

CURRICULUM VITAE

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Section of Otolaryngology
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EDUCATION

A.B. Vassar College, Poughkeepsie, New York
Magna cum laude in zoology, 1962
M.S. Yale University, New Haven, Connecticut
Department of Molecular Biology and
Biophysics, 1964
Ph.D. Yale University, New Haven, Connecticut
Department of Molecular Biophysics, 1968
Postdoctoral Albert Einstein College of Medicine,
Bronx, New York, Department of Anatomy,
1968_1969

AWARDS AND FELLOWSHIPS

New York State Regents College Scholarship, 1959_1962
New York State Regents Science and Engineering Scholarship, declined.
Kate Roberts Prize for excellence in zoology, 1961.
Honorary Vassar Fellow, 1962_1963.
NSF Predoctoral Fellowship, September 1962_June 1963.
USPHS Predoctoral Traineeship, July 1963_June 1964.
USPHS Predoctoral Fellowship, July 1964_June 1968.
USPHS Postdoctoral Fellowship, (Institute of Neurological Diseases and
Blindness), July 1968_August 1969.
Javits Neuroscience Investigator Award, USPHS National Institute of
Neurological and Communicative Disorders and Stroke, April 1988-
March 1995 (converted to a Claude Pepper Award, USPHS National
Institute of Deafness and Other Communication Disorders, June 1990
- March 1995)

ACADEMIC POSITIONS

September 1962 Haven, CT	Laboratory Assistant in Introductory Biology, Yale University, New Haven, CT
July 1968_August 1969 Bronx, NY	Fellow _ Department of Anatomy, Albert Einstein College of Medicine, Bronx, NY
February 1970_August 1973	Research Associate, Center for Neural Sciences, Indiana University, Bloomington, IN
August 1973_December 1975	Assistant Professor, Department of Anatomy

January 1976_May 1977	and Physiology and the Center for Neural Sciences, Indiana University, Bloomington, IN Assistant Professor, Medical Sciences Program, Indiana University School of Medicine and the Center for Neural Sciences, Indiana University, Bloomington, IN (the change resulted from an administrative and Physiology). On leave August 1976_May 1977.
August 1976_May 1977	Visiting Associate Research Anatomist, Department of Anatomy, UCLA School of Medicine, Los Angeles, CA (working in collaboration with and in the laboratory of Dr. Dean Bok, Department of Anatomy and the Jules Stein Eye Institute)
June 1977_June 1981	Assistant Professor in Residence, Department of Surgery/Division of Head and Neck, UCLA School of Medicine, Los Angeles, CA
July 1981_July 1987	Associate Professor in Residence, Department of Surgery/Division of Head and Neck, UCLA School of Medicine, Los Angeles, CA
August 1987-July 1989	Associate Professor, Department of Surgery/Section of Otolaryngology, and Section of Neuroanatomy, Yale University School of Medicine, New Haven, CT
July 1989-	Professor, Department of Surgery/Section of Otolaryngology, and Section of Neurobiology, Yale University School of Medicine, New Haven, CT

ADMINISTRATIVE POSITIONS

July 2002- July 2002-	Director, Yale University Postdoctoral Office, Central Campus Special Assistant to the Provost, Yale University
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RESEARCH GRANTS

Principal Investigator

1972_1975	"Synaptic Organization in Selected Brain Stem Nuclei," USPHS National Institute of Neurological Diseases and Stroke Research Grant NS 09996_01, \$39,334
	1975_1978 "Dynamic Aspects of Auditory Synaptic Terminals," USPHS National Institute of Neurological and NS 09996_02_04, (NS 14503_01 as of 7/1/77)
	1978-1981 "Dynamic Aspects of Auditory Synaptic Terminals," USPHS National Institute of Neurological and Communicative Diseases and Stroke Research Grant NS 14503_02_04.
	1981_1985 "Dynamic Aspects of Auditory Synaptic Terminals," USPHS National Institute of Neurological and Communicative Diseases and Stroke Research Grant NS 14503_05_07, \$158,042.
	1983_1984 "Amino acid uptake in the gerbil cochlea" Hope for Hearing Foundation, \$11,300
	1984_1985 "Amino acid uptake in the gerbil cochlea and auditory brain stem" Hope for Hearing Foundation, \$38,612

1985-1988 "Dynamic Aspects of Auditory Synaptic Terminals",
USPHS National Institute of Neurological and
Communicative Disorders and Stroke Research Grant
NS 14503-08-11, \$505,503

1988-1995 "Dynamic Aspects of Auditory Synaptic Terminals",
USPHS National Institute of Neurological and
Communicative Disorders and Stroke Javits Neuroscience
Investigator Award, NS 14503-12-18 (now DC 00132-13-18, a
Claude Pepper Award of Excellence from NIDCD), \$1,420,436

1991 NOHR (National Organization for Hearing Research) \$5000
1992 NOHR (National Organization for Hearing Research) \$5000

1993 GD Fox Foundation \$5000

1995-2001 "Dynamic Aspects of Auditory Synaptic Terminals",
DC 00132-19-23, \$1,063,052.

Co Investigator

1977_1980 "Communicative Disorders Clinical Research Center_
Vestibular," USPHS National Institute of Neurological
and Communicative Diseases Stroke Research Grant
NS 09823_07_09, Paul H. Ward, M.D., Principal Investigator

1980_1983 "Communicative Disorders Clinical Research Center_
Vestibular," USPHS National Institute of Neurological
and Communicative Diseases Stroke Research Grant
NS 09823_10_12, Paul H. Ward, M.D., Principal Investigator.

1983_1988 "Communicative Disorders Clinical Research Center_
Vestibular", USPHS National Institute of Neurological
and Communicative Disorders and Stroke Research Grant
NS 09823_13_17, Paul H. Ward, M.D., Principal Investigator.

1985-1988 "Environmental Influences Upon Auditory Development",
USPHS National Institute of Neurological and
NS 14945, Allen F. Ryan, Ph.D., Principal Investigator,
Subcontract, \$92,402

Faculty Member

1976_1981 "Predoctoral and Postdoctoral Training Program
in Developmental Neurology (Neurotology)",
USPHS National Institute of Neurological and
Communicative Diseases and Stroke Research Grant
NS 07059, Vicente Honrubia, Program Director.

1981_1986 "Predoctoral and Postdoctoral Training
Program in Developmental Neurology (Neurotology),"
USPHS National Institute of Neurological and
Communicative Diseases and Stroke Research Grant
NS 07059, Vicente Honrubia, Program Director.

1987-1989 "Predoctoral and Postdoctoral Training Program
in Development and Plasticity of the Central Nervous
System", USPHS National Institute of Neurological
and Communicative Diseases and Stroke Research Grant
NS 07224, Patricia Goldman-Rakic, Program Director.

1990-1995 "Predoctoral and Postdoctoral Training Program in Development and Plasticity of the Central Nervous System", USPHS National Institute of Neurological Diseases and Stroke Research Grant NS 07224, Patricia Goldman-Rakic, Program Director.

1995-2000 "Predoctoral and Postdoctoral Training Program in Development and Plasticity of the Central Nervous System", USPHS National Institute of Neurological Diseases and Stroke Research Grant NS 07224, Patricia Goldman-Rakic, Program Director.

2000-2005 "Predoctoral and Postdoctoral Training Program in Development and Plasticity of the Central Nervous System", USPHS National Institute of Neurological Diseases and Stroke Research Grant NS07224, Patricia Goldman-Rakic, Program Director.

PROFESSIONAL ASSOCIATIONS

American Association of Anatomists

Cajal Club

Association for the Advancement of Science

Society for Neuroscience

(Chairperson, Indiana University_Bloomington Chapter, July 1975_1976)

Association for Research in Otolaryngology

(Member of Council, February 1986-1989)

(President Elect 1989-90, President 1990-91, Past President 1991-92)

Association for Women in Science

(Co-President CT Chapter 1996-97, Past President 1997-98, Counselor

1998-2002, President-Elect 2002-2003)

Women in Neuroscience

PUBLIC SERVICE ACTIVITIES

Ad hoc reviewer

Brain Research, 1980 -

Otolaryngology _ Head and Neck Surgery, 1984

Hearing Research, 1988-

Journal of Comparative Neurology, 1982-

Journal of Chemical Neuroanatomy 1991-

Ad hoc reviewer

Research grants _ NSF, Division of Behavioral and

Neural Sciences, 1980, 1981, 1982; Sensory

Physiology and Perception, 1981, 1982, 1984, 1986,

1987; Neurobiology, 1982; Developmental

Neurosciences, 1983, 1984, 1985.

Advisory consultant

NINCDS site visit for Dr. Josef Miller,

"Studies of the Cochlear Prosthesis",

University of Washington, Seattle, WA,

May 4_6, 1980

NINCDS site visit for Dr. Nelson Kiang, "Basic

and clinical studies of the auditory system",

Massachusetts Eye and Ear Infirmary, October

15_17, 1980.

NINCDS site visit for Dr. William Stebbins,

"Perception and processing of complex biological

signals", Kresge Hearing Research Institute,

University of Michigan, Ann Arbor, MI, Nov. 31 - Dec. 2, 1986

NINCDS site visit for Dr. Edwin Rubel, "Hearing

Development", University of Washington, Seattle,

WA, Mar. 14-16, 1988, special review group.

NIDCD site visit for Dr. Charles Finley,
"Mechanisms of Intracochlear Electrical
Stimulation", Research Triangle Park, North
Carolina, Sept. 21-23, 1994

NIDCD teleconference review panel for Dr. Josef
Miller "Studies of the Cochlear Prosthesis"
May 22, 1996

NIDCD Special Review Panel for Program Projects,
Rockville, MD Dec. 3-5, 1996

NIDCD teleconference review panel for Temporal
Bone Registry Program, Feb. 19, 1997

Chairman	NINCDS site visit for Dr. Arndt Duval, "Mechanisms of Auditory and Vestibular Dysfunction", University of Minnesota, Minneapolis, MN, Apr. 5-7, 1988, special review group.
Member	Communicative Disorders Review Committee, NINCDS, November 1981_June 1983
Chairman	Communicative Disorders Review Committee, NINCDS, July 1983_June 1985
Member	Long range planning committee Association for Research in Otolaryngology, Jan. 1983_1984, Mar. 1988-1992
Chairman	Long range planning committee _ Association for Research in Otolaryngology, Feb. 1984 _ Feb. 1988
Member	Program Committee for 1987 Midwinter Meeting, Association for Research in Otolaryngology
Member	By-Laws Committee - Association for Research in Otolaryngology - Jan. 1987- Feb. 1989
Member	Council of the Association for Research in Otolaryngology Feb. 1986 - Feb. 1989
Panelist	NIH Consensus Development Conference on the Cochlear Implant, Bethesda, MD, May 2-4, 1988.
Member	NINCDS Workshop on Studies of Human Temporal Bone Histopathology, Bethesda, MD, July 14-15, 1988
Co-chair	Vestibular Panel - NIDCD Task Force on a National Strategic Research Plan - Jan. 1989
Chairman	NIDCD Special Review Group for Contract Proposals Bethesda, MD - April 14, 1989
Member Chair Member Chairman	House Ear Institute Science Advisory Council 1989 House Ear Institute Science Advisory Council 1991-1994 NIDCD Advisory Council - 1989-1993 NIDCD Advisory Council Subcommittee on Training 1990-1993

Member	Board of Directors - Friends of NIDCD 1989-
Chair	Nominations Committee, Association for Research in Otolaryngology 1991-1992
Associate Editor	for Experimental Studies, Otolaryngology-Head and Neck Surgery, Feb. 1991-1997.
Member	Board of Directors - National Organization for Hearing Research (NOHR), 1993-
Member	Government Affairs Committee of the Association for Research in Otolaryngology 1994-
Chair	NIDCD review panel for National Temporal Bone Bank contract, June 19, 1995
Ad-hoc reviewer	Communicative Disorders Review Committee, NIDCD, June 1997
Chair	NIDCD review panel for core grants, June 16, 2000.
Member	NIDCD review panel for core grants, June 29, 2001.

TEACHING Indiana University

Topical seminar: Anatomical approaches to neuronal contacts. (N650 _ 2 credits) A small enrollment graduate seminar. Spring semester, 1973.

Basic human anatomy (A215 _ 5 credits) A large enrollment (430_477) undergraduate course primarily for nursing, allied health and physical education students. My responsibilities included all lectures (3 hr/wk), design and supervision of all laboratory exercises, supervision of associate instructors (10_15) who taught the multiple laboratory sections, and all administrative matters related to the course. Laboratory exercises included cat dissection, human models and basic histology. Fall semester 1973, 1974, 1975.

Introduction to Research (A512, A513 _ 1 credit each) _ with all other departmental faculty. Lectures on ongoing research in the department of anatomy and physiology and supervision of a small laboratory project. Fall and spring semesters 1973_1976.

Research in Anatomy (A800 _ 1 to 8 credits/semester) _ individual instruction of graduate students in my laboratory. Spring, summer and fall semesters 1973_1976.

Doctoral committees:

Greg J. Maloney, Anatomy & Physiology. The morphology of the normal and regenerating optic nerve in goldfish, a light and electron microscopic study. Completed August 1975, member (acting chairman, Spring 1974).

Joseph Chan, Center for Neural Sciences. Identification of neurons innervating the middle ear muscles in the cat. Completed August 1976, member.

Harry Cohen, Anatomy & Physiology. Evidence for an electrogenic sodium pump in the frog muscle spindle. Completed 1977, member.

Masters committees:

George A. Alexander, Zoology. The postnatal development of the cochlear nucleus in the C57BL/6 mouse. Completed March 1976, chairman.

Andrea Z. Wittebort, Anatomy & Physiology. Axon terminals in the medial superior olivary nucleus of the cat, a Golgi study. Completed August 1976, chairman.

Christine Olo, Anatomy & Physiology. The superior olivary complex and trapezoid body in C57BL/6 mice. Completed June 1977, chairman.

UNIVERSITY SERVICE Indiana University

1972_1975 Member, Indiana University Campus Wide Committee to plan a policy on part_time tenure (to be adopted as part of the University affirmative action compliance requirements).

1974_1976 Member, Student Affirmative Action Committee to draft a policy to put the University in compliance with federal regulations.

1975_1976 Member, Bloomington Calendar Committee.

1974_1975 Chairman, Anatomy Search and Screen Committee.

TEACHING UCLA

Lectures and participation in the basic sciences course for residents, graduate students and fellows in Head and Neck Surgery, Fall Quarter 1977, Winter Quarter 1978.

Organizer and lecturer in the basic sciences course for residents, graduate students and fellows in Head and Neck Surgery, Fall Quarter, 1979, 1981, 1983, Winter Quarter, 1980, 1982, 1984, 1986.

Organizer of Introduction to the Laboratories for Head and Neck Residents, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986.

Lecturer _ Introduction to Head and Neck Surgery, Summer 1983, 1984, 1985, 1986.

Organizer of the Head and Neck Surgery Research seminars for graduate students, fellows and residents in Head and Neck Surgery, also attended by students and faculty in other departments, 1978, 1979, 1980.

Participation, including invited seminar in Psychiatry 247B, Neurophysiological and Neuropsychological Bases of Mental Retardation, Winter Quarter, 1978.

Participant (weekly) in Neurotology Conference, Head and Neck Surgery, 1978, 1979, 1980, 1981, 1982.

Organizer of Wednesday Neurotology and Selected Topics Conferences 1983, 1984, 1985, 1986.

Supervisor of research rotations in Head and Neck Surgery carried out in my laboratory:

M. Colman, M.D. 1/1/79 _ 3/31/79

J. Higa, M.D. 1/1/80 _ 6/30/80

P. Lambert, M.D. 1/1/80 _ 3/31/80

R. Wald, M.D. 10/1/82 _ 3/31/83

Supervisor of medical student research projects carried out in my laboratory:

James Gardner - summer 1983

Keith Gross - summer 1985

Doctoral Committees:

Patricia Phelps, Department of Anatomy, oral examination 10/6/78, thesis defense 4/82, outside member. Light and electron microscopy studies of developing kitten substantia nigra.

Robert Helfert, Department of Anatomy, oral examination 3/19/86, thesis defense 10/86, cochairman (major professor), The anatomy of the lateral superior olivary nucleus in cat and gerbil.

UNIVERSITY SERVICE UCLA

1977_87 Member, Division of Head and Neck Surgery Committees on Teaching Awards

1979_87 Chairman, committee on resident research rotations and the basic science course in Head and Neck Surgery

1980_82 Chairman, Head and Neck Surgery curriculum committee

1983_87 " " " " " "

1985-87 Member, UCLA University Committee on Radiation Safety

TEACHING - YALE

Neuroscience (500b) - Required course for first year medical students. Presented lectures on the auditory and vestibular systems. Spring 1987, 1988, 1989, 1990. Taught laboratory section Spring 1988, 1989.

Otology course for Otolaryngology residents - Presented lectures on the anatomy of the peripheral and central auditory and vestibular systems. Fall 1987, 1988.

Organizer, basic science lecture series for otolaryngology residents. 1988-1992

Organizer, Seminar on Sensory/Motor Systems in Communication. 1991-

Course director, Neurobiology 501a, Principles of Neuroscience. Fall 1991, 1992, 1993, 1994, 1995, 1996.

Supervisor of Medical Student Research Rotations carried out in my laboratory:

Roberta Karnovsky 1/88-3/88

Supervisor of Medical Student Thesis Research

Sina Nasri 1/88-6/89

Morphological features of neurons in the posteroventral cochlear nucleus of the mongolian gerbil.

Dale Johnson 7/89-6/91

Cholecystokin and somatostatin neurons in the gerbil auditory system.

David Greene 6/90-2/93

Pattern of gene expression for GABA-A receptor subunit mRNAs in the auditory brainstem nuclei of the rat.

[Greene D, Hunter C, Wada K, Lolait SJ, O'Carroll AM, Mahan LC, Wenthold RJ (1991) Pattern of gene expression of GABA_A receptor subunit mRNAs in the rat central auditory system. Absts ARO Midwinter Mtg: 14: 11.]

Michael Yao 6/93-2/94

Development of Cat301 immunoreactivity in the gerbil auditory brainstem.

Jonathan Erulkar 6/97-

Changes in NMDAR1 and GluR2 receptor subunit populations with age and sensorineural hearing loss in the C57BL/6 and CBA mouse cochlear nucleus.

Sydney Butts 6/97-5/98

GluR2 and Calbindin-D28K in Cochlear Nucleus

Supervisor of Resident Research Projects

Steven Salzer 7/91-11/91

Ravi Goravalingappa 10/98-12/98

GluR1_4 subunit changes in C57BL6 & CBA mouse IC with age

Supervisor of Graduate Student Research Rotations

Edward Meloni 2/93-7/93

Supervisor of Undergraduate Student Research Experiences

Pamela Nguyen (Wesleyan) 6/1/93-8/93

Gloria Hsu (Yale) 6/1/99-8/31/99

Supervisor of Yale Undergraduate Thesis Research

Dean Joelson 10/95-4/97

"Development of N-methyl-D-aspartate receptor subunit immunoreactivity in the neonatal gerbil cochlear nucleus."

Gloria Hsu 6/99-4/2000

"Localization of GRIP differs in the cochlear nucleus (auditory brainstem) of C57BL/6 and CBA/J mice."

Doctoral Committees:

Edward Meloni, Interdepartmental Neuroscience Program,

May 1994-Dec 1997

UNIVERSITY SERVICE - YALE

1988-1994 Member, Status of Women in Medicine Committee

1988- Member, Department of Surgery Committee on Research Grants

1989-1992 Chemical Safety Representative, Department of Surgery

1990- Member, Department of Surgery Committee on Medical Student Theses

1991-1994 Member, University Radiation Safety Committee

1991-1992 Member, University Police Advisory Board
1992- Chair, University Police Advisory Board

1992-1995 Chair, Department of Surgery Safety Committee

1992-1995 Member, Medical School Committee on Appointments & Promotions

1997-2000 Member, University Committee on Disabilities

1997-2002 Chair, Status of Women in Medicine Committee

1998- Donahue Center for Women's Health Scientific Review Committee

1999-2000 Member, Funds and Fellowships Committee
2000-2001 Chair, Funds and Fellowships Committee

PUBLICATIONS

PAPERS

Schwartz, I.R. The fine structure of electroplaques in eight species of weakly electric teleosts. Doctoral dissertation _ Yale University, 1968.

Schwartz, I.R., G.D. Pappas and D. Purpura. The fine structure of neurons and synapses in the feline hippocampus during postnatal ontogenesis. Exptl. Neurol., 22: 394_407, 1968.

Purpura, D.P., I. Schwartz, S. Prelevic, M. Santini, G.D. Pappas. Morpho-physiological basis of inhibition in neonatal kitten hippocampus. Electroencephalography & Clinical Neurophysiology 26(6):631, 1969

Schwartz, I.R., G. Broggi and G.D. Pappas. Fine structure of cat hippocampus during sustained seizure. Brain Research, 18: 176_180, 1970.

Schwartz, I.R. Axonal endings in the cat medial superior olive: coated vesicles and intercellular substance. Brain Research, 47: 187_202, 1972.

Schwartz, I.R., M.V.L. Bennett, and G.D. Pappas. The fine structure of electrocytes in weakly electric teleosts. J. Neurocytol., 4(1): 87_114, 1975.

Potter, H.D., G.S. Hafner, and I.R. Schwartz. Neurofilament and glycogen changes during cold acclimation in the trochlear nucleus of lizards (Scleropus undulatus). J. Neurocytol., 4(4): 491_503, 1975.

Schwartz, I.R. Dendritic arrangements in the cat medial superior olive. Neuroscience, 2: 81_101, 1977.

Schwartz, I.R. and D. Bok. Electron microscope localization of (125)I_∇_bungarotoxin binding sites in the outer plexiform layer of the goldfish retina. J. Neurocytol., 8: 53_66, 1979.

Ollo, C. and I.R. Schwartz. The superior olivary complex in C57Bl6 mice. J. Anat., 155: 349_374, 1979.

- Schwartz, I.R. The differential distribution of synaptic terminal classes on marginal and central cells in the cat medial superior olive. Am. J. Anat., 159: 25_31, 1980.
- Schwartz, I.R. The differential distribution of label following uptake of H(3) amino acids in the dorsal cochlear nucleus of the cat: an autoradiographic study. J. Exptl. Neurol., 73: 601_617, 1981.
- Colman, M. and I.R. Schwartz. The effect of vocal cord paralysis on the cricoarytenoid joint. Otolaryngol. & Head & Neck Surgery, 89: 419_422, 1981.
- Honrubia, V., Sitko, S., J. Kimm, W. Betts and I. Schwartz. Physiological and anatomical characteristics of primary vestibular afferent neurons in the bullfrog. Intl. J. Neurosci. 15: 197_206, 1981.
- Schwartz, I.R. and Higa, J.F. Correlated studies of the ear and brainstem in the deaf white cat: changes in the spiral ganglion and the medial superior olivary nucleus. Acta Otolaryngol. 93: 9_18, 1982.
- Schwartz, I.R. A simple method for flat embedding of large thin tissues sections. Stain Tech. 57: 52_54, 1982.
- Lambert, P. and Schwartz, I.R. A longitudinal study of changes in the cochlear nucleus in the CBA mouse. Otolaryng. & Head & Neck Surg. 90: 787_794, 1983.
- Schwartz, I.R. and Ryan, A.F. Differential labeling of sensory cell and neural populations in the organ of Corti following amino acid incubations. Hearing Research 9: 185_200, 1983.
- Ryan, A.F. and Schwartz, I.R. A biochemically distinct subpopulation of neurons in the spiral ganglion identified by preferential amino acid uptake. Hearing Research 9: 173_184, 1983.
- Schwartz, I.R. Differential uptake of H(3)_amino acids in the cat cochlear nucleus. Am. J. Otolaryngol. 4: 300_304, 1983.
- Ryan, A.F. & Schwartz, I.R. Preferential glutamine incorporation by cochlear hair cells: implications for the afferent cochlear transmitter. Brain Research 290: 376_379, 1984.
- Honrubia, V., Sitko, S., Lee, R., Kuruville, A. and Schwartz, I.R. Anatomical characteristics of the anterior vestibular nerve of the bullfrog. Laryngoscope 94: 464_474, 1984.
- Thompson, J., Ward, P. and Schwartz, I.R. Experimental studies for correction of superior laryngeal paralysis by fusion of the thyroid to cricoid cartilages. Otolaryng. & Head & Neck Surgery 92: 498_508, 1984.
- Kuruville, A., Honrubia, V., Sitko, S. and Schwartz, I.R. Central innervation of the vestibular nerve in the bullfrog, Rana catesbeiana I. General plan of organization. Laryngoscope 95: 692-707, 1985.
- Suarez, C., Kuruville, A., Sitko, S., Schwartz, I.R. and Honrubia, V. Central projections of primary vestibular fibers in the bullfrog. II. Nerve branches from individual receptors. Laryngoscope 95: 1238-1250, 1985.
- Helfert, R.H. and Schwartz, I.R. Morphological evidence for the existence of multiple neuronal classes in the cat lateral superior olivary nucleus. J. Comp. Neurol. 244(4): 533-549, 1986.
- Schwartz, I.R. and Ryan, A.F. Amino acid labeling patterns in the efferent innervation of the cochlea _ an electron microscopic autoradiographic study. J. Comp. Neurol. 246(4): 500-513, 1986.
- Ryan, A.F. and Schwartz, I.R. Nipecotic acid: preferential accumulation in the cochlea by GABA uptake systems and selective retrograde transport to brainstem. Brain Research 399: 399-403, 1986.
- Ryan, A.F., Schwartz, I.R., Helfert, R.H., Keithley, E. and Wang, Z.X. Selective retrograde labeling of lateral olivocochlear neurons in brainstem based on preferential uptake of 3H-D-aspartic acid in the cochlea. J. Comp. Neurol. 256: 606-616, 1987.
- Helfert, R.H. and Schwartz, I.R. Morphologic evidence for the presence of five cell types in the gerbil lateral superior olivary nucleus. Am. J. Anat. 179: 55-69, 1987.
- Helfert, R.H., Schwartz, I.R. and Ryan, A.F. Ultrastructural characterization of gerbil olivocochlear neurons based on differential uptake of 3H-D-aspartic acid and a wheatgerm agglutinin-horseradish peroxidase conjugate from the cochlea. J. Neurosci. 8: 3111-3123, 1988.
- Conlee, J.W., Parks, T.N., Schwartz, I.R. and Creel, D.J. Comparative anatomy of melanin pigment in the stria vascularis: evidence for a distinction between melanocytes and intermediate cells in the cat. Acta Otolaryng. 107: 48-58, 1989
- Honrubia, V., Hoffman, L., Sitko, S., and Schwartz, I.R. Anatomical and physiological correlates in bullfrog vestibular nerve. J. Neurophysiol. 4(6): 688-701, 1989.
- Yu, S.-M. and Schwartz, I.R. Flat embedding for immunocytochemistry. Stain Technology 64(3): 143-146, 1989.
- Schwartz, I.R. Central nervous system studies. pp. 40-42. In "Human temporal bone research workshop report", eds. C.D. Bluestone & R.F. Naunton, Ann. Otol., Rhinol. Laryng. Suppl. 143, vol. 98, no. 12, pt. 2, 1989.
- Schwartz, I.R. and Ryan, A.F. Autoradiographic studies of selective amino acid uptake by neural elements in the cochlea. J. Electron Microscopy Technique 15: 225-244, 1990.
- Ryan, A.F., Keithley, E.M., Wang, Z.X. and Schwartz, I.R. (1990) Collaterals from lateral and medial olivocochlear efferent neurons innervate different regions of the cochlear nucleus and adjacent brainstem. J. Comp. Neurol. 300:572-582, 1990.
- Czibulka, A. and Schwartz, I.R. Neuronal populations in the gerbil PVCN: effects of age, hearing status and microcysts. Hearing Res. 52: 43-58, 1991.

Ryan, A.F., Schwartz, I.R., Keithley, E.R. and Wang, Z.X. Selective retrograde transport of nipecotic acid, a GABA analog, labels a subpopulation of olivocochlear neurons exhibiting preferential GABA uptake. J. Comp. Neurol. 326(3): 337-346, 1992.

Czibulka, A. and Schwartz, I.R. Glial or neuronal origin of microcysts in the gerbil PVCN? Hearing Research 67(1-2): 1-12, 1993.

McGinn, M., Schwartz, I.R., Chamberlin, S.C. and Voight, H.F. Regarding Boettcher et al. [Hearing Research, 87(1995) 208-209] (Letter) Hearing Res. 99: 190-191, 1996.

Schwartz, I.R., Hafidi, A., and Sanes, D.H. In vitro induction of microcyst-like structures in the superior olivary complex. Hearing Research, 111: 136-142, 1997.

Wang, L.-Y., Gan, L., Perney, T.M., Schwartz, I. & Kaczmarek, L.K. Depletion of potassium ions through Kv3.1 channels in a spine-like membrane compartment. Proceedings of the National Academy of Science, 95: 1882-1887, 1998.

Kotak, V.C., Korada, S., Schwartz, I.R. and Sanes, D.H. A developmental shift from GABAergic to glycinergic transmission in the central auditory system. J. Neuroscience, 18: 4646-4655, 1998.

Joelson, D. and Schwartz, I.R. Development of N-methyl-D-aspartate receptor subunit immunoreactivity in the neonatal gerbil cochlear nucleus. Microscopy Research and Techniques, 41: 246-262, 1998.

Korada, S. and Schwartz, I.R. Development of GABA, glycine and their receptors in the auditory brainstem of gerbil: A light and electron microscopic study. J. Comp. Neurol. 409: 664-681, 1999.

Schwartz, I.R. and Eager, P.E. Glutamate receptor subunits are differentially localized in neuronal populations of the gerbil lateral superior olive. Hearing Research, 137: 77-90, 1999.

Korada, S. and Schwartz, I.R. Calcium binding proteins and the AMPA-glutamate receptor subunits in gerbil cochlear nucleus. Hearing Research, 140(2): 23-37, 2000.

Schwartz, I.R., Keh, A and Eager, P.R. Differential postsynaptic distribution of GluRs1-4 on cartwheel and octopus cell somata in the gerbil cochlear nucleus. Hearing Research, 147: 70-76, 2000.

Schwartz, I.R., Keh, A and Hsu, G Morphology, GluR1 and GRIP-C localization differ in octopus cells of C57BL6 and B6Cast mice. Hearing Research 171(1_2):1_12, 2002.

CHAPTERS

Schwartz, I.R. Axonal organization in the cat medial superior olivary nucleus. Contributions to Sensory Physiology, W.D. Neff (editor), Academic Press, New York. 8: 99-129, 1984.

Schwartz, I.R. Autoradiographic studies of amino acid labeling of neural elements in the auditory system. In Auditory Biochemistry, D. Drescher ed., Charles Thomas, Springfield, Ill., Chapter 15, pp. 258-277, 1985.

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INVITED PRESENTATIONS

Panelist in panel on Women in Science, Indiana University, Bloomington,.

Seminar: The medial superior olivary complex in the cat. Dept. of Anatomy, USC School of Medicine, February 14, 1977.

Seminar: The superior olivary complex in the cat. Dept. of Biology, Cal State Dominguez Hills, February 22, 1977.

Seminar: Dendritic and axonal organization of the medial superior olivary complex in the cat. Dept. of Biology, Cal Tech., March 16, 1977.

Seminar: The organization of the medial superior olivary complex in the cat. Dept. of Otolaryngology, School of Medicine, UC_San Francisco, March 21, 1977.

Seminar: The organization of the medial superior olivary complex in the cat. Dept. of Anatomy, School of Medicine, UC_Irvine, March 25, 1977.

Seminar with Dr. Dean Bok: Localization of neurotransmitter receptor sites in retina with snake venom toxin. Jules Stein Eye Institute Vision Research Conference, April 13, 1977.

Seminar: Central Auditory Pathways. Acoustic Communication Workshop, organized by Dr. J. Buchwald, Dept. of Physiology, School of Medicine, UCLA, February 17, 1978.

Seminar: Anatomical studies of development in neonatal auditory system. This was one lecture in the course Psychiatry 247B, Neurophysiological and Neuropsychological Bases of Mental Retardation, UCLA, March 3, 1978.

Participant: International Conference on the Anatomy of the Central Auditory System, Florida State University, Tallahassee, Florida, March 12_14, 1980.

Participant: Ear Research Institute Symposium on Electron Microscopy with Emphasis on Human Studies, Los Angeles, CA. Talk: "Differential Uptake of H(3)_Amino Acids in the Cat Cochlear Nucleus," September 24, 1980.

Chairman: Workshop on the chemistry of neurotransmitters in the auditory system. (Session II) at the 100th meeting of the Acoustical Society of America, Los Angeles, CA, November 20, 1980.

Seminar: Amino acid labeling patterns in the cochlear nucleus and superior olivary complex of the cat. Soc. Neurosci. Bloomington Chapter, Indiana University, Feb. 11, 1982.

Seminar: Differential H(3) labeling of auditory synaptic terminals. Division of Neuroscience, City of Hope, Feb. 16, 1982.

Seminar: Amino acid labeling patterns in the mammalian auditory system. Depts. of Pharmacology and Otolaryngology, Southern Illinois University, Feb. 24, 1982.

Seminar: Amino acid labeling of neural elements in the mammalian auditory system. Dept. of Anatomy, U.C._Irvine, April 8, 1983.

Seminar: Amino acid labeling of neural elements in the mammalian auditory system. The Clinical Neuroscience Research Center, Univ. of Virginia Medical Center, April 15, 1983.

Talk: Autoradiographic studies of amino acid labeling of neural elements in the auditory system. International Conference on Auditory Biochemistry. St. Petersburg Beach, Fla., Feb. 5, 1984.

Moderator: International Conference on Auditory Biochemistry, Session II _ Biochemistry of Central Auditory Neurotransmission, St. Petersburg Beach, Fla., Feb. 5, 1984.

Seminar: Autoradiographic studies of amino acid uptake in the mammalian auditory system. Kresge Hearing Research Institute, University of Michigan School of Medicine, November 14, 1984.

Seminar: Light and electron microscopic autoradiographic studies of amino acid uptake in the auditory system. University of Southern California, January 16, 1985.

Seminar: Autoradiographic studies of amino acid uptake in the auditory system. University of Florida, Gainesville, Florida, January 31, 1985.

Seminar: Anatomical approaches to neurotransmitter related properties of auditory neurons. University of Connecticut Health Sciences Center, Farmington, CT January 12, 1988.

Participant in Round Table: New morphological trends in inner ear study. Presentation on: Inner ear studies by autoradiography - Organ of Corti. XIV World Congress of Otorhinolaryngology Head and Neck Surgery. Madrid, Spain. Sept. 13, 1989.

Talk: Anatomical approaches to the chemistry of auditory neurons. Yale School of Medicine, Otolaryngology Grand Rounds, March 7, 1990.

Talk: Neurotransmitters in the auditory system. ISIS Program. Southern Connecticut State University, March 29, 1990.

Talk: Chemical properties of auditory neurons. Sensory/Motor Systems in Communication Seminar. Yale University School of Medicine, Jan. 9, 1991.

Talk: Differential distribution of neuronal surface markers and calcium binding proteins in the auditory brainstem. Departments of Otolaryngology and Pharmacology, Southern Illinois University, March 12, 1992.

Talk: Differential distribution of neuronal surface markers and calcium binding proteins in the auditory brainstem. Parmlly Hearing Research Institute, Loyola University, Chicago, IL March 13, 1992.

Talk: Immunocytochemical studies of surface markers and calcium binding proteins in the auditory brain stem. Kresge Hearing Research Institute, University of Michigan, Ann Arbor, MI Sept. 24, 1992.

Talk: Calcium binding proteins, surface markers and GABA in auditory brainstem neurons. Sensory/Motor Systems in Communication Seminar. Yale University School of Medicine, Nov. 11, 1992

Talk: Calcium binding proteins and surface markers in the auditory brainstem. Department of Surgery - Surgical Research Conference, Yale University School of Medicine, March 27, 1993

Talk: Results of a questionnaire on the research training of scientists in the communication sciences. National Institute on Deafness and Other Communication Disorders - Program planning workshop Training researchers for the next century in the communication sciences Rockville, MD May 25, 1994

Talk: Auditory Cortex. October 13, 1995. Lecture in Neurobiology Course on Cerebral Cortex.

Talk: Immunocytochemical Studies of Neurotransmitters in the Auditory Brainstem. Department of Otolaryngology. Hadassah Hospital. Jerusalem, Israel. January 16, 1996.

Panelist: Careers for Women in Science: You can get there from here. Program sponsored by AWIS-CT at Eastern Connecticut State University, October 10, 1997.

Talk: Changes in glutamate receptor subunit immunoreactivity in the neonatal gerbil auditory brainstem. Symposium on Plasticity in the Auditory System. Washington, DC. November 16, 1996.

Moderator: Combining careers and family. Program sponsored by AWIS-CT at Yale University, January 30, 1997.

Talk: Ionotropic glutamate receptor subunits in the gerbil auditory brainstem. University of California - Berkeley, March 4, 1997.

Talk: Localization of glutamate receptor subunit immunoreactivity in the gerbil cochlear nucleus and superior olivary complex. Department of Otolaryngology, University of California - Davis, March 12, 1997.

Talk: Localization of glutamate receptor subunit immunoreactivity in the gerbil cochlear nucleus and superior olivary complex. Department of Otolaryngology, Keck Center, University of California - San Francisco, March 13, 1997.

Talk: Localization of glutamate receptor subunit immunoreactivity in the gerbil cochlear nucleus and superior olivary complex. Department of Bioengineering, Boston University, Boston, April 25, 1997.

Talk: Glutamate receptor subunits in the auditory brainstem. Department of Otolaryngology, Massachusetts Eye and Ear Infirmary, Sept.18, 1997.

Talk: Glutamate receptor subunits and auditory pathways: changes with hearing status. Sensory/Motor Systems in Communication Seminar. Section of Otolaryngology, Yale University School of Medicine, October 8, 1997.

Panelist: Strategies for combining careers and family. Program sponsored by AWIS-CT at Manchester Community Technical College, Manchester, CT, February 12, 1998.

Panelist: Selling yourself for science: Tips on CVs and interview skills. Program sponsored by AWIS-CT at Bayer Pharmaceutical Company, West Haven, CT, April 20, 1998.

Moderator: The trail to tenure. Program sponsored by AWIS-CT at Yale University, October 7, 1999.