

CURRICULUM VITAE

Oliver M. Brown, Ph.D.

P.O. Box 157
Apulia Station, New York 13020

cell (315) 391-4103
email: obrown90@gmail.com

**Professional
Affiliation:**

Associate Professor Emeritus
Pharmacology Department
College of Medicine
SUNY - Upstate Medical University
(aka: SUNY- Health Science Center,
and Upstate Medical Center)
766 Irving Avenue
Syracuse, New York 13210

Born:

11 June 1944, Ithaca, New York

Education:

1964 A.A., Chemistry	Long Beach City College, California
1966 B.S., Chemistry	California State College at Long Beach
1970 Ph.D., Biochemistry	Kansas State University, Manhattan
1971 Post-Doctoral Fellow, Pharmacology	Mt. Sinai School of Medicine, New York City

Professional Positions:

Research Assistant and Graduate Teaching Assistant, Biochemistry Department, Kansas State University (Mentor: Philip Nordin) 1966-70

Postdoctoral Research Fellow and Instructor, Pharmacology Department, Mt. Sinai School of Medicine, New York City (Mentor: Jack Peter Green) 1970-71

Instructor, Department of Pharmacology, SUNY-Upstate Medical University (aka: Upstate Medical Center, and State University of New York - Health Science Center at Syracuse) 1971-75

Assistant Professor, Department of Pharmacology, SUNY - Upstate Medical University (Tenured, 1978) 1975-84

Associate Professor, Department of Pharmacology, SUNY - Upstate Medical University 1984-2017

Associate Professor Emeritus Department of Pharmacology, SUNY - Upstate Medical University 2017-date

Independent Investigator, Center for Membrane Toxicology Studies, Mount Desert Island Biological Laboratory, Salsbury Cove, Maine 1987-1994

Director, Medical Pharmacology Course, Department of Pharmacology, Upstate Medical University 2000-August 2007

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Course Consultant, Medical Pharmacology Course, Department of Pharmacology, SUNY -
Upstate Medical University August 2007-date

Judicial Officer, College of Medicine, SUNY - Upstate Medical University
2004 to 2012

Pharmacology and Toxicology Consultant 1973-date

Publications:

Oliver M. Brown: Studies on the isolation and enzymatic properties of Golgi apparatus and other plant cell organelles. Ph.D. Dissertation, Kansas State University, 1970. Dissertation Abstracts International, B-Biochemistry 32 (1): 61-B, 1971.

P.I.A. Szilagyi, Jack P. Green, Oliver M. Brown and S. Margolis: The measurement of nanogram amounts of acetylcholine in tissue by pyrolysis gas chromatography. Journal of Neurochemistry 19: 2555-2566, 1972.

Oliver M. Brown: Cat heart acetylcholine: Structural proof and distribution. American Journal of Physiology 231: 781-785, 1976.

Oliver M. Brown, Mary Ellen Post and Samuel Mallov: The effects of ethanol on rat brain and heart acetylcholine. Journal of Studies on Alcohol 38: 603-617, 1977.

Tibor Palfai, Thomas J. Walsh, Bruce J. Albala and Oliver M. Brown: Effects of 1-dihydroxyphenylalanine (1-dopa) and d, 1,5-hydroxytryptophan (d, 1,5 HTP) on reserpine induced amnesia. Psychopharmacology 53: 269-276, 1977.

Tibor Palfai, Oliver M. Brown and Thomas J. Walsh: Catecholamine levels in whole brain and probability of memory formation are not related. Pharmacology, Biochemistry and Behavior 8: 717-721, 1978.

Oliver M. Brown: Cat heart acetylcholine: unilateral vagotomy studies with pyrolysis-mass fragmentography. Life Sciences 28: 819-825, 1981.

Oliver M. Brown, Tibor Palfai and Lawrence Wichlinski: Effect of an amnesic dose of reserpine, syrosingopine or guanethidine on the levels of whole brain dopamine and norepinephrine in the mouse. Pharmacology, Biochemistry and Behavior 15: 911-914, 1981.

Oliver M. Brown and Joseph J. Salata: *In vivo* acetylcholine turnover in rat heart. Life Sciences 33: 213-224, 1983.

Tibor Palfai, Lawrence Wichlinski and Oliver M. Brown: The effect of reserpine, syrosingopine and guanethidine on the retention of discrimination escape reversal: peripherally-administered catecholamines cannot reverse the reserpine amnesia in this situation. Behavioral and Neural Biology 38: 120-126, 1983.

Charles H. Hodge, Jr., A. Vania Apkarian, Richard T. Stevens, Glenn D. Vogelsang,

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Oliver M. Brown and Joel I. Franck: Dorsolateral pontine inhibition of dorsal horn cell responses to cutaneous stimulation: lack of dependence on catecholaminergic systems in cat. *Journal of Neurophysiology* 50: 1220-1235, 1983.

Oliver M. Brown, Joseph J. Salata and Lynne A. Graziani: The distribution of acetylcholine and choline in guinea pig heart. *Life Sciences* 36: 383-389, 1985.

Peter S. DiStefano and Oliver M. Brown: Biochemical correlates of morphine withdrawal. 1. Characterization in the adrenal medulla and locus coeruleus. *Journal of Pharmacology and Experimental Therapeutics* 233: 333-338, 1985.

Peter S. DiStefano and Oliver M. Brown: Biochemical correlates of morphine withdrawal. 2. Effects of clonidine. *Journal of Pharmacology and Experimental Therapeutics* 233: 339-344, 1985.

Jan Gorski, David A. Hood, Oliver M. Brown and Ronald L. Terjung: Incorporation of ¹⁵N-leucineamine into ATP of fast-twitch muscle following stimulation. *Biochemical and Biophysical Research Communications* 128: 1254-1260, 1985.

Tibor Palfai, Lawrence Wichlinski, H. Alex Brown and Oliver M. Brown: Effects of amnesic doses of reserpine or syrosingopine on mouse brain acetylcholine levels. *Pharmacology, Biochemistry and Behavior* 24: 1457-1459, 1986.

Patricia A. McGrattan, Joan Heller Brown and Oliver M. Brown: Parasympathetic effects on the *in vivo* rat heart can be regulated through an alpha₁-adrenergic receptor. *Circulation Research* 60: 465-471, 1987.

Oliver M. Brown: *In vitro* acetylcholine synthesis and release in *Raja erinacea* electric organ. *Mt. Desert Island-Biological Laboratory Bulletin* 27: 116-119, 1988.

Oliver M. Brown and John S. Andrade: Electrical discharge and acetylcholine output from *Raja erinacea* electric organ are decreased by cadmium. *Mt. Desert Island-Biological Laboratory Bulletin* 28: 109-111, 1989.

Oliver M. Brown and John S. Andrade: Cadmium toxicity in *Raja erinacea* electric organ. *Mt. Desert Island-Biological Laboratory Bulletin* 29: 106-107, 1990.

Oliver M. Brown and John S. Andrade: Cadmium inhibits stimulus-response coupling in skate (*Raja erinacea*) electric organ. *Mt. Desert Island-Biological Laboratory Bulletin* 30: 91-93, 1991.

Oliver M. Brown and John S. Andrade: Mechanisms of cadmium toxicity in *Raja erinacea* electric organ. *Mt. Desert Island-Biological Laboratory Bulletin* 31: 163-164, 1992.

Oliver M. Brown and John S. Andrade: Cadmium inhibits stimulus-response coupling in skate (*Raja erinacea*) electric organ. *Comparative Biochemistry and Physiology - Part C - Comparative Pharmacology and Toxicology* 102C:439-446, 1992.

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Oliver M. Brown and John S. Andrade. Mechanisms of heavy metal toxicity on stimulus-response coupling in skate (*Raja erinacea*) electric organ. Mt. Desert Island-Biological Laboratory Bulletin 32:149-150, 1993.

Oliver M. Brown and John S. Andrade. Mechanisms of heavy metal toxicity to synaptic transmission in *Raja erinacea* electric organ. Mt. Desert Island-Biological Laboratory Bulletin 33:127-129, 1994.

M. E. Kriebel, B. Keller, G. Q. Fox, and O. M. Brown: The secretory pore array hypothesis of transmitter release. Cell Biology International, 24(11):839-848, 2000.

Zaki S. Badawy, Kazim R. Chohan, Donna A. Whyte, Harvey S. Penefsky, Oliver M. Brown, Abdul-Kader Souid: Cannabinoids inhibit the respiration of human sperm. Fertility and Sterility, DOI: 10.1016/j.fertnstert.2008.03.075, 18 June 2008.

Donna A. Whyte, Suleiman Al-Hammadi, Ghazala Balhaj, Oliver M. Brown, Harvey S. Penefsky, Abdul-Kader Souid: Cannabinoids inhibit cellular respiration of human oral cancer cells. Pharmacology, 85:328-335, 2010.

Book Chapters:

Oliver M. Brown, Joseph J. Salata and Lynne A. Graziani: Parasympathetic innervation of the heart: Acetylcholine turnover in vivo. In Dynamics of Cholinergic Function (ed. I. Hanin), pp: 1071-1080, Plenum Press, New York, 1986.

Oliver M. Brown: Adrenergic Drugs. In Textbook of Pharmacology (ed. A.M. Reynard and C.M. Smith), W.B. Saunders Co., Philadelphia, pp. 141-167, 1992.

Oliver M. Brown: Autonomic Nervous System Pharmacology,
 Cholinergic Drugs,
 Anticholinergic Drugs,
 Adrenergic Drugs,
 Adrenergic Antagonists;

Five chapters in medical pharmacology textbook: Essentials of Pharmacology (ed. C.M. Smith and A.M. Reynard), W.B. Saunders Company, Philadelphia, pp. 46-91, 1995.

Educational Film:

Russell G. Durkovic, Donald C. Michaels and Oliver M. Brown: Blood Pressure: Controlling factors, chemical and physical. A 70-min film. SUNY-UMC Educational Communications, copyright 1979.

Published Presentations at Scientific Meetings:

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Oliver M. Brown and Philip Nordin: Isolation of Golgi apparatus from plant tissues. Federation Proceedings 29 (2): 3497, 1970.

Oliver M. Brown: Effects of delta-9-tetrahydrocannabinol (THC) on rat brain acetylcholine levels. Pharmacologist 15 (2): 243, 1973.

Oliver M. Brown and Emilio L. Kabela: Acetylcholine in the mammalian heart. Pharmacologist 16 (2): 536, 1974.

Oliver M. Brown, Mary Ellen Post and Samuel Mallov: Effects of ethanol on rat brain and heart acetylcholine. American Society for Neurochemistry, 6th Meeting, Mexico City, March 1975.

Robert C. Strader and Oliver M. Brown: Stat analysis of street drugs utilizing liquid chromatography. American Academy of Forensic Sciences, 31st Meeting, February 1979.

Joseph J. Salata and Oliver M. Brown: Acetylcholine and choline content of rat heart. FASEB, Anaheim, April 1980, Federation Proceedings 39 (3): 1832, 1980.

Richard T. Stevens, Charles J. Hodge, A. Vania Apkarian, Glenn D. Vogelsang, H.J. Vogelsang and Oliver M. Brown: The functional anatomy of the coeruleo-spinal pathway. Society for Neuroscience, Cincinnati, November 1980, Abstracts Vol. 6: 150.10, 1980.

Oliver M. Brown, Lawrence Wichlinski and Tibor Palfai: The effects of rauwolfia alkaloids on mouse brain catecholamines: studies with high performance liquid chromatography. FASEB, Atlanta, April 1981, Federation Proceedings 40 (3): 445, 1981.

Glenn D. Peca-Vogelsang, Charles J. Hodge, Richard T. Stevens, A. Vania Apkarian, Joel Franck and Oliver M. Brown: Pattern of catecholamine distribution in the lumbar spinal cord. Society for Neuroscience, Los Angeles, October 1981, Abstracts Vol.7: 173.3, 1981.

Peter S. DiStefano and Oliver M. Brown: Tyrosine hydroxylase and catecholamine in rat adrenal and locus coeruleus during opiate withdrawal. FASEB, New Orleans, April 1982, Federation Proceedings 41 (4): 4591, 1982.

Peter S. DiStefano and Oliver M. Brown: Rat adrenal catecholamines and their biosynthesizing enzymes during opiate withdrawal. FASEB, Chicago, April 1983 Federation Proceedings 42(3):2139,1983.

Ronald L. Terjung, Jan Gorski, David A. Hood and Oliver M. Brown: Incorporation of 15N-leucine amine into ATP of fast-twitch muscle following stimulation. FASEB, Chicago, April 1983, Federation Proceedings 42 (4): 4124, 1983.

Oliver M. Brown and Joseph J. Salata: *In vivo* choline uptake and acetylcholine synthesis in rat heart. FASEB, Chicago, April 1983, Federation Proceedings 42: 5007, 1983.

Oliver M. Brown, Lynne A. Graziani and Joseph J. Salata: The distribution of acetylcholine and choline in guinea pig heart. FASEB, St. Louis, April 1984, Federation Proceedings 43 (3): 344, 1984.

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Peter S. DiStefano, Mary Ann Carroll and Oliver M. Brown: Clonidine blocks the biochemical changes in opiate withdrawal. FASEB, St. Louis, April 1984, Federation Proceedings 43 (3): 2687, 1984.

Oliver M. Brown, Lynne A. Graziani and Joseph J. Salata: The effects of vagus stimulation on *in vivo* acetylcholine turnover in rat heart, IUPHAR 9th International Congress of Pharmacology, London, August, 1984.

Patricia A. McGrattan and Oliver M. Brown: Pre-synaptic alpha receptors in the parasympathetic nervous system of the rat heart, an *in vivo* study. Eastern Student Research Forum, Univ. Miami School of Medicine, March 6, 1985.

Patricia A. McGrattan and Oliver M. Brown: Sympathetic modulation of parasympathetic effects on the heart. FASEB, Anaheim, April 1985, Federation Proceedings 44 (4): 2842, 1985.

Oliver M. Brown and Lynne A. Graziani: Cardiac acetylcholine turnover *in vivo* and vagal stimulation. ASPET, Boston, August 1985, The Pharmacologist 27 (3): 113, 1985.

Oliver M. Brown and Patricia A. McGrattan: Parasympathetic control of heart rate: modification by alpha adrenergic agents. AHA, Washington, D.C., November 1985, Circulation 72(Suppl.III): 247, 1985.

James Holsapple and Oliver M. Brown: Heart acetylcholine turnover: a mathematical model that predicts two pools. Montreal, November, 1988, Pharmacologist 30(3): A214, 1988.

Oliver M. Brown and John S. Andrade: Cadmium decreases electrical discharge and acetylcholine output from electric tissue. FASEB, New Orleans, April 1989, Federation Proceedings 3:A890, 1989.

Oliver M. Brown and John S. Andrade: Cadmium toxicity in *Raja erinacea* electric organ. The Maine Biological and Medical Sciences Symposium, Bar Harbor, Maine, June, 1990.

John S. Andrade and Oliver M. Brown: Calcium-cadmium antagonism in electric tissue. The Maine Biological and Medical Sciences Symposium, Bar Harbor, Maine, June, 1990.

Oliver M. Brown and John S. Andrade. Pre-synaptic actions of heavy metal ions in skate electric organ. San Francisco, July 1993, Pharmacologist 35:130, 1993.

Published Scientific Letters:

Oliver M. Brown: Use of statistics in "Changes in plasma lipids and lipoproteins during isotretinoin therapy for acne." New England Journal of Medicine 314: 1393, 1986.

Oliver M. Brown: Impact of the 1986 Report of the AVMA Panel on Euthanasia. Journal of Nutrition 117: 1311-1312, 1987.

Oliver M. Brown: "High blood alcohol levels in women." New England Journal of Medicine 323: 553, 1990.

Oliver M. Brown: Breath alcohol after using mouthwash. Journal of American Medical Association 71: 1400-1401, 1994.

NOTE: all of the above Publications, Chapters, Published Presentations, and Scientific Letters were published in peer-reviewed professional journals or books.

Additional Professional Training:

Attended training sessions/workshops at all of the above listed scientific meetings.

Medical Review Officer Training Course, American College of Occupational and Environmental Medicine, Toronto, Canada, 25-26 October 1996.

Honors and Awards:

Markey Fellow 1987

Hearst Foundation Scholar Mentor 1990 - 1992

Delegate of the United States Pharmacopeial Convention, Washington, DC, March 1995.

Delegate of the United States Pharmacopeial Convention, Washington, DC, April 2000.

"Faculty Scholar", designation by Faculty Development Subcommittee of the Educational Policies Committee, Upstate Medical University, 2001

President's Award for Excellence in Teaching, Upstate Medical University,
Awarded 18 September 2002

SUNY Chancellor's Award for Excellence in Teaching, Upstate Medical University,
Awarded 8 September 2004

Recipient of a number of research grant awards (listed below:)

Research Grants Funded:

1988-1993 National Institutes of Environmental Health Sciences - MDI-BL Center for Membrane Toxicity Studies, approximately \$6,000/year. Mechanisms of cadmium toxicity in excitable membranes.

1989-1992 American Heart Association, \$99,000. Autonomic control of the heart: Acetylcholine dynamics.

1987-1989 American Heart Association, New York State Affiliate, Inc., \$32,000. Autonomic control of the heart: Acetylcholine dynamics.

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1987-1995 Fraternal Order of Eagles, New York State Aerie, \$5,000 for indefinite period. Autonomic control of the heart.

1987 Markey Fellowship, Mount Desert Island Biological Laboratory, supported research for summer: 1987. *In vitro* acetylcholine synthesis and release in *Raja erinacea* electric organ.

1986-1987 USPHS-Biomedical Research Support Grant, \$6,300. The dynamics of heart acetylcholine.

1985-1987 American Heart Association Grant, \$66,000. The dynamics of heart acetylcholine.

1984-1986 Pharmaceutical Manufacturers Association Foundation Predoctoral Fellowship to graduate student, Thomas F. Steffans, \$5,000. Neural regulation of heart rate: Influence of adrenergic presynaptic receptors on parasympathetic nerve fibers.

1983-1984 Hendricks Fund for Medical Research Grant, \$10,200. Adrenergic involvement in opiate withdrawal.

1982-1985 American Heart Association Grant, \$100,100. The dynamics of heart acetylcholine.

1980-1983 NIH Research Grant, as co-investigator with Dr. D.H.P. Streeten, \$163,722. Thyroid and parathyroid hormones in hypertension.

1980-1981 Medtronic Neuro Division Grant, \$2,325. Beta-endorphin and chronic pain.

1978-1979 NIH General Research Support Grant, \$6,500. The presence and significance of heart acetylcholine.

1976-1979 NIH Research Grant, \$44,451. The presence and significance of heart acetylcholine.

1975-1977 NIMH Research Grant, in collaboration with Dr. Tibor Palfai, Syracuse University, \$26,000. Biochemical correlates of retrograde amnesia.

1975-1976 American Heart Association Grant, \$11,655. The presence and significance of heart acetylcholine.

1974-1975 SUNY Research Foundation University Awards Committee Grant \$1,600. Drug effects on acetylcholine levels of rat brain.

1974-1975 NIH General Research Support Grant, \$4,840. Effects of ethanol on rat brain acetylcholine.

1973-1974 SUNY Research Foundation University Awards Committee Grant, \$1,456. Drug effects on acetylcholine levels in rat brain.

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1971-1973 NIH General Research Support Grant, \$13,567. Drug effects on acetylcholine levels in rat brain.

Invited Academic Presentations:

"Fish tails to mouse eyes - paths to drug discovery." An invited lecture to Mini Med Course, OASIS/HealthLink Learning Center, Syracuse, 17 November 2004.

"Bioterrorism 101." An invited presentation to panel discussion, for Healthcare in Transition, Upstate Medical University, Syracuse, 14 December 2001.

"How drugs affect the brain." A presentation to inmates at Jamesville Prison, in conjunction with the Science + Literacy Project of the American Association for the Advancement of Science, Jamesville, New York, 7 August 1996.

"Toxicology research: harbinger of environmental change." Presented to the public, sponsored by the Mount Desert Island Biological Laboratory and the League of Women Voters, Bar Harbor, Maine, on 5 September 1991.

"Autonomic control of the of heart: acetylcholine dynamics ." Presented to the Executive Committee of the American Heart Association, NYS Affiliate, Syracuse, on 25 March 1990.

"Alcohol testing and the scientific method." Testimony at New York State Senate Hearing (Sen. Andrew Jenkins), New York City, 6 December 1989.

"The dynamics of heart acetylcholine." Presented to the School of Medicine, University of California at San Diego, La Jolla, California on 18 April 1985.

"Adrenergic mechanisms in the locus coreuleus and adrenal: opiate withdrawal and clonidine." Presented at Department of Neurology Grand Rounds, State University Hospital, Syracuse, 15 March 1984.

"Parasympathetic innervation of the heart: Acetylcholine turnover in vivo." Presented to the Fifth International Conference on the Dynamics of Cholinergic Function, Oglebay, West Virginia on 2 November 1983.

"The use of selective ion monitoring to study heart acetylcholine." Presented to The Neuroscience Group, School of Medicine, University of Connecticut on 10 September 1979.

"Acetylcholine in heart: Studies by gas chromatography mass spectrometry." Presented to the Cardiovascular Center, College of Medicine, University of Iowa on 1 December 1978.

Invited Forensic Presentations:

Brief presentation on drugs of abuse training in medical school at a "Prescription Drug Abuse in Drug Treatment Courts Workshop" sponsored by the New York Association of Drug Treatment Court Professionals, East Syracuse, New York, 21 October 2010.

"The Scientific Side of DWI." A seminar to the Southern Tier Criminal Defense Attorneys Association, Binghamton, New York, 21 May 2009.

"Pharmacology, Measurement, and Toxicology of Alcohol" in Basic Trial Advocacy - Driving While Intoxicated, New York Prosecutors Training Institute, in Syracuse, New York, 14 August 2000.

"Pharmacology and Toxicology of Alcohol" in Lethal Weapon: Advanced Trial Advocacy Program, New York Prosecutors Training Institute, in Syracuse, New York, 1 August 2000.

"The Legalization of Marihuana." An invited presentation to panel discussion, Syracuse University College of Law, 4 April 1997. Presentation published in the Journal of Legislation and Policy, 1997.

"Alcohol, the Breathalyzer, and the Expert." A seminar to the Tompkins County Criminal Justice Association, Ithaca, New York 16 November 1995.

"Electric fish provide insights for Toxicology research." An article in The Bar Harbor (Maine) Times (pg B15) by Oliver M. Brown, 29 August 1991.

"Drug Testing - A Pharmacologist's Perspective." A seminar to the New York State Defenders Association and the Assigned Counsel Program of the Onondaga County Bar Association, Syracuse, New York 13 April 1991.

"Alcohol - DWI - Breathalyzers - Expert testimony: A Pharmacologist's Perspective." A seminar to the Southern Tier Defense Attorney's Association, Binghamton, New York, 21 March 1991.

"Local researcher seeking keys to how poison gas kills." A full page feature by Amber Smith, Syracuse Herald American, pg B2, 17 February 1991.

"Nerve gas: mechanisms, toxicity, and antidotes." A short news feature on WSTM , Channel 3, Syracuse, New York, 17 January 1991.

"Analysis of cocaine and other drugs." A short news feature on WTVH, Channel 5, Syracuse, New York, 30 March 1990.

"Breathalyzer solutions." Testimony at New York State Senate Hearing (Sen. Andrew Jenkins), New York City, 6 December 1989.

"Problems with breath alcohol testing in New York, and the scientific method." Presented to the Legal Aid Society, New York City, 26 October 1988.

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"The reliability of Systems Innovation, Inc. products in breath alcohol testing." Participating panelist at the Annual New York State STOP-DWI Workshop, Sagamore, Bolton Landing, New York, 24 October 1988.

"Review of the physiological effects of alcohol and Breathalyzer expert testimony." Presented to the STOP-DWI Enforcement Seminar, Onondaga County STOP-DWI Program, Syracuse, New York on 9 October 1985.

"The pharmacology and analysis of ethyl alcohol: Breathalyzer theory and operation." Presented to Continuing Legal Education Committee of the Onondaga County Bar Association, Syracuse, New York, June 1976.

"Breath alcohol and Breathalyzer theory and operation." Presented to the Trial Lawyers Committee of the Onondaga County Bar Association, Syracuse, New York on 13 May 1975.

Membership in Scientific Societies:

- Society for Experimental Biology and Medicine
- Basic Science Council of the American Heart Association
- American Society for Pharmacology and Experimental Therapeutics
- The New York Academy of Sciences
- American Association for the Advancement of Science (AAAS)
- Science Resource Panelist for AAAS Science + Literacy for Health Project
- International Association of Medical Science Educators

Research Interests:

- The chemistry of nerve signal transmission, including mechanisms and dynamics of neurotransmitter release.
- The neurochemical mechanisms involved in nervous control of the heart.
- The effect of drugs on nervous system chemistry and physiology; drugs include morphine, ethyl alcohol, various adrenergic agents, etc.
- The toxicology of heavy metal ions, especially in regards to nervous communication
- The neurochemical mechanisms of opiate dependence and withdrawal.
- The effects of various psychoactive drugs on brain neurotransmitters and memory formation.
- The development of sensitive and specific analytical chemistry techniques for measuring neurotransmitters and drugs.

Research Accomplishments:

1- Definitive chemical proof that the ventricles of mammals receive parasympathetic innervation (previously assumed to innervate atria only). (Amer. J. Physiol. 231: 781-785, 1976, and Life Science. 28: 819-825, 1981.)

2- First description of acetylcholine turnover in the heart, *in vivo*. (with JJ Salata) (Life Science. 33:213-224, 1983, and Dynamics of Cholinergic Function pp: 1071-1080, Plenum Press, NY, 1986.)

- 3- Contributor to definitive analytical method for measuring tissue acetylcholine. (with JP Green) (J. Neurochem. 19:2555-2566, 1972, and Life Science. 28: 819-825, 1981.)
- 4- Characterized the involvement of central and peripheral catecholamine neurotransmitters in opiate withdrawal. (with PS DiStefano) (Journal Pharmacology & Experimental Therapeutics 233:333-338, 1985, and Journal Pharmacology & Experimental Therapeutics 233:339-344, 1985.)
- 5- First description of a unique autonomic nervous system mechanism (alpha1-adrenergic receptor control of parasympathetic effects) in the heart. (with JH Brown) (Circulation Research 60: 465-471, 1987.)
- 6- Characterization of synaptic mechanisms in *Raja erinacea* electric organ. (with JS Andrade) (Comparative Biochemistry & Physiology - Part C - Comparative Pharmacology & Toxicology 102C:439-446, 1992.)
- 7- Contributor to proposed novel mechanism for neurotransmitter release (with ME Kriebel) (Cell Biology International, 24[11]:839-848, 2000.)

Departmental and Institutional Services:

College of Medicine Judicial Officer (May 2004 to 2012).

Much involvement (including several leadership roles) in renewal of Medical Curriculum, including:

Chair of Curriculum Coordinating Committee for Year 2 (2000-2003).

Member of Curriculum Coordinating Committee for Year 2 (2000-2008).

Member of College of Medicine Curriculum Committee (1998-2003).

Member of Pathophysiology Working Group (2000-2007).

Member of Faculty Development Subcommittee (2001 to 2008)

Member (and Chair) President's Awards for Excellence in Teaching Committee

Member (and Chair) Chancellor's Awards for Excellence in Teaching Committee

Reviewer for NBME 2004 Pharmacology Subject Examination.

Member HSC Recycling Committee (many years).

Coordinator of Recycling Program for Weiskotten Hall (and Addition) (many years).

Pharmacology Department Safety Officer.

Coordinator and organizer for Pharmacology Department Controlled Substance Use.

Member of Committee of the Graduate Faculty.

Member of Curriculum Renewal Task Force (1999-2002).

Member of LCME Self-Study Committee on Education Program for M.D. Degree (2002)

Member of Curriculum Renewal 2000 (R2K) Group (1999-2000)

Co-Chair Curriculum Renewal Retreat (Oct 1999).

Chair, John Bernard Henry Endowed Scholarship Award Committee (many years).

Chair, Elections Committee, Graduate Faculty Organization (1999).

Member of College of Medicine Applicant Interview Committee (many years).

Member of Educational Policies Committee (& EPC Steering Committee) (many years).

Member of the Committee for the Humane Use of Animals (many years).

Member of Early Identification Committee (many years).

Governing Board - Elected Representative (1993 - 1995 & 1998-1999).

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Member of Curriculum Task Force Evaluation Study Group (1985-1986).
Member of Board of Directors of the Faculty-Student Association (Past).
Member of Affirmative Action Committee.
Member of Finance and General Facilities Committee.
Member of Chemical Storage Committee for Weiskotten Hall.
Member of Personal Safety Committee (1990-1992).
American Heart Association, New York State Affiliate, Inc., Research Peer Review Committee (1987-1990).
Member of Promotions and Tenure Committee, College of Health Related Professions (1980-1984).
Director of Pharmacology Department Project 90 (minority student) Program.
Director of Pharmacology Graduate Program (1978-1982, 1984-1986).
Secretary, Graduate Faculty Organization (Elected Position, 1983-1985).
Member and/or Chairman of several Ph.D. Qualifying and Thesis Committees, both at the Health Science Center and at Syracuse University.
Presented several Neurology Grand Rounds at the Health Science Center.
Miscellaneous mass spectrometer analyses for various researchers in other Health Science Center departments and at other institutions.
Member of the Benjamin Rush Center Institutional Review Board.
Contributed to the book and the course entitled "Psychopharmacological Aspects of Drugs" for the School of Social Work at Syracuse University (1970's).
Lecturer for Continuing Medical Education for Psychiatry Program at Community-General Hospital.
Ad Hoc Reviewer of grant proposals for NIH, NSF and American Heart Association.

Ad Hoc Reviewer of manuscripts for several scientific journals and texts, including:
Life Sciences, Circulation Research, American Academy for the Advancement of Science, Clinical and Experimental Hypertension, Psychopharmacology, Applied Physiology, and Journal of Neurochemistry, Journal of Pharmacology and Experimental Therapeutics, and Proceedings of the National Academy of Science

Teaching:

-Medical Pharmacology Course: for second year Medical Students and Graduate Students at the Upstate Medical University. Topics that I cover include: autonomic nervous system physiology, pharmacology and toxicology of cholinergic drugs, adrenergic drugs, sedative-hypnotic drugs, anti-anxiety drugs, anti-depressant drugs; ethnopharmacology and non-medical drug use (including pharmacology and toxicology of alcohol, hallucinogenic plants and drugs, street drugs, etc.). (1971 - 2017).

Assistant Course Coordinator: 1993-2000;

Course Director: 2000-August 2007.

Course Consultant: August 2007-2017.

-Pharmacology Small Discussion Group – adjunct to Medical Pharmacology Course. My Small Group has taken three different forms over the years:

Non-Medical Drug Use 1971-1989

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<u>Pharmacology Tutorial</u>	1989-1995
<u>PharmExcel</u>	1995-2004

PharmExcel: I was the Director and major contributor of this experimental course (1995 - 2004) which demands excellence and requires group study. This is an intensive, problem-solving, interactive, small group (n = 18) learning experience. A major impetus for implementation of this course was to improve the performance of Medical Students in our Extended Curriculum program; the Course has also attracted many of the brighter students who wish a more challenging and in-depth education in Pharmacology. PharmExcel was extremely well received by the students.

Pharmacology Tutorial: I ran a tutorial for students with academic problems, which ultimately evolved into PharmExcel. (1989-1995).

Non-Medical Drug Use included the pharmacology, toxicology, patterns of use, legal and social aspects and analysis of alcohol, tobacco, hallucinogenic plants and drugs, and black-market drugs. (1971-1989).

-Drugs from the Wild Course in the Organic Chemistry Department at SUNY-College of Environmental Science and Forestry, Syracuse – I give a lecture on “Nerves, Receptors, and Drugs” (2009, 2011, 2013, 2015).

-Medicine and Society Course (MS I and MS II students) - I co-developed and co-presented (with Dr. Dennis Stelzner) the "Drugs in Our Culture" Unit. (1996-2002).

-Core course in Pharmacology for the College of Health Related Professions at Upstate Medical University. I organized and directed the Course, and I lectured on several topics, including those listed above for the Medical Pharmacology Course. I also supervised and mentored Pharmacology graduate students who gave lectures in this course. (1973-1997).

-Pharmacology for Medical Radiology. I organized and taught this Summer course, covering the total scope of systems-based pharmacology. This survey course emphasized concepts and de-emphasized listing of facts. (1995).

-Physiology and Pharmacology of the Autonomic Nervous System - Graduate course taught here for many years. I was a co-director and covered several topics dealing with mechanisms of neurotransmitter actions. (1970's and 1980's).

-Topics in Cell and Molecular Neuroscience, -Neuroscience Colloquium, and -Neuroscience Proseminar - Graduate Courses in the Neuroscience Program. I covered various aspects of neurotransmitter synthesis, release mechanisms, kinetics, and effector-cell response. (several years).

-I have directed and co-directed research projects for several medical students enrolled in research electives in pharmacology, and several graduate students obtaining advanced degrees in Pharmacology and in Bio-Psychology (the latter at Syracuse University).

Education meetings, workshops, and presentations:

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I was an invited participant in: "NBME Item Writing Workshop" facilitated by Kathy Holtzman, Assistant Vice President for Test Development Operations and Development Programs, National Board of Medical Examiners, Upstate Medical University, 2 December 2009.

I presented, with Dr. Paul Shanley (Pathology Dept., Upstate Medical University): "Integrating the Basic science Curriculum - it takes more than a staple", Fourth Annual Teaching day for Teachers, Marley Education Building, Syracuse, 26 October 2004.

I was a Workshop Leader, with Dr. Paul Shanley (Pathology Dept., Upstate Medical University): "Integrating the Basic science Curriculum - What should we teach and how should we teach it?" Fourth Annual Teaching day for Teachers, Marley Education Building, Syracuse, 26 October 2004

I was an invited participant in the Faculty Scholars Workshop "Taking Ownership in Medical Education", Craftsman Inn, Fayetteville, 22 June 2004.

I was an invited participant in the Second Annual Curriculum Leadership Retreat Upstate Medical University, Sheraton Syracuse University Hotel, 10 June 2004.

I was an invited participant in the curriculum renewal workshop meetings with faculty and administrators from the University of Medicine & Dentistry of New Jersey (in Syracuse), 10 & 11 September 2003.

I was an invited participant in the Faculty Scholars Peer Review of Teaching Workshop and Dinner (in Syracuse), 24 June 2003.

I was an invited participant in the First Annual Curriculum Leadership Retreat Upstate Medical University, Drumlins, Syracuse, 5 June 2003.

I presented "Small Group Teaching" at a Faculty Development Seminar, Upstate Medical University, 23 April 2002.

I was an invited attendant in the Medicine Grand Rounds presentation and participant in the subsequent workshop on Medical Education given by Dr. Nierenberg from Dartmouth Medical School, 24 January 2002.

I was an invited attendant in the Medicine Grand Rounds "Scholarship" presentation and participant in the subsequent workshop on "Designing and documenting the education component of your career" by Dr. Ruth-Marie Fincher from Medical College of Georgia School of Medicine, Syracuse, 31 May 2001.

I presented "PharmExcel: Problem-Solving Small Group Sessions" at Teaching Day for Teachers, Upstate Medical University, 13 November 2001.

I attended "Treating tobacco use and dependence" a workshop sponsored by the Onondaga County Medical Society, Wyndham Syracuse, 10 May 2001.

I was an invited participant in a luncheon discussion and workshop on Curriculum Renewal by Dr. John Hansen, University of Rochester, Syracuse, 11 April 2001.

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I was an invited participant in a dinner discussion and workshop on Clinical Pharmacology by Dr. David A. Flockhart, Georgetown University School of Medicine, Syracuse, 2 August 2000.

I was a Delegate of the United States Pharmacopeial Convention, attending the Quinquennial Meeting, Washington, DC, April 2000.

I participated in several workshops and discussion groups at the Fourth Biennial Conference of the International Association of Medical Science Educators in Washington, DC, 17-20 July 1999.

I was a participant in: "Item-Writing Workshop" by Drs. David Swanson and Susan Case, Directors of USMLE Steps 1 and 2, in Syracuse, June 1999.

I was an invited participant in a Curriculum Planning Workshop, Sheraton University Conference Center, Syracuse, 15 February 1999.

I participated in the Interactive Workshop for Course Coordinators: "Writing Goals and Objectives", hosted by Drs. William Grant and Peter Beatty, in Syracuse, January 1999.

I participated in several workshops and discussion groups at the American Association of Medical College Meeting in New Orleans 30 October to 5 November 1998.

I was an invited participant in a Curriculum Renewal workshop given by Dr. Peter Robinson from University of Rochester School of Medicine, Syracuse, 10 February 1998.

I participated in the Faculty Development Workshop: "Evaluation of Teaching", by Dr. John Centra, Syracuse University in Syracuse, 4 October 1996.

I was a Delegate of the United States Pharmacopeial Convention, attending the Quinquennial Meeting in Washington, DC, March 1995.

I attended many of the Faculty Development Seminars sponsored by the EPC Faculty Development Subcommittee (Chair: Dr. Howard Weinberger), for several years.

I attended "Opiates for Chronic Pain" lecture by Harvard Medical School as part of Update in Internal Medicine series, Westin Copley Place, Boston, Mass., 8 December 2012

Impact of Teaching Activity

The superb Medical Pharmacology Course: I have helped institute and maintain the "culture of quality" that was pioneered in the Pharmacology Department by Drs. Jose Jalife and Jorge Torretti. I have been incorporating the quality culture in teaching at several levels: in my own presentations, into the Pharmacology Course, into the MS II Curriculum, and into the College of Medicine, in general.

Recognition by students; based on computerized student evaluations (MS IIs) run by the Curriculum Office:

-For several years I have gotten consistently very high ratings for high quality teaching, handouts, and slides

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-The Pharmacology Course that I Directed has always gotten extremely high ratings for quality in all possible categories

Recognition by peers, students, and administration, in the form of awards:

SUNY Chancellor's Award for Excellence in Teaching, Upstate Medical University,
Awarded 8 September 2004

President's Award for Excellence in Teaching, Upstate Medical University,
Awarded 18 September 2002

Community Service:

Several (approximately 12) presentations on such topics as "Drugs of Abuse", "Neural Transmission", and "Pharmacology Research" to junior high and high school classes, Health Careers Club, Explorers and Kaleidoscope, Syracuse University Residence Services, and to Syracuse University Department of Intercollegiate Athletics.

Served as a consultant for various agencies including: the Benjamin Rush Center, the Madison County Alcohol and Drug Abuse Prevention and Treatment Program, the New York State Attorney General's Office, the United States Attorney (Drug Task Force), the New York State Senate, several County District Attorney's Offices throughout New York State, the Syracuse City Police Crime Laboratory, several Legal Aid Societies; and other agencies.

Volunteer fund-raiser for the American Heart Association, Upstate New York Chapter, Inc. Supporting member of several environmental organizations.

Board of Directors (and elected Treasurer) Central New York Cat Coalition (2007-2011, and 2013 to 2019).

Board of Directors (and elected Treasurer) Peace Action of Central New York (2013 to 2015).

Miscellaneous:

Oliver Brown: Launchings – building the Alpha-2 sailing dory, WoodenBoat magazine, pg. 104, February 1993.

Oliver Brown: Weapons grade nukes removed from Mexico, The VOICE newsletter of Peace Action of Central New York, pg.2-6, May 2012.

Oliver Brown: Dirty Energy, The VOICE newsletter of Peace Action of Central New York, pg.3-4, July 2012.

Oliver Brown: cover photo for Idaho magazine, vol. 12 No. 6, March 2013.

Oliver Brown: Obama Still Prepares for Nuclear War, Peace Newsletter of Syracuse Peace Council, pg. 11, July-August 2013.