the striatum
Dept. of Biokinesiology and Physical Therapy
University of Southern California
Los Angeles, CA 90033

March 6, 1994 Alteration in calcium homeostasis in the aged brain.
25th Annual Meeting, American Society or Neurochemistry
Colloquium - Neural Plasticity in the aged brain
Albuquerque, NM

Nov. 23, 1994 Neuroplasticity and aging in the basal ganglia
Dept. of Cell and Molecular Biology
Tulane University
New Orleans, LA

Feb. 28, 1995 Neuroplasticity and aging in the basal ganglia
Dept. of Biomedical Engineering
University of Southern California
Los Angeles, CA 90089-0191

Sept. 27, 1995 Senescence of corticostriatal synapses
3rd Annual Neuroscience Symposium
The Synapse
Dept. Biological Sciences
University of Southern California
Los Angeles, CA 90089-0191

Oct. 11, 1995 Expectations for successful aging
Edward R. Roybal Institute for Applied Gerontology
California State University, Los Angeles
Los Angeles, CA 90032

Nov. 15, 1996 Neurophysiological correlates of aging
Department of Psychology
Gettysburg College

Gettysburg, PA 17325-1486

Oct. 20, 1997 Pre- and postsynaptic contributions to synaptic plasticity in the striatum
5th Annual Neuroscience Symposium
The Basal Ganglia
Dept. Biological Sciences & USC Program in Neurosciences
University of Southern California
Los Angeles, CA 90089-0191

Feb 19, 2004 Age-Related Loss of Facilitating Corticostriatal Synapses (may be) Related to an Interaction Between Striatal Dopamine and Reactive Oxygen Species
Workshop on Plasticity and Repair in Neurodegenerative Disorders
UCLA Conference Center
Lake Arrowhead, California

Nov 4, 2005 Acute and long-term consequences of chemical hypoxia in the brain
Grand Rounds
USC Department of Neurology
Los Angeles, CA

Sept 7, 2007 What can mitochondrial inhibition tell us about striatal disease and aging?
USC Neuroscience Program Annual Retreat
Aliso Creek Resort
Laguna Beach, California

May 26, 2010 Balancing careers in education and research: Networking and collaborations in neuroscience
Minority Access to Research Careers (MARC) Program
California State University at San Bernardino
San Bernardino, California

March 30, 2011 Intensive treadmill exercise restores motor function in Parkinson's disease
Department of Kinesiology
California Baptist University
Riverside, California

April 5, 2011 Intensive treadmill exercise restores motor function in Parkinson's disease
Department of Neuroscience
Tulane University
New Orleans, Louisiana

September 26, 2013 Exercise-induced restoration of motor function in Parkinson's Disease:
The Mind-Body Connection
College of Osteopathic Medicine of the Pacific
Western University of Health Sciences
Pomona, CA

Peer Reviewed Publications:

Walsh, J.P. and Byrne, J.H. Analysis of decreased conductance serotonergic response in *Aplysia* ink motor neurons. J. Neurophys. 53: 590-602, 1985.

Walsh, J.P. and Byrne, J.H. Forskolin mimics and blocks a serotonin-sensitive decreased K^+ conductance in tail sensory neurons of *Aplysia*. Neurosci. Letters 52: 7-11, 1984.

Walsh, J.P., Zhou, F.C,. Hull, C.D., Fisher, R.S., Levine, M.S. and Buchwald N.A. Physiological and morphological characterization of striatal neurons transplanted into the striatum of adult rats. Synapse, 2: 37-44, 1988.

Walsh, J.P. and Byrne, J.H. Modulation of a steady-state Ca^{2+} activated K^+ current in tail sensory neurons of *Aplysia*: Role of serotonin and cAMP. J. Neurophys., 61: 32-44, 1989.

Walsh, J.P., Hull, C.D., Levine, M.S. and Buchwald, N.A. Kynurenic acid antagonizes the excitatory post-synaptic potential elicited in neostriatal neurons in the *in vitro* slice of the rat. Brain Res., 480: 290-293, 1989.

Cepeda, C., Walsh, J.P., Hull, C.D. and Buchwald, N.A., Intracellular neurophysiological analysis reveals alterations in excitation in striatal neurons in aged rats. Brain Res., 494: 215-226, 1989.

Walsh, J.P., Cepeda, C., Hull, C.D., Fisher, R.S., Levine, M.S. and Buchwald, N.A. Dye-coupling in the neostriatum of the rat: II. Decreased coupling between neurons during development. Synapse 4:238-247, 1989.

Cepeda, C., Walsh, J.P., Hull, C.D., Howard, S.G., Buchwald, N.A. and Levine, M.S. Dye-coupling in the neostriatum of the rat: I. Modulation by dopamine depleting lesions. Synapse. 4:229-237, 1989.

Waurin, J.-P., Kim, Y.I., Cepeda, C., Tasker, J.G., Walsh, J.P., Peacock, W.J., Buchwald, N.A. and Dudek, F.E. Synaptic transmission in human neocortex removed for treatment of intractable pediatric epilepsy. Annals Neurol., 28:503-511, 1990.

Walsh, J.P., Cepeda, C., Buchwald, N.A., Levine, M.S. Neurophysiological maturation of cat substantia nigra neurons: Evidence from in vitro studies, Synapse 7: 291-300, 1991.

Cepeda, C., Walsh, J.P., Levine, M.S. and Buchwald, N.A. Neurophysiological maturation of cat caudate neurons: Evidence from in vitro studies, Synapse 7: 278-290, 1991.

Levine, M.S., Cepeda, C., D'Angio, M.B., Walsh, J.P., and Buchwald, N.A. Dopaminergic modulation of neostriatal neurons: in vitro intracellular recordings, Posters in Neurosci. 1: 43-47, 1992.

Cepeda, C., Walsh, J.P., Peacock, W., Buchwald, N.A., and Levine, M.S., Dye-coupling in human neocortical tissue resected from children with intractable epilepsy, Cerebral Cortex, 3:

95-107, 1993.

Walsh, J.P. Depression of excitatory synaptic input in rat striatal neurons, Brain Res., 608: 123-128, 1993.

Siviy, S.M., Walsh, J.P., Radisavljevic, Z., Cohen, R.W., Buchwald, N. and Levine, M.S. Evidence for enhanced synaptic excitation in transplanted neostriatal neurons. Exp. Neurol., 123: 222-234, 1993.

Walsh, J.P. and Dunia, R. Synaptic activation of NMDA receptors induces short-term potentiation of excitatory synapses in the striatum of the rat, Neurosci., 57: 241-248, 1993.

Cepeda, C., Walsh, J.P., Peacock, W., Buchwald, N.A., and Levine, M.S. Neurophysiological, pharmacological and morphological properties of human caudate neurons recorded *in vitro*, Neurosci., 59: 89-103, 1994.

Walsh, J.P. and Ou, X. Loss of paired-pulse facilitation at the corticostriatal synapse of the aged rat, Synapse, 17: 36-42, 1994.

Walsh, J.P., Ou, X., Villar, F. Alteration in calcium homeostasis in the aged brain. J. Neurochem. 62:s26,1994.

DeFazio, T. and Walsh, J.P. "Intact" dopaminergic midbrain neurons of the rat display unclamped dendritic Ca^{2+} currents. Neurosci. Let., 208:29-32, 1996.

Dunia, R., Buckwalter, G., DeFazio, T., Villar, F.A.S, McNeill, T.H. and Walsh, J.P. Decreased duration of calcium potentials in striatal neurons from aged rats, J. Neurophysiol., 76:2353-2363, 1996.

Ou, X. and Walsh. J.P. Aging decreases rebound excitation produced by removal of NMDA receptor block in the striatum. Exp. Brain Res., 114:590-594, 1997.

Ou, X., Buckwalter, G., McNeill, T.H. and Walsh, J. P. Age-related changes in short-term synaptic plasticity intrinsic to excitatory striatal synapses of the rat. Synapse, 27:57-68, 1997.

Bottjer, S.W., Brady, J.D. and Walsh, J.P. Intrinsic and synaptic properties of neurons in the vocal-control nucleus IMAN from in vitro slice preparations of juvenile and adult Zebra Finches. J. Neurobiol., 37:642-658, 1998.

Villar, F.A.S. and Walsh, J.P. Modulation of long-term synaptic plasticity at corticostriatal synapses. Neurosci., 90 (3): 1031-1041, 1999.

DeFazio, RA., Pong, K., Knusel, B. and Walsh, J.P. Neurotrophin 4/5 promotes dendritic outgrowth and calcium currents in cultured mesencephalic dopamine neurons. Neurosci., 99(2):297-304, 2000.

Akopian, G., Musleh, W., Smith, R. and Walsh, J.P. Functional state of presynaptic terminals influences the expression of short- and long-term plasticity at corticostriatal synapses. Synapse, 38(3):271-80, 2000.

Jiang D-M, Akopian G, Ho Y-S, Walsh JP and Andersen JK. Increased thiol oxidation of the NMDA receptor NR1 subunit renders glutathione peroxidase knockout mice resistant to kainic acid. Exp. Neurol., 164(2):257-68, 2000.

Fitzpatrick, JS, Akopian G, and Walsh JP. Short-term plasticity at inhibitory synapses in rat striatum and its effects on striatal output. J. Neurophysiol., 85: 2088-2099, 2001.

Smith, R., Musleh, W., Akopian, W., Buckwalter, G. and Walsh, J.P. Regional differences in the expression of corticostriatal synaptic plasticity, Neurosci., 106(1):95-101, 2001.

Akopian, G. and Walsh, J.P. Paired-pulse potentiation produced by voltage-dependent activation of NMDA receptors and L-type Ca^{2+} channels at corticostriatal synapses. J. Neurophysiol., 87: 157-165, 2002.

Boonplueang R, Akopian GK; Fang F. Stevenson; John F. Kuhlenkamp; Lu, SC, Walsh JP, Andersen J. Increased Susceptibility of Glutathione Peroxidase-1 Transgenic Mice to Kainic Acid-Related Seizure Activity and Hippocampal Neuronal Cell Death Due to Direct Activation of the NMDA Receptor by GSSG, Exp. Neurol., 192: 203-214, 2005.

Akopian G and Walsh JP. Reduced expression of short- and long-term facilitation at aged corticostriatal synapses. Synapse, 60: 223-238, 2006.

Akopian G, Walsh JP. Reliable long-lasting depression interacts with variable short-term facilitation to determine corticostriatal paired-pulse plasticity. J Physiol, 580:225-240, 2007.

Petzinger GM, Walsh JP, Akopian G, Hogg E, Abernathy A, Arevalo P, Turnquist P, Fisher BE, Togasaki D, Jakowec ME. Effects of Treadmill Exercise on Dopaminergic Transmission in the 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-(MPTP)-Lesioned Mouse Model of Basal Ganglia Injury. J Neuroscience, 27: 5291-5300, 2007.

G Akopian, C Crawford, MF Beal, M Cappelletti, MW Jakowec, G Petzinger, SL Gheorghe, R Chow, JP Walsh. Decreased striatal dopamine release underlies increased expression of long-term synaptic potentiation at corticostriatal synapses 24 hours after 3-nitropropionic acid induced chemical hypoxia. J Neurosci, 28: 9585-9597, 2008.

Misiaszek G, Henke M, Riconscente M, Walsh JP. Online Multimedia Teaching Tool for Parkinson's Disease. Journal of Undergraduate Neuroscience Education (JUNE), 6: A68-A73, 2008.

VanLeeuwen, J., G. M. Petzinger, M. Vuckovic, G. Akopian, M. Ramirez, J. P. Walsh, and M. W. Jakowec. Altered AMPA-Receptor Expression with Treadmill Exercise in the 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-Lesioned Mouse Model of Basal Ganglia Injury. Journal of

Neuroscience Research, 88: 650-668, 2010.

GM.Petzinger, GM, Fisher BE, VanLeeuwen J, Vuckovic M, G Akopian G, Meshul CK, Holschneider DP, Nacca A, Walsh JP, Jakowec MW. Enhancing neuroplasticity in the basal ganglia: The role of exercise in Parkinson's Disease. Movement Disorders 25: s141-s145, 2010.

Petzinger GM, Walsh JP, Akopian G, Hogg E, Abernathy A, Arevalo P, Turnquist P, Fisher BE, Togasaki D, Jakowec ME. Enhancing neuroplasticity in the basal ganglia: The role of exercise in Parkinson's disease. Movement Disorders,25:2777-2784, 2010.

Vuckovic MG, Quanzheng L, Fischer B, Nacca A, Leahy RM, Walsh JP, Mukherjee J, Williams C, Jakowec MW, Petzinger GM. Exercise elevates dopamine D2 receptor in a mouse model of Parkinson's disease: In vivo imaging with [^{18}F]fallypride. Movement disorders 25:2777-2784, 2010.

Crawford C, Akopian G, Ring J, Jakowec MJ, Petzinger GM, Andersen JK, Vittozzi-Wong P, Wang K, Farley C, Charntikov S, Mitroi D, Chow R, Walsh JP. Acute response and long-term adaptation of dopaminergic nigrostriatal synapses to a brief exposure to the complex II inhibitor 3-nitropropionic acid. Synapse, 65:339–350, 2011.

Siviy SM, Crawford CA , Akopian G, Walsh JP. Dysfunctional play and dopamine physiology in the Fischer 344 rat. Behavioral Brain Research, 220:294-304, 2011.

Walsh JP, Sun J C-Y, Riconscente M. Online teaching tool simplifies faculty use of multimedia and improves student interest and knowledge in science. CBE-Life Sciences Education 10: 298-308, 2011.

Akopian G, Crawford C, Petzinger G, Jakowec MW, Walsh JP. Brief mitochondrial inhibition causes lasting changes in motor behavior and corticostriatal synaptic physiology in the Fischer 344 rat. Neuroscience 215: 149-159 2012. PMID: 22554779.

Zadran S, Akopian G, Zadran H, Walsh J, Baudry M. RVG-mediated calpain2 silencing is the brain impairs learning and memory. Neuromolecular Med, Aug, 2012, DOI 10.1007/s12017-012-8196-8, PMID: 22903378

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