

Dr. Larry W. Swanson

University Professor and

Appleman Professor of Biological Sciences, Neurology, and Psychology

University of Southern California, Los Angeles

larryswanson.com

Dr. Larry Swanson has headed basic research laboratories in systems neuroscience at the Washington University School of Medicine (St. Louis), Salk Institute for Biological Studies, and University of Southern California. He is best known for discoveries related to the basic plan of neural systems controlling motivated and emotional behavior using experimental, neuroinformatics, and historical methods.

Swanson's early behavioral research distinguished the periventricular hypothalamus as a key hotspot for controlling the fundamental survival behaviors eating and drinking that are accompanied by the corresponding drives, hunger and thirst. This finding stimulated his interest in discovering the basic structure-function organization of the brain subsystem underlying motivation and emotion in mammals. Data emerging from this work led naturally to current interests in explaining mechanisms of human and animal behavior—in health, in disease, and following traumatic injury—based on a novel global structure-function wiring diagram of the nervous system using a combination of experimental and theoretical approaches.

The paraventricular nucleus (PVH) of the periventricular hypothalamus is a key controller of eating and drinking behavior and early research by Dr. Swanson's group discovered a highly differentiated structure-function architecture of the PVH. They also demonstrated how individual PVH parts are integrated into anatomically and molecularly-defined neural circuits ranging from the hippocampus, amygdala, and prefrontal cortex in front, to the brainstem and spinal cord in back. Based on this circuit model, the group went on to define hypothalamic controllers for the other two classes of fundamental behaviors common to all animals—defensive (“fight or flight” to threats in the environment for survival of the individual) and reproductive (sexual and parental behaviors for survival of the species). This led to the identification of a longitudinal behavior control column in the medial hypothalamus and midbrain, along with similar though specialized circuitry associated with each node in the column. To date, this research has identified over 6,000 new axonal connections in the rodent central nervous system with experimental pathway tracing methods, and since 1992 they have been mapped onto common digital atlas and flatmap templates for direct comparison of connectivity and gene expression patterns.

A second early line of research in this fundamentally important mammalian brain circuitry uncovered the possibility of biochemical switching of information flow in adult brain neural circuitry that may be regarded as structurally stable. The initial discovery was a dramatic change in the ratio of coexpressed neurotransmitters within individual rat PVH neurons caused by adrenal steroid hormones (Proceedings of the National Academy of Sciences, 1983). Similar results based on immunohistochemistry and in situ hybridization demonstrated altered neurotransmitter expression ratios in neurons of the reproductive-defensive behavior circuitry driven by the cyclical gonadal steroid levels associated with the

estrus cycle in female rats (Proceedings of the National Academy of Sciences, 1987, 1989), and even accompanying the expression of associative fear conditioning in neurons of the amygdala (Behavioral Neuroscience, 2000). Overall, this line of research led to the phenotyping of neuron types based on three fundamental criteria: axonal connections, spatial distribution, and differential gene expression patterns for sets of transcription factors and neurotransmitter-related molecules (Progress in Brain Research, 1992).

These structure-function circuit analysis results involve most parts of central nervous system, and it is now clear that the mechanistic, biological explanation of behavior, thinking, and feeling requires understanding the basic organizing principles of the entire nervous system. The results of this research stimulated Dr. Swanson to produce:

- *The first computer graphics atlas of the brain accompanied by a unique set of hierarchically organized nomenclature tables (for rat 1992, 1998, 2004, 2018; for human: Oxford University Press, 2014). The standard rat brain atlas is now an open access resource on the internet.*
- *The first online knowledge management system for mammalian neural connectivity (BAMS: Nature Neuroscience, 2003). It is now being superseded by [The Neurome Project](#).*
- *A Foundational Model of Connectivity (Proceedings of the National Academy of Sciences, 2010), a formal modeling language for neural circuitry in all animals (NSyL: Journal of Comparative Neurology, 2013).*
- *A global structure-function model of vertebrate nervous system organization (Brain Architecture: Understanding the Basic Plan (Oxford University Press, 2003, 2012).*
- *And a prototype “Google maps” website for the brain (Frontiers in Neuroinformatics, 2015).*

These tools, combined with the three criteria for defining neuron types (connections, location, and gene expression patterns), are foundational to Dr. Swanson’s current efforts to help create a complete connectome—and accompanying wiring diagram—of the mammalian nervous system—a neurome complementary to the genome (Proceedings of the National Academy of Sciences, 2015, 2016, 2017).

Dr. Swanson has been a member of the Society for Neuroscience (SfN) since 1970 and served as its president in 2012-2013. He has also been a member of the Cajal Club since 2002 and served as its president from 2004-2006. In 2015, he was elected to serve as Secretary General of the International Brain Research Organization (IBRO). He was elected a Fellow of the American Academy of Arts and Sciences in 2003 and a Member of the National Academy of Sciences in 2010. He is also a member of the Dana Alliance for Brain Initiatives (2005) and the Grolier Club (2010). He has received numerous awards including a Doctor of Laws (honoris causa) from Concordia University (shared with Eric Kandel; Montreal, 2003), an Alfred P. Sloan Research Fellowship, the Charles Judson Herrick Award in Comparative Neurology, a McKnight Foundation Neuroscience Investigator Award, two Senator Jacob Javits Distinguished Neuroscience Investigator Awards from NINDS, and the Institute of Neurobiology Medal for Outstanding Achievements in Neuroscience Research from UNAM. In addition, he was one of the 100 most cited scientific researchers of the 1980s (one of the two most cited neuroscientists) according to the Institute for Scientific Information.

Dr. Swanson has served on numerous editorial boards, including the Journal of Neuroscience, Trends in Neuroscience, European Journal of Neuroscience, Molecular and Cellular Neurosciences, Journal of Comparative Neurology, Brain Research Reviews, and the Journal of the History of the Neurosciences. He has also served on numerous committees including an NIH Study Section (1981-1985), the McKnight Foundation Scholars Review Committee (1986-1995), the Institute of Medicine's Committee on a National Neural Circuitry Database (1989-1990), the Hereditary Disease Foundation Board of Scientific Advisors (1996-2000), Renovis Inc. Scientific Advisory Board (2001-2003), the NIMH Board of Scientific Councilors (2006-2011), the Allen Institute for Brain Science Advisory Council for the Human Gene Expression Brain Atlas Project (2007-2011), and the Mount Sinai Friedman Brain Institute External Advisory Committee (2010-present).

Dr. Swanson has also presented many prestigious lectures. A partial list includes 13 Grass Foundation Lectures sponsored by the Society for Neuroscience (1983-2006), the Jan Swammerdam Lecture (Amsterdam, 1988), the Jerzy Olszewski Lecture (Montreal, 1989), Plenary Lectures at the European Brain and Behavior Society (Stockholm, 1990), 2nd International Congress of Chinese Anatomical Sciences (Beijing, 1992), and Canadian Federation of Biological Societies (Windsor, 1993), Presidential Plenary Lecture for Society of Biological Psychiatry's 50th Anniversary Meeting (New York City, 1996), Special Lecture at Society for Neuroscience (Los Angeles, 1998), McKnight Foundation President's Lecture (Aspen, 2004), Overseas Plenary Lecture for Australian Neuroscience Society's Silver Jubilee (Perth, 2005), Presidential Symposium Lecture for American Neuropsychiatric Association (Savannah, 2008), History of Neuroscience Lecture at Society for Neuroscience (Chicago, 2009), Invited Lecture for Salk Institute's 50th Anniversary Symposium (La Jolla, 2010), Joseph Erlanger Lecture for American Physiological Society (Washington, 2011), Pinckney J. Harman Memorial Lecture for Cajal Club (Barcelona, 2012), Segerfalk Lecture at University of Lund (2013), Edward G. Jones History of Neuroscience Lecture at University of California, Davis (2015), and Annual Neuroscience Founders Lecture, University of California, San Diego (2016).

Dr. Swanson has also performed various administrative duties, including Chair of the Neuroscience Committee at the Salk Institute (1989-1990). Since coming to USC he has been a member of the Faculty Senate Executive Committee (1992-1993), was Dean of Research for the College of Letters, Arts, and Sciences under Morton O. Schapiro (1998-2000), and Co-Chaired the Research and Innovation subcommittee of the USC Strategic Planning Committee (2010-2011). In addition, he was Director of the Research and Graduate Program in Neurobiology (1993-1997), Founding Coordinator of the university-wide Neuroscience Graduate Program (1996-2004), Director of the university-wide NIBS-Neuroscience Program (2001-2004), and Chair of the Provost's Neuroscience Advisory Group (2001-2006).

Dr. Swanson is a prolific author. He has written five books, translated with Neely Swanson three books written by the founder of modern neuroscience, Santiago Ramón y Cajal, and edited or co-edited seven other books. He has published over 200 peer reviewed research articles and over 70 chapters and reviews. In 2017 Google Scholar identified about 72,000 citations for Dr. Swanson's work, with an h-index of 130 and an i10-index of 263.

Larry William Swanson

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University of Southern California
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Email: lswanson@usc.edu

DEGREES

- 1972 **Ph.D. in Neurobiology**
Washington University School of Medicine, St. Louis
(L.G. Sharpe mentor, Laboratory of Neuropsychology, Dept. of Psychiatry; Eli Robbins chair)
- 1968 **B.A. in Chemistry**; Pomona College, Claremont CA

APPOINTMENTS

- 2012 **Visiting Senior Research Scientist**
Department of Neuroscience; Columbia University, New York NY (T.M. Jessell, sponsor)
- 2012-Present **University Professor**; University of Southern California, Los Angeles CA
- 2007-2013 **Visiting Scholar**; Department of Neurobiology, University of California Los Angeles
- 1995-Present **Appleman Professor of Biological Sciences, Neurology, and Psychology**
University of Southern California, Los Angeles CA
- 1990-Present **Professor**
Departments of Biological Sciences, Neurology, and Psychology; USC, Los Angeles CA
- 1985-1990 **Investigator**
Howard Hughes Medical Institute, The Salk Institute for Biological Studies, La Jolla CA
- 1980-1986-1990 **Senior Member from Staff Scientist**
The Salk Institute for Biological Studies, La Jolla CA
- 1980-1983-1986-1990 **Assistant Adjunct Professor to Adjunct Professor**
Department of Neurosciences, University of California San Diego, School of Medicine
- 1979-1980 **Assistant Professor of Neurobiology**
Department of Anatomy and Neurobiology, Washington University School of Medicine, St. Louis
- 1979 **Visiting Assistant Professor**
Department of Anatomy (H.G.J.M. Kuypers lab), Erasmus University, Rotterdam, Netherlands
- 1978 **Visiting Associate Professor**
Institute of Anatomy (W. Harkmark laboratory), University of Bergen, Bergen, Norway
- 1976-1979 **Research Assistant Professor of Neurobiology**
Department of Anatomy and Neurobiology, Washington University School of Medicine, St. Louis
- 1974-1976 **Postdoctoral Fellow/Research Associate**
Department of Biology (R. Levi-Montalcini laboratory), Washington University, St. Louis MO
- 1972-1974 **Postdoctoral Fellow**
Department of Anatomy (W.M. Cowan laboratory), Washington University, St. Louis MO

AWARDS

- 1977-1980 **Alfred P. Sloan Foundation Research Fellowship in Neuroscience**
- 1980 **C.J. Herrick Award** (American Association of Anatomists)
- 1985-1987 **McKnight Foundation Neuroscience Investigator Award**
- 1986-1993 **Senator Jacob Javits Distinguished Neuroscience Investigator Award from NINDS**
- 1991 **100 most cited scientific researchers of the 1980s** (one of two most cited neuroscientists)
Institute for Scientific Information (*Current Contents* **13**:4-8, 1992)
- 1996 **Albert S. Raubenheimer Award** (USC College of Letters, Arts & Sciences award for distinguished Faculty in combined research, teaching, and service)
- 2001 **100 most cited neuroscience researchers, 1980-2000** (Institute for Scientific Information)
- 2003 **Doctor of Laws** (*honoris causa*), Concordia University, Montreal (awarded with Eric Kandel)
- 2005 **USC Associates Award for Research** (the University's highest research award)
- 2006-2013 **2nd Senator Jacob Javits Neuroscience Investigator Award from NINDS**
- 2013 **Institute of Neurobiology Medal and Lecture for Outstanding Achievements in Neuroscience Research**, National Autonomous University of Mexico (UNAM), Juriquilla Campus, Querétaro

MEMBERSHIPS

- 1971-Present Society for Neuroscience (**Secretary**, 1998-2000; **President**, 2012-2013)
- 1975-Present American Association for the Advancement of Science (elected **Fellow**, 2002)
- 1995-Present International Society for the History of the Neurosciences
- 2002-Present Cajal Club (**President**, 2004-2006; **Historian**, 2008-present)
- 2003-Present American Academy of Arts and Sciences (elected **Fellow**, 2003)
- 2005-Present Dana Alliance for Brain Initiatives (**Member**, 2005)
- 2007-Present Los Angeles Institute for the Humanities (elected **Fellow**, 2007)
- 2010-Present National Academy of Sciences (elected **Member**, 2010)
- 2010-Present Grolier Club (elected **Member**, 2010)
- 2015-2017 International Brain Research Organization, IBRO (elected **Secretary General**, 2016-2017)

EDITORIAL

- 1984-1987 *Journal of Neuroscience* (Associate Editor)
- 1984-1988, 1994-1999 *Neuroendocrinology* (Editorial Board Member)

1984-Present	<i>Experimental Brain Research</i> (Member, Board of Editors)
1986-1992	<i>Trends in Neuroscience</i> (Editorial Board Member)
1987-Present	<i>European Journal of Neuroscience</i> (Founding Editorial Board Member)
1988-2011	<i>Brain Research Bulletin</i> (Editorial Advisory Board Member)
1989-1994	<i>Molecular and Cellular Neurosciences</i> (Associate Editor)
1993-2005	<i>Journal of Comparative Neurology</i> (Editorial Board Member)
1993-2002	<i>Brain Research</i> (Editorial Board Member)
1993-2006	<i>Brain Research Reviews</i> (Editorial Board Member)
1995-2014	<i>Journal of the History of the Neurosciences</i> (Editorial Board Member)
2007-2016	<i>Frontiers in Neuroanatomy</i> (Associate Editor)
2008-Present	<i>ASN Neuro</i> (Founding Editorial Board Member)
2012-Present	<i>Los Angeles Review of Books</i> (Contributing Editor)
2016-Present	<i>IBRO Reports</i> (Founding Editorial Board Member)
2016-Present	<i>Network Neuroscience</i> (Founding Associate Editor)

LECTURES

1983-2006	Grass Foundation Lectures (13): Dalhousie University, Nova Scotia (1983); Marshall University, Huntington, West Virginia (1984); East Tennessee State University (1985); University of Western Ontario (1985); University of Oklahoma (1986); University of Vermont (1987); Washington State University (1988); Jefferson Medical College, Philadelphia PA (1989); Purdue University (1990); Northeastern Ohio University College of Medicine (1991), University of Massachusetts at Amherst (1992); Northwestern University, Chicago IL (1995); Atlanta Chapter (2006)
1986	Chris Evans Memorial Lecture , Brain Research Assn. Annual Meeting, Birmingham, England
1988	Jan Swammerdam Lecture , Netherlands Institute for Brain Research, Amsterdam
1989	Jerzy Olszewski Lecture , Montréal Neurological Institute, McGill University
1990	Plenary Lecture, European Brain and Behavior Society meeting, Stockholm
1992	Plenary Lecture, 2nd International Congress of Chinese Anatomical Sciences , Beijing
1993	Keynote Lecture, Canadian Federation of Biological Societies , Windsor, Ottawa
1994	Markey Charitable Trust Lecture , University of Rochester, Rochester NY
1996	Presidential Plenary Lecture, Society of Biological Psychiatry , 50th Anniversary Mtg., NYC
1998	Special Lecture, Society for Neuroscience Annual Meeting , Los Angeles
2004	McKnight Foundation President's Lecture , Aspen CO

- 2005 **Overseas Plenary Lecture, Australian Neuroscience Society Silver Jubilee Meeting, Perth**
- 2006 **Opening Plenary Lecture, XLIX Congreso Nacional de Ciencias Fisiológicas; Querétaro, Mexico**
Murray Barr Lecture, University of Western Ontario, Canada
Opening Plenary Lecture, Neuroscience in the 21st Century Symposium, Univ. São Paulo
- 2007 **Invited Lecture, International Society for the History of the Neurosciences, Los Angeles**
- 2008 **Presidential Symposium Lecture, American Neuropsychiatric Association, Savannah**
Plenary Lecture, Collaborative Research in Computational Neuroscience Program, Los Angeles
- 2009 **Featured Lecture, American Association of Neurological Surgeons, San Diego**
History of Neuroscience Lecture, Society for Neuroscience Annual Meeting, Chicago
- 2010 **Invited Lecture, Salk Institute 50th Anniversary Symposium, La Jolla**
- 2011 **Joseph Erlanger Lecture, American Physiological Society, Washington DC**
Inaugural Friedman Lecture, Mount Sinai School of Medicine, New York City
- 2012 **Pinckney J. Harman Memorial Lecture, Cajal Club, Barcelona**
- 2013 **Segerfalk Lecture, Lund University, Sweden**
- 2014 **Inaugural Floyd H. Gilles Lecture in Neuroscience Research, Children's Hospital Los Angeles**
Societas Physiologicae Holmiensis, Hillarp Lecture Hall, Karolinska Institutet, Stockholm, Sweden
- 2015 **Edward G. Jones History of Neuroscience Lecture, University of California at Davis**
Keynote Lecture, Joint Kavli Institute for Brain and Mind at UCSD Symposium on Innovative Research and Institute for Neural Computation at the Salk Institute; Spring Retreat, La Jolla
- 2016 **Invited Lecture, Chinese Academy of Sciences, Institute of Neuroscience, Shanghai**
Opening Plenary Lecture, 2016 International Conference of Physiological Sciences and 90th Anniversary of the Chinese Academy of Physiological Sciences, Beijing
Plenary Lecture, Korean Society for Neural Science Annual Meeting, Seoul
Opening Plenary Lecture, 2nd Federation of Latin American and Caribbean Neuroscience Societies Meeting, Buenos Aires
Annual Neuroscience Founders Lecture, University of California, San Diego
- 2017 **Plenary Lecture, Society of Neuroscientists in Africa, biannual meeting, Entebbe, Uganda**
Opening Plenary Lecture, Society for the Study of Ingestive Behavior, 25th annual mtg, Montreal

COMMITTEES

- 1981-1985 NIH Study Section (Neurology B, Subcommittee I)
- 1983 NIMH Neurobiology Section Program Evaluation Committee (**Chair, Neural Organization Panel**)
- 1986-1995 McKnight Foundation Young Scholars Review Committee
- 1987 Society for Neuroscience (SfN), Nominating Committee
- 1989-1990 Institute of Medicine, Committee on a National Neural Circuitry Database
- 1992-1995 SfN Committee on Neuroscience Literacy (**Co-chair, High School Workshop Committee (1994-95)**)

1993, 1996	SfN Gerard Prize Selection Committee
1995-1998	SfN Committee on the History of Neuroscience (Founding Chair , standing committee)
2006-2009	SfN Publications Committee (Neuroinformatics Committee liaison, 2009)
2006-2011	NIMH Board of Scientific Counselors
2007	American Academy of Arts & Sciences, Class II, Section 3 membership panel

CONSULTING

1984	World Bank, 6-week consultant to Beijing Medical College, People's Republic of China
1987	Special Project on Instinct, Japan (Tsukuba, Tokyo, Osaka, Kyoto, Hiroshima)
1996-2000	Hereditary Disease Foundation, Board of Scientific Advisors
2001-2003	Renovis Inc., Scientific Advisory Board
2004	International Brain Research Organization (IBRO), Science Advisory Program <ul style="list-style-type: none"> • Chair, Evaluation of the Hungarian Academy of Sciences Institute for Experimental Science
2007-2011	Allen Institute for Brain Science: Advisory Council, Human Gene Expression Brain Atlas Project
2010-Present	Friedman Brain Institute, Mount Sinai Medical Center; External Advisory Committee
2015	Institute for Biomedical Sciences (ICB), University of Saõ Paulo, External Evaluation Committee

ADMINISTRATION

1989-1990	Chair , Neuroscience Committee, the Salk Institute for Biological Studies
1992-1993	Faculty Senate Executive Committee, University of Southern California
1993-1997	Director , Research and Graduate Program in Neurobiology, University of Southern California
1996-2004	Founding Coordinator , Neuroscience Graduate Program (University-wide), USC
1998-2000	Dean of Research , College of Letters, Arts and Sciences, University of Southern California (Dean of the College: Morton O. Schapiro)
2001-2004	Director , NIBS-Neuroscience Program, University of Southern California
2001-2006	Chair , Provost's Neuroscience Advisory Group, University of Southern California
2010-2011	Co-Chair , USC Provost's Strategic Planning Subcommittee: Research & Innovation

COMMUNITY SERVICE-MEDIA

2010	ALoud Series, Library Foundation of Los Angeles: Robert P. Crease, author of <i>The Great Equations: Breakthroughs in Science from Pythagoras to Heisenberg</i> , in conversation with Larry Swanson (February 17)
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ALoud Series, Library Foundation of Los Angeles: Terry McDermott, author of *101 Theory Drive* and Dr. Gary Lynch: How Memories Get Made, moderated by Dr. Larry Swanson (April 28)

ALoud Series, Library Foundation of Los Angeles: Simon LeVay, author of *Gay, Straight, and the Reason Why: The Science of Sexual Orientation*, in conversation with Larry Swanson (October 5)

PBS/Nobel Media/KIKIm Media: *The Mystery of Memory*, interviewed in the documentary; see Nobelprize.org

2016 92nd Street Y (New York City): Neuroscience Geniuses Roundtable with Eric Kandel & Tom Jessell

CONTINUING EDUCATION

- 2006 (Summer) *Book illustration processes to 1900* (Terry Belanger, instructor), CALRBS, Graduate School of Education and Information studies at UCLA
- 2007 (Summer) *Descriptive bibliography* (Carl Burkhout, instructor), CALRBS, Graduate School of Education and Information studies at UCLA
- 2008 (Summer) *Book collecting: history & techniques* (Bruce Whiteman, instructor) CALRBS, Graduate School of Education and Information studies at UCLA
- 2009 (Summer) *Rare book cataloging* (Randal Brandt, instructor) CALRBS, Graduate School of Education and Information studies at UCLA
- 2010 (Summer) *History of the book* (Susan M. Allen, instructor) CALRBS, Graduate School of Education and Information studies at UCLA

POSTDOCTORAL FELLOWS

- Paul Sawchenko (1979-1983) Professor and Wylie Vale Chair, the Salk Institute for Biological Studies, La Jolla CA
- R. Wallace Lind (1982-1988) Novelist
- Jan G. Veening (1983) Professor of Anatomy, Radboud Universiteit, Nijmegen, the Netherlands (retired)
- Christer Köhler (1983) Global VP, Discovery Research Area CNS & Pain Control, Astra Zeneca International (formerly)
- Lena Haglund (1983) Head, Medical Branch, Education Health Services, City of Strängnäs, Sweden
- Richard B. Simerly (1984-1990) Professor of Molecular Physiology & Biophysics, Vanderbilt University School of Medicine
- Alan G. Watts (1984-85, 1987-1990) Professor of Biological Sciences, University of Southern California
- Etsuko Wada (1986-1988) Senior Research Associate, National Institute of Neuroscience, Tokyo, Japan
- Jai-Hyon Rho (1986-1988) Director of Movement Disorders, Huntington Hospital, Pasadena CA
- Newton S. Canteras (1988-1992) Professor of Anatomy, University of São Paulo Institute of Biomedical Sci., São Paulo, Brazil
- Pierre-Yves Risold (1991-1996) Associate Professor, University of Franche-Comté, INSERM, Besançon, France
- Gonzalo Alvarez-Bolado (1992-1995) Research Group Leader, Department of Genes & Behavior, Max Planck Institute, Göttingen
- Hong-Wei Dong (1997-2003) Associate Professor of Neurology, University of Southern California

Gully A.P.C. Burns (1997-2006)	Research Assistant Professor, USC Information Sciences Institute, Los Angeles CA
Marina Goto (1998-2001)	Assistant Professor, Neuroscience Laboratory II, City University of São Paulo (formerly)
Mihail Bota (2001-2004)	Research Associate Professor of Biological Sciences, USC (formerly)
Joel D. Hahn (2003-2009)	Research Assistant Professor of Biological Sciences, University of Southern California
Richard H. Thompson (2005-2007)	Research Assistant Professor of Biological Sciences, USC (formerly)

Ph.D. STUDENTS

Clifford B. Saper (1973-75, training shared with W.M. Cowan)	Professor and Head of Department of Neurology, Beth Israel Deaconess Medical Center, Harvard
Dennis A. Brittain (1984-1988)	Founder and owner, Medtron
Richard H. Thompson (1990-1997)	Research Assistant Professor of Biological Sciences, USC (formerly)
Eleni A. Markakis (1991-1996)	Assistant Professor of Psychiatry, Yale University (formerly). Biotech startup (currently)
Gorica D. Petrovich (1991-1997)	Associate Professor of Psychology, Boston College
Donna M. Simmons (1994-2006)	Research Associate, University of Southern California (retired)
Lee A. Cenquizca (1997-2004)	Assistant Professor of Anatomy, Department of Life Sciences, Los Angeles City College

MASTER'S DEGREE

Ramsay A. Brown (2011- 2015)	CEO and Founder, Dopamine.com
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SABBATICAL

Gong Ju (1987)	Fourth Military Medical University, Xi'an, China
Emiko Senba (1988-9)	Wakayama Medical University, Japan

TEACHING

1983, 1985, 1986	Teacher of the Year , Department of Neurosciences, University of California at San Diego (list of all courses taught provided at the end of this document)
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PUBLICATIONS: BOOKS & MONOGRAPHS

Publications are listed in the following categories:

Books & Monographs (original)

Books & Monographs (translations)

Books & Monographs (edited)

Chapters & Reviews

Research Articles

Books & Monographs (original):

Swanson, L.W. (1992) *Brain maps: structure of the rat brain* (Amsterdam: Elsevier) 240 pp. ISBN: 0444814140.

- Swanson, L.W. (1998) *Brain maps: structure of the rat brain. A laboratory guide with printed and electronic templates for data, models and schematics, 2nd revised edition* (Amsterdam: Elsevier) 268 pp. with double CD-ROM, *Brain maps: computer graphics files 2.0*. ISBN: 0444827854.
- Swanson, L.W. (2004) *Brain maps: structure of the rat brain. A laboratory guide with printed and electronic templates for data, models and schematics, 3rd revised edition* (Amsterdam: Elsevier) 215 pp. with CD-ROM, *Brain maps: computer graphics files 3.0*. ISBN: 0126105820.

Swanson, L.W. [1993] *Brain maps: computer graphics files, professional version 1.0* (Amsterdam: Elsevier) with 4 floppy discs. ISBN: 0444817409.

Kruger, L., Saporta, S., & Swanson, L.W. (1995) *Photographic atlas of the rat brain: the cell and fiber architecture illustrated in three planes with stereotaxic coordinates* (New York: Cambridge University Press) 299 pp. ISBN: 0521424038.

Alvarez-Bolado, G. & Swanson, L.W. (1996) *Developmental brain maps: structure of the embryonic rat brain* (Amsterdam: Elsevier) 154 pp. ISBN: 0444819037.

Swanson, L.W. (2003) *Brain architecture: understanding the basic plan* (New York: Oxford University Press) 263 pp. ISBN: 9780195105056.

- Swanson, L.W. (2012) *Brain architecture: understanding the basic plan, 2nd revised edition* (New York: Oxford University Press) 331 pp. ISBN: 019537858X.

Swanson, L.W. (2015) *Neuroanatomical terminology: a lexicon of classical origins and historical foundations* (New York: Oxford University Press) 1054 pp. ISBN: 980-0-19-534062-4.

- [Association of American Publishers, Single Volume Reference/Science Book of the Year \(honorable mention\), 2016.](#)

Books & Monographs (translations):

Swanson, N. & Swanson, L.W., translators (1990) *Santiago Ramón y Cajal: New ideas on the structure of the nervous system in man and vertebrates* (Cambridge MA: MIT Press) 201 pp. ISBN: 026218141X.

Swanson, N. & Swanson, L.W., translators (1995) *Santiago Ramón y Cajal: histology of the nervous system in man and vertebrates, volumes I & II* (New York: Oxford University Press) 805 & 806 pp. ISBN: 0195074017.

- [Association of American Publishers, Medical Book of the Year, 1995.](#)

PUBLICATIONS: BOOKS & MONOGRAPHS

Swanson, N. & Swanson, L.W., translators (1998) *Santiago Ramón y Cajal: advice to a young investigator* (Cambridge MA: MIT Press) 150 pp. ISBN: 0262681501.

- [Amazon.com Delivers Science & Nature: Editor's Top 10 of 1999—ranked #1.](#)

Books & Monographs (edited):

Swanson, L.W., Teyler, T.J., & Thompson, R.F. (1982) Hippocampal long-term potentiation: mechanisms and implications for memory: based on an NRP work session [held January 11-13, 1981], *Neurosciences Research Program Bulletin* **20**(5):613-769 (Cambridge MA: MIT Press). ISSN: 0028-3967.

Björklund, A., Hökfelt, T., & Swanson, L.W., editors (1987) *Handbook of chemical neuroanatomy*, Vol. 5, *Integrated systems of the CNS*, Part I (*Hypothalamus, hippocampus, amygdala, retina*) (Amsterdam: Elsevier) 459 pp. ISBN: 0444904956.

Björklund, A., Hökfelt, T., & Swanson, L.W., editors (1989) *Handbook of chemical neuroanatomy*, Vol. 7, *Integrated systems of the CNS*, Part II (*Central visual, auditory, somatosensory, gustatory*) (Amsterdam: Elsevier) 424 pp. ISBN: 0444903402.

Swanson, L.W., Björklund A., & Hökfelt, T., editors (1996) *Handbook of chemical neuroanatomy*, Vol. 12, *Integrated systems of the CNS*, Part III (*Cerebellum, basal ganglia, olfactory system*) (Amsterdam: Elsevier) 584 pp. ISBN: 0444824510.

Swanson, L.W., Grant, G., Grillner, S., Hökfelt, T., Jones, E.G., & Morrison, J., guest editors (2007) A century of neuroscience discovery: reflecting on the Nobel Prize to Golgi and Cajal in 1906. Special issue of *Brain Research Reviews* **55**:191-498. PMID: 17707081.

Ribak, C.E., Aramburo, C., Jones, E.G., Larriva Sahd, J.A., & Swanson, L.W., editors (2009) *From development to degeneration and regeneration of the nervous system* (New York, Oxford University Press) 343 pp. ISBN: 978-0-19-536900-7.

Bentivoglio, M., Jones, E.G., Mazzarello, P., Ribak, C.E., Shepherd, G.M., & Swanson, L.W., guest editors (2011) Camillo Golgi and modern neuroscience. Special issue of *Brain Research Reviews* **66**:1-269. PMID: 21272738.

Baudry, M. & Swanson, L.W., guest editors (2011) R.F. Thompson: a bridge between 20th and 21st century neuroscience. Special issue of *Neurobiology of Learning and Memory* **95**(2):103-220. PMID: 21220031.

Chapters & Reviews:

Swanson, L.W. & Sharpe, L.G. (1977) Angiotensin II induced drinking: distribution of responsive central tissue sites in the rat, rabbit and monkey. In: *Central actions of angiotensin and related hormones*, Buckley, J.P & Ferrario, C.M., editors (New York: Pergamon Press) pp. 429-438. ISBN: 0080209335.

Swanson, L.W. & Cowan, W.M. (1977) Autoradiographic studies of the development and connections of the septal area in the rat. In: *The septal nuclei*, DeFrance, J.F., editor (New York: Plenum Press) pp. 37-64. ISBN: 0306379201.

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- Swanson, L.W. (2018) Brain maps 4.0—Structure of the rat brain: an open access atlas with global nervous system nomenclature ontology and flatmaps. *Journal of Comparative Neurology*. doi: 10.1002/cne.24381.

Please note: Books, as well as Chapters & Reviews, are listed in two separate sections above.

TEACHING

Teaching:

1. *Neural Sciences*. Washington University School of Medicine (E.G. Jones, coursemaster). 1973-1977. Laboratory lectures and instruction.
2. *Human Anatomy*. Washington University School of Medicine (R. Peterson, coursemaster). 1978-1979. Twelve lectures a year and full laboratory.
3. *Introduction to Neural Sciences*. Washington University (W.M. Cowan, coursemaster). 1978. Led undergraduate student discussion groups.
4. *Mammalian Neuroanatomy*. Department of Neurosciences, University of California, San Diego. Yearly, 1982-1989. Core course for graduate students. Gave all lectures (28) and directed laboratory.
 - 1991-1998. Department of Biological Sciences, University of Southern California. Survey course for graduate students offered every two or three years.
5. *Advanced Neurobiology*. 1990-1997. Core course for graduate students, spread over two semesters. Gave one-third of lectures, for neuroanatomy section of course.
6. *Neuroscience Graduate Program Core Course*. 2003-2005. Basically the same as preceding item. 2006-2012: give opening 1-3 lectures; overview and introduction to development.
7. *Advanced General Biology: Cell Biology and Physiology*. 1991-1997, 2002-2003, 2006-11, 2014-2016. Introductory course for honors Biology majors (about 60). Give lectures (20) for animal form and function half of course.
8. *Advanced Topics in Neuroanatomy*. 1994.
9. *Seminar in Neurobiology: Brain Control of the Emotions*. 2007, 2008 Spring, 2008 Fall (BISC462). Advanced undergraduate/graduate 2 unit course; gave all lectures and also led “journal club” session each week.
10. *Brain Architecture*. 2010 (BISC424). Course for advanced undergraduates and graduate students. Gave all 40 lectures, and co-led 15 discussion sections on interpreting human brain scans with Dr. Floyd Gilles.
11. *Thinking about the Brain*. 2011, 2012 (FSEM180). Freshman seminar in the Dornsife College of Letters, Arts & Sciences, given as a distinguished Dornsife Fellow (two-year appointment). Led 2-hour lecture discussion for 16-19 students once a week for the semester.
12. *Neuroscience Honors Seminar and Theses*, 2014 (NEUR/BISC493-494) Course for about 10 advanced neuroscience undergraduates. Co-taught weekly sessions with Jason Zevin.
13. *Brain Architecture*. 2017 (BISC424). Course (4 units) for advanced undergraduates and graduate students. Gave all lectures.