

## CURRICULUM VITAE

Address:

Date of Birth: August 12, 1945

Place of Birth: Boston, Massachusetts

### Education:

1967 A.B. Harvard College, Cambridge, Massachusetts

1971 M.D. Harvard Medical School, Boston, Massachusetts

### Postdoctoral Training:

#### Internships and Residencies:

1971-1972 Medical Intern, University Hospital of San Diego County, San Diego, California

1974-1975 Medical Resident, Peter Bent Brigham Hospital, Clinical Fellow in Medicine, Harvard Medical School

1975-1978 Neurology Resident, Massachusetts General Hospital, Clinical Fellow in Neurology, Harvard Medical School

#### Research Fellowship:

1972-1974 Staff Associate, National Institutes of Health, Bethesda, Maryland

#### Sabbatical Study

1992 Institut für Hirnforschung der Universität Zürich, Zürich, Switzerland

### Licensure and Certification:

Diplomate, American Board of Internal Medicine (1975)

Diplomate, American Board of Psychiatry and Neurology (Neurology) (1979)

Diplomate, American Board of Psychiatry and Neurology, Vascular Neurology (2005)

### Academic Appointments:

1978-1979 Instructor in Neurology, Harvard Medical School

1979-1983 Assistant Professor of Neurology, Harvard Medical School

1983-1985 Assistant Professor of Neurology (Neuroscience), Harvard Medical School

1985-1988 Associate Professor of Neurology, Developmental Genetics and Anatomy, Case Western Reserve University School of Medicine

1988-1990 Associate Professor of Neurology and Center for Neurosciences, Case Western Reserve University School of Medicine

1990-1996 Professor of Neurology and Neurosciences, School of Medicine, Case Western Reserve University

1994-1996 Acting Chairman, Department of Neurology, School of Medicine, Case Western Reserve University

1996- Gilbert W. Humphrey Professor and Chairman, Department of Neurology, School of Medicine, Case Western Reserve University

### **Hospital Appointments:**

1978-1985 Associate Neuropathologist, Eunice Kennedy Shriver Center for Mental Retardation.  
Waltham, Massachusetts  
1978-1979 Assistant in Neurology. Massachusetts General Hospital  
1979-1985 Assistant Neurologist. Massachusetts General Hospital  
1985-1990 Associate Neurologist. University Hospitals of Cleveland  
1990-- Neurologist, University Hospitals of Cleveland  
1996-- Director, Department of Neurology, University Hospitals of Cleveland

### **Other Professional Positions and Major Visiting Appointments:**

1977-1989 Instructor. summer course in Neurobiology. Marine Biological Laboratories, Woods Hole.  
Massachusetts  
2000-2001 Special Assistant for Career Development, Division of Extramural Research, National  
Institute of Neurological Disease and Stroke, NIH, Bethesda, MD  
2005-2006 Special Assistant to the Director, National Institute of Child Health and Development,  
National Institutes of Health, NIH, Bethesda, MD

### **Awards and Honors:**

1963-1967 Harvard College Scholarship  
1967 A.B. cum laude in Biology  
1968,1969 Harvard Summer Research Grant  
1971 Boylston Prize (shared), Harvard Medical School  
1971 M.D. cum laude for thesis in special field  
1978 NINCDS Teacher Investigator Award  
1989 Javits Neuroscience Investigator Award

### **Major Committee Assignments:**

#### Massachusetts General Hospital:

Committee on Adult Neurology Training Program, 1978-85 (Departmental)  
Committee for Neurology Postgraduate Course, 1980-85 (Departmental)  
Committee on Research, Subcommittee on Review of Research Proposals, 1980-1984. Chairman,  
1982-1984 (Hospital)

#### University Hospitals of Cleveland:

Committee on Neurology Resident Education (Departmental) 1986-  
Committee on Faculty Appointments, Promotions, and Tenure (Departmental) 1987-  
Committee on Foley-Nulsen Library (Departmental) 1988-96  
Committee on Medical Credentialing (Hospital), 1994-96  
Quality Monitoring Council, 1998-  
Future Competitiveness Task Force, 1998-99  
Board of Directors, ex-officio, 2001-2005

#### Case Western Reserve University School of Medicine:

Steering Committee, Medical Scientist Training Program, 1986-95  
Faculty Council, 1987-1990  
Federal Demonstration Project Committee, Office of Research Administration, 1988-92  
Dean's Task Force on Neuroscience, Chairman, 1990  
Task Force on Majors (Curriculum Review), 1990-1991  
CWRU--Cleveland Clinic Foundation Task Force, 1991-1992  
Dean's Committee on Research Directions, 1992-93  
CWRU--Committee for strategic plan for research vitality, 1993-94  
Council of Clinical Chairmen, 1996-;

Vice-President, 1997-2001  
President, 2001-2005  
The Millennium Curriculum, Steering Committee, 1997-99  
Ad Hoc Faculty Committee for CWRU-UHC Partnership 2002

**National and Regional:**

Medical and Research Advisory Board, National Ataxia Foundation  
Neurological Sciences Ad Hoc Study Section, 1984  
Neurology B-I Study Section. Ad Hoc Reviewer, 1986, 1987  
Gordon Research conferences, Organizing Committee for Neural Plasticity. 1987-97  
Neurology B-I Study Section. Member 1988 -1992  
Non-Neural Cell Working Group, NINDS, NIH 1998-

**Editorial Boards:**

Synapse, 1986—2004  
Neurobiology of Disease, 1994—2000  
Journal of Neurocytology, 1998--2000

Manuscripts also reviewed for Brain Research, Developmental Biology, J. Cell Biology, J. Comparative  
Neurology, J. Histochem. Cytochem., J. Neuroscience, J. Neuropathology Experimental  
Neurology, Nature, Neurology, Neuroscience, Science, Trends in Neuroscience

**Professional Societies:**

1973- Society for Neuroscience  
1978- American Academy of Neurology  
1982-98 American Society for Cell Biology  
1987- American Neurological Association  
1988-94 Society for Experimental Neuropathology  
1995-2000 Joint Section on Cerebrovascular Surgery  
1995- American Heart Association  
1996- Association of University Professors of Neurology

**Memberships, Offices, and Committee Assignments:**

Society for Neuroscience  
1980- Organizing Committee. Neurobiology of Disease Workshop. Society for Neuroscience  
1981-84 Program Committee, Society for Neuroscience  
1989-95 Education Committee, Society for Neuroscience  
Chairman, 1992-1995  
2004-Finance Committee  
American Academy of Neurology  
1995-99 Foundation Research Award Subcommittee, American Academy of Neurology  
2003-Research Council, American Academy of Neurology  
2004-Nominating Committee  
American Neurological Association  
1989-91 Membership Committee, American Neurological Association  
1996-99; 2004- Long Range Planning Committee, American Neurological Association  
1997-99 Councilor, American Neurological Association  
2004-05 Vice President  
Association of University Professors of Neurology  
1999-2004 Graduate Medical Education Committee, Association of University Professors of



Neurology

Chairman, 2002-2003

Director, MD/PhD Course, 2002-2004

2002- First Vice President, Association of University Professors of Neurology

1988-96 Organizing Committee and Founding Member, Society for Experimental Neuropathology

2001- Examiner, American Board of Psychiatry and Neurology

2001- 2004 Operation Stroke (Cleveland), Medical Subcommittee, American Heart Association

Chairman, 2001-2002

**Major Research Interests:**

Structure and function at synaptic junctions in the central nervous system.

Membrane and cytoplasmic structure in astrocytes.

Astrocyte function during development, in the adult, and in the response to injury.

Thrombolytic therapy for acute ischemic stroke

**Teaching Experience:**

Massachusetts General Hospital (1978-1985):

Lecturer, Neurology Postgraduate Course, 1978-1982 .

Lecturer, Postgraduate Course, Peripheral Neuropathies: Diagnosis and Management, 1982-1985

Lecturer, Postgraduate Course, Electromyography and Clinical Neurophysiology, 1982-1985

Organizer and lecturer, Lecture Series on Neurobiology, Committee on Research, MGH, Spring 1980.

Attending Physician, Neurology Service 1979-1985 (Teaching Medical Students and Residents)

Attending Physician, Neurology Consultation Service 1980-1985 (Teaching Residents)

Adviser for Research Postdoctoral Fellows.

Marine Biological Laboratory:

Instructor, Neurobiology Course at the Marine Biological Laboratories, Woods Hole. MA. 1977-1989  
(Teaching Graduate Students and Postdoctoral Fellows).

Lecturer. Review & Update in Neurobiology for Neurosurgeons, 1984-1994 (Post-graduate course for neurosurgeons and neurosurgical residents)

Case Western Reserve University:

Attending Physician. Neurology Service. Veterans Administration Hospital 1986-

Attending Physician. Neurology Service, University Hospitals of Cleveland. 1986-

Lecturer, School of Medicine

**Principal Clinical and Hospital Service Responsibilities:**

Massachusetts General Hospital (1978-1985)

Attending Physician, Neurology Service.

Attending Physician, Neurology Consultation Service.

Director, Muscular Dystrophy Association Clinic.

Veterans Administration Hospital. Cleveland (1985-2004)

Attending Physician, Neurology Service

University Hospitals of Cleveland (1985- )

Attending Physician, Neurology Service

Attending Physician, Consultation service

Director, Department of Neurology, 1995-



**Major Administrative Responsibilities:**

Massachusetts General Hospital (1978-1985)

Director, Neurology Electron Microscopy Unit.

Director, Laboratory of Neurocytology.

Director, Muscular Dystrophy Association Clinic

Case Western Reserve University (1985- )

Director, Laboratory of Neurocytology, 1985-1997

Acting Chairman, Department of Neurology (1994-95)

Chairman, Department of Neurology (1995- )

## PUBLICATIONS

### Original Reports

1. Landis, DMD, Reese, TS. Arrays of particles in freeze-fractured astrocytic membranes. *J Cell Biol.* 60:316-320. 1974.
2. Heuser, JE, Reese, TS, Landis, DMD. Functional changes in frog neuromuscular junctions studied with freeze-fracture. *J Neurocytol.* 3:109-131. 1974.
3. Landis, DMD, Reese, TS, Raviola, E. Differences in membrane structure between excitatory and inhibitory components of the reciprocal synapse in the olfactory bulb. *J Comp Neurol.* 155:67-92. 1974.
4. Landis, DMD, Reese, TS. Differences in membrane structure between excitatory and inhibitory synapses in the cerebellar cortex. *J Comp Neurol.* 155:93-126, 1974.
5. Landis, DMD, Rosenberg, RN, Landis, SC, Schut, L, Nyhan, WL. Olivopontocerebellar degeneration. Clinical and ultrastructural abnormalities. *Arch Neurol.* 31:295-307. 1974.
6. Nabeshima, S, Reese, TS, Landis, DMD, Brightman, MW. Junctions in the meninges and marginal glia. *J Comp Neurol.* 164:127-170, 1975.
7. Heuser, JE, Reese, TS, Landis, DMD. Preservation of synaptic structure by rapid freezing. Cold Spring Harbor Symposium on Quantitative Biology, Vol. XL, pp. 17-24, 1976.
8. Henkart, M, Landis, DMD, Reese, TS. Similarity of junctions between plasma membranes and endoplasmic reticulum in muscle and neurons. *J Cell Biol.* 70:338-347, 1976.
9. Landis, DMD, Reese, TS. Structure of the Purkinje cell membrane in staggerer and weaver mutant mice. *J Comp Neurol.* 171:247-260, 1977.
10. Landis, DMD, Sidman, RL. Electron microscopic analysis of postnatal histogenesis in the cerebellar cortex of staggerer mutant mice. *J Comp Neurol.* 179:831-864, 1978.
11. Gulley, RL, Landis, DMD, Reese, TS. Internal organization of membranes at end bulbs of Held in the anteroventral cochlear nucleus. *J Comp Neurol.* 180:707-742, 1978.
12. Landis, DMD, Williams, RS, Masters, CL. Golgi and electron microscopic studies of spongiform encephalopathy. *Neurol.* 31:538-549, 1981.
13. Landis, DMD, Reese, TS. Membrane structure in mammalian astrocytes: A review of freeze-fracture studies on adult, developing, reactive and cultured astrocytes. *J Exp Biol.* 95:35-48, 1981.
14. Landis, DMD, Reese, TS. Astrocyte membrane structure: Changes after circulatory arrest. *J Cell Biol.* 88:660-663, 1981.
15. Landis, DMD, Reese, TS. Regional organization of astrocytic membranes in cerebellar cortex. *Neurosci.* 7:937-950, 1982.
16. Halperin, JJ, Landis, DMD, Kleinman, GM. Whipple's Disease of the nervous system. *Neurol.* 32:612-617, 1982.
17. Halperin, JJ, Landis, DMD, Lott, IT, Ment, L. Neuroaxonal dystrophy and Down's syndrome - a case report. *Arch Neurol.* 39:587-591. 1982.
18. Millard, WJ, Sagar, SM, Landis, DMD, Martin, JB, Badger, TM. Cysteamine: A potent and specific depletor of pituitary prolactin. *Science.* 217:452-454, 1982.
19. Landis, DMD. Structure and function at synapses. *Trends in Neurosci.* 5: 215-216, 1982.
20. Sagar, SM, Rorstad, OP, Landis, DMD, Arnold, MA, Martin, JB. Somatostatin- like immunoreactive material in the rabbit retina. *Brain Res.* 244:91-99, 1982.
21. Landis, DMD, Weinstein, LA, Halperin, JJ. Development of synaptic junctions in cerebellar glomeruli. *Dev Brain Res.* 8:231-245. 1983.
22. Landis, DMD, Weinstein, LA. Membrane structure in cultured astrocytes. *Brain Res.* 276:31-41. 1983.
23. Marshall, PE, Landis, DMD, Zalneraitis, EL. Immunocytochemical studies of Substance-P and leu-enkephalin in Huntington's Disease. *Brain Res.* 289:11-26, 1983.
24. Landis, DMD, Reese, TS. Cytoplasmic organization in cerebellar dendritic spines. *J Cell Biol.* 97:1169-1178, 1983.
25. Halperin, JJ, Landis, DMD, Weinstein, LA, Lott, IT, Kolodny, E. Communicating hydrocephalus and lysosomal inclusions in mannosidosis. *Arch Neurol.* 41:777-779. 1984.
26. Weinstein, LA, Landis, DMD, Sagar, SM, Millard, WJ, Martin, JB. Cysteamine depletes prolactin (PRL)

- but does not alter the structure of PRL-containing granules in the anterior pituitary. *Endocrin.* 115:1543-1550. 1984.
27. Sagar, SM, Beal, MF, Marshall, PE, Landis, DMD, Martin, JB. Implications of neuropeptides in neurological diseases. *Peptides.* 5:255-262. 1984.
  28. Hallett, M. Landis, DMD, Harris, NL, Richardson, Jr.. EP. An elderly man with progressive neuropathy and elevated gamma globulins. *Case Records of the Massachusetts General Hospital, No. 32. NE J Med,* 311:388-398, 1984.
  29. Reese, BH, Landis, DMD, Reese, TS. Organization of the cerebellar cortex viewed by scanning electron microscopy. *Neurosci,* 14:133-146, 1985.
  30. Marshall, PE, Landis, DMD. Huntington's Disease is accompanied by changes in the distribution of somatostatin-containing neuronal processes. *Brain Res,* 329:7182,1985.
  31. Sagar, SM, Marshall, PE, Landis, DMD. Immunoreactive somatostatin in the rat retina: Light microscopic immunocytochemistry and chromatographic characterization. *Brain Res,* 336:235-242, 1985.
  32. Benson, TE, Burd, GD, Greer, CA, Landis, DMD, Shepherd, GM. High-resolution 2-deoxyglucose autoradiography in quick-frozen slabs of neonatal rat olfactory bulb. *Brain Res.* 339:67-78, 1985.
  33. Harris, KM, Marshall, PE, Landis, DMD. Ultrastructural study of cholecystokinin-immunoreactive cells and processes in area CA1 of the rat hippocampus. *J. Comp. Neurol.* 233:147-158. 1985.
  34. Landis, DMD. Promise and pitfalls in immunocytochemistry. *Trends Neurosci* 8: 312-317, 1985
  35. Beal, MF, Marshall, PE, Burd, GD, Landis, DMD, Martin, JB. Excitotoxin lesions do not mimic the alteration of somatostatin in Huntington's disease. *Brain Res,* 361:135-145, 1985
  36. Andrews, SB, Leapman, RD, Landis, DMD, Fiori, CE, Reese, TS. Rapid freezing and quantitative elemental imaging in neurobiology. *Proc. Micros. Soc. Canada* 12: 24-25, 1985
  37. Sagar, SM, Marshall, PE, Onesti, ST, Landis, DMD. Somatostatin immunocytochemistry in the rabbit retina. *Investigative Ophthalmol and Visual Sci.* 27:316-322, 1986.
  38. Harris, KM, Landis, DMD. Membrane structure at synaptic junctions in area CA1 of the rat hippocampus. *Neuroscience* 19: 857-872, 1986.
  39. Theriault, E, Landis, DMD. Morphology of striatal neurons containing VIP-like immunoreactivity. *J. Comp. Neurol.* 256:1-13. 1987
  40. Andrews, SB, Leapman, RD, Landis, DMD, and Reese, TS. The distribution of calcium and potassium in presynaptic nerve terminals from cerebellar cortex. *Proc. Natl. Acad. Sci. USA* 84: 1713-1717. 1987
  41. Hallett, M, Fox, JG, Rogers, A, Nicolosi, R, Schoene, W, Goolsby, HA, Landis, DMD, Pezehkpour, G. Controlled studies on the effects of alcohol ingestion on peripheral nerves of monkeys. *J. Neurol. Sci.* 80:65-72. 1987
  42. Landis, DMD. Initial junctions between developing parallel fibers and Purkinje cells are different from mature synaptic junctions. *J. Comp. Neurol.* 260:513-525, 1987
  43. Landis, DMD, Weinstein, LA, and Reese, TS. Substructure in the postsynaptic density of Purkinje cell spines revealed by rapid freezing and etching. *Synapse* 1:552-558, 1987
  44. Andrews, SB, Leapman, RD, Landis, DMD, Reese, TS. Activity-dependent accumulation of calcium in Purkinje cell dendritic spines. *Proc. Natl. Acad. Sci.* 85:1682-1685, 1988
  45. Landis, DMD, Hall, AK, Weinstein, LA, Reese, TS. The organization of cytoplasm at the presynaptic active zone of a central nervous system synapse. *Neuron* 1:201-209. 1988.
  46. Landis, DMD. Membrane and cytoplasmic structure at synaptic junctions in the mammalian central nervous system. *J. Electron Microscopy Technique* 10:129-151, 1988.
  47. Landis, DMD, Payne, HR, Weinstein, LA. Changes in the structure of synaptic junctions during climbing fiber synaptogenesis. *Synapse* 4:281-293, 1989
  48. Landis, DMD, Reese, TS. Substructure in the assemblies of intramembrane particles in astrocytic membranes. *J. Neurocytol.* 18: 819-831, 1989.
  49. Landis, DMD, Weinstein, LA, Skordeles, CJ. Serum influences the differentiation of membrane structure in cultured astrocytes. *Glia* 3: 212-221, 1990.
  50. Landis, DMD, Weinstein, LA, Skordeles, CJ. The effects of dexamethasone on the differentiation of membrane structure in cultured astrocytes. *Glia* 4: 335-344, 1991.
  51. Landis, DMD, Welter, E, Skordeles, CJ. A novel epitope expressed on the surface of developing and mature astrocytes. *Neuroscience* 45:467-477, 1991
  52. Pozzo Miller, LD, Landis, DMD. Cytoplasmic structure in organotypic cultures of rat hippocampus

- prepared by rapid freezing and freeze substitution fixation. *Synapse* 13: 195-205, 1993
53. Pozzo Miller, LD, Mahanty, NK, Connor, JA, Landis, DMD. Spontaneous pyramidal cell death in organotypic slice cultures from rat hippocampus is prevented by glutamate receptor antagonists. *Neuroscience* 63: 471-487, 1994
  54. Lanzieri, CF, Tarr, RW, Landis, DMD, Lewin, JS, Adler, LP, Selman, WR, Silvers, JB. Cost effectiveness of emergent intra-arterial intracerebral thrombolysis. *Amer J. Neuroradiol.* 16:1981-1993, 1995
  55. Tarr, R, Taylor, CL, Selman, WR, Lewin, JS, and Landis DMD. Good clinical outcome in a patient with a large CT scan hypodensity treated with intra-arterial urokinase after an embolic stroke. *Neurology* 47: 1076-1078, 1996
  56. Merlin, D, Guo, X, Martin, K, Laboissee, C, Landis, D, Dubyak, G, and Hopfer, U. Recruitment of purinergically stimulated Cl<sup>-</sup> channels from granule membrane to plasma memberane. *American J. Physiol.* 271:C612-C619, 1966
  57. Rottach, KG, Von Maydell, RD, Vallabhe, D, Zivotofsky, AZ, Discenna, AO, Gordon, JL, Landis, DMD., and Leigh, RJ Evidence for independent feedback control of horizontal and vertical saccades from Niemann-Pick Type C Disease. *Vision Res.* 37: 3627-3638, 1997
  58. Selman, WR, Tarr, R, Landis, DMD. Brain Attack. The Emergency Treatment of Ischemic Stroke. *American Family Physician* 55: 2655-2662, 1997
  59. Sunshine, JL., Tarr, RW, Landis, DMD, Lanzieri, CF, Selman, WR, Lewin, JS Hyperacute stroke: ultrafast MR imaging to triage patients prior to therapy. *Radiology* 212: 325-332, 1999.
  60. Suarez, JI, Sunshine, JL, Tarr, R, Selman, WR, Kernich, C, and Landis, DMD. Predictors of clinical improvement, angiographic recanalization, and intracranial hemorrhage after intra-arterial thrombolysis for acute ischemic stroke. *Stroke* 30: 2094-2100, 1999
  61. Zaidat, OO, Werz, MA, Landis, DMD, and Selman, W. Orthostatic limb shaking from carotid hypoperfusion. *Neurology* 53: 650-651, 1999
  62. Sunshine, JL, Bambakidis, N, Tarr, RW, Lanzieri, CF, Zaidat, OO, Suarez, JI, Landis, DMD, and Selman, WR The benefits of perfusion MR imaging relative to diffusion MR imaging in the diagnosis and treatment of hyperacute stroke. *Am J Neuroradiol* 22:915-21, 2001
  63. Suarez, JI, Zaidat, OO, Sunshine, JL, Tarr, R, Selman, WR, and Landis, DMD. Endovascular administration after intravenous infusion of thrombolytic agents for the treatment of patients with acute ischemic stroke. *Neurosurg* 50: 251-260, 2002
  64. Zaidat, OO, Suarez, JI, Santillan, C, Sunshine, J, Tarr, R, Parras, VH, Selman, WR, Landis, DMD. Response to intra-arterial thrombolytic therapy and combined intravenous and intra-arterial therapy in patients with distal internal carotid artery occlusion. *Stroke* 33: 1821-1827, 2002.
  65. Katzan, IL, Graber, TM, Furlan, AJ, Sundararajan, S, Sila, CA, Houser, G, Landis, DM. Cuyahoga county Operation Stroke speed of emergency department evaluation and compliance with National Institutes of Neurological Disorders and Stroke time targets. *Stroke* 34:994-998, 2003
  66. Zaidat, OO, Zahuranec, DB, Ubogu, EE, Fernandes-Fihlo, JA, Suarez, JI, Sunshine, JL, Tarr, RW, Mirachi, S, Nour, SG, Selman, WR, Landis DMD. Asymptomatic middle cerebral artery stenosis diagnosed by magnetic resonance angiography. *Neuroradiology* 46: 49-53, 2004
  67. IMS Study Investigators. Combined intravenous and intra-arterial recanalization for acute ischemic stroke: the interventional management of stroke (IMS) study. *Stroke* 35: 904-912, 2004
  68. Leigh, RL, Zaidat, OO, Suri, MF, Lynch, G, Sundararajan, S, Sunshine, JL, Tarr, R, Selman, W, Landis, DMD, and Suarez, JI Predictors of hyperacute clinical worsening in ischemic stroke patients receiving thrombolytic therapy. *Stroke* 35: 1903-1907, 2004
  69. Zaidat, OO, Suarez, JI, Hedrick, D, Redline, S, Schluchter, M, Landis, DMD, Hoit, B. Reproducibility of transesophageal echocardiography in evaluating aortic atheroma in stroke patients. *Echocardiography* ;22:326-30, 2005.
  70. Zaidat OO, Suarez JI, Sunshine JL, Tarr RW, Alexander MJ, Smith TP, Enterline DS, Selman WR, Landis DM. Thrombolytic therapy of acute ischemic stroke: correlation of angiographic recanalization with clinical outcome. *Am J Neuroradiol.* 26:880-4, 2005.
  71. Zaidat OO, Slivka AP, Mohammad Y, Graffagnino C, Smith TP, Enterline DS, Christoforidis GA, Alexander MJ, Landis DM, Suarez JI. Intra-arterial thrombolytic therapy in peri-coronary angiography ischemic stroke. *Stroke.* 36:1089-90, 2005.



## Book Chapters and Invited reviews

1. Landis, DMD, Landis, SC. Several mutations in mice which affect the cerebellum. In: *The Inherited Ataxias*, edited by R.A. Kark, R.N. Rosenberg, and L.J. Schut. Raven Press, New York: 85-105. 1978.
2. Landis, DMD, Landis, SC. Mutations which affect cerebellar structure in mice. In: *Animal Models of Neurological Disease*. edited by F.C. Rose. Plenum Press, London: pp. 281-293, 1980.
3. Landis, DMD: Coma (Chapter 10), Acute Neurologic Disorders (Chapter 30). In: *Emergency Medicine*, edited by H. May. John Wiley and Sons, Inc., 1982.
4. Martin, JB, Landis, DMD. Potential implications of peptides in neurological disease. In: *Neurosecretion and Brain Peptides: Implications for Brain Functions and Neurological Disease*, edited by J.B. Martin., S. Reichlin, and K.L. Bick. Raven Press. New York: pp. 673-689, 1980.
5. Landis, DMD. Membrane structure and neurological disorders. In: *Membrane Abnormalities and Disease*. Vol. II, pp. 1-19, edited by M. Tao. CRC Press, Chicago: 1982.
6. Landis, DMD. Dendritic spine structure and function. In: *Neural Mechanisms of Conditioning*. edited by D.L. Alkon and C.D. Woody. Plenum Press, New York: 1985. pp 141-149.
7. Landis, DMD. Membrane Structure in Astrocytes. In: *Astrocytes*. Vol 3. edited by S. Fedoroff and A. Vernadakis. Academic Press. Inc, Florida: 1986. pp. 61-76.
8. Landis, DMD, and Weinstein, LA. The formation of synaptic junctions in developing cerebellar cortex. In: *New Concepts in Cerebellar Neurobiology*. edited by J.S. King, Alan R. Liss. Inc. N.Y. 1987 pp 89-111.
9. Landis, DMD. Cytoplasmic structure at synaptic junctions in the mammalian central nervous system. In: *Intrinsic determinants of neuronal form*. edited by R. Lasek. Raven Press, New York: pages 201-216. 1988.
10. Landis, DMD. Short term hypoxia does not alter membrane structure in cultured astrocytes. In: *Biochemical Pathology of Astrocytes*, edited by M. D. Norenberg. Alan R. Liss, Inc., pages 351-364. 1988
11. Landis, DMD. Acute Neurologic Disorders. In: *Emergency Medicine, Second Edition, Vol. II*, edited by H. L. May. Little, Brown pages 1597-1606. 1992.
12. Landis, DMD. Dizziness. In: *Emergency Medicine, Second Edition, Vol. II*, edited by H. L. May. Little, Brown pages 1616-1619. 1992.
13. Landis, DMD. Weakness. In: *Emergency Medicine, Second Edition, Vol. II*, edited by H. L. May. Little, Brown pages 1619-1622. 1992.
14. Landis, DMD. Spinal Cord Syndromes. In: *Emergency Medicine, Second Edition, Vol. II*, edited by H. L. May. Little, Brown pages 1636-1637. 1992.
15. Landis, DMD. The early reactions of non-neuronal cells to brain injury. In: *Annual Review of Neuroscience*, Vol 17, pages 133-151, 1993
16. Landis, DMD. Brain as tissue: the interacting cell populations of the central nervous system. In: *Cytokines: Development, Defense and Disease*, edited by R.M. Ransohoff and E. Benveniste, CRC Press 1995
17. Landis, DMD, Tarr, R, Selman, WR. Thrombolysis for acute ischemic stroke. *Neurosurgery Clinics of North America*, Vol 8, pages 219-226, 1997
18. Landis, D. Critical Pathways. In: *Rapid Identification and Treatment of Acute Stroke*, edited by J. R. Marler, P. W. Jones and M. Emr, NINDS, pages 83-85, 1997
19. Landis, DMD. Current patterns and future possibilities in the care of acute ischemic stroke. In: *Clinical Neurosurgery*, Volume 45, Chapter 14, pages 135-139, edited by M. S. Grady, Williams & Wilkins, Baltimore, MD, 1998
20. Selman, W, Taylor, C, Tarr, R, Sunshine, J, Lanzieri, C, Suarez, J and Landis, DMD. The neurosurgeon and the acute stroke patient in the emergency department: diagnosis and management In: *Clinical Neurosurgery*, Volume 45, Chapter 9, pages 74-85, edited by M. S. Grady, Williams & Wilkins, Baltimore, MD, 1998
21. Scott, PA, Starkman, S., Choi, JY, Connolly, BF, Furie, KL, Huff, JS, Kernan, WN, LaMonte, MP, Landis, DMD, Levine, SR, Matchar, D.B., Meyer, BC, Perina, DG, Saver, JL, Schwamm, LH. Provider Support Systems for Acute Stroke. In: *Improving the chain of recovery for acute stroke in your community*. NINDS Task Force Reports, pp. 81-96, 2003

## Abstracts

- A1. Landis, DMD. Cerebellar cortical development in the staggerer mutant mouse. *Proc Am Soc Cell Biol.* 1971; 159A.
- A2. Landis, DMD. Ultrastructure of Purkinje cells in familial olivoponto- cerebellar degeneration. *J Neuropath Exp Neurol*, 1974; 33:172.
- A3. Landis, DMD, Sidman, RL. Cerebellar cortical development in the staggerer mouse. *J Neuropath Exp Neurol*, 1974; 33:18.
- A4. Landis, DMD, Reese, TS. Freeze-fracture study of excitatory and inhibitory synapses. *Proc Soc Neurosci*, 1973; 3:16.
- A5. Landis, DMD, Henkart, M, Reese, TS. Similar arrays of plasma membrane particles at subsurface cisterns in striated muscle and neurons. *J Cell Biol*, 1973; 59:184A.
- A6. Dubois-Dalq, M, Reese, TS, Barbosa, LH, Landis, DMD. Freeze-fracture study of Vero cells infected with SSPE virus. *J Neuropath Exp Neurol*, 1975; 34:87.
- A7. Reese, TS, Landis, DMD. Structure of cerebellar cortex prepared for freeze fracturing by rapid freezing. *Proc Soc Neurosci*, 1974; 4:388.
- A8. Landis, DMD, Reese, TS. Membrane structure in rapidly frozen, freeze-fractured cerebellar cortex. *J Cell Biol*, 1974; 63:184A.
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- A75. Moro, M, Zaidat, OO, Suarez, JI, Welter, E, Tarr, RW, Sunshine, JL, Selman, WR, Alexander, MJ, Landis, DMD Endovascular recanalization predicted clinical outcome in 96 acute ischemic stroke patients treated with intra-arterial and combined intra-venous and intra-arterial recombinant tissue plasminogen activator (rtPA). *Neurology* 62: A348, 2004
- A76. Katzan, IL, Furlan, AJ, Sauerbeck, L, Sila, CA, Thomas, C, Kleindorfer, D, Broderick, JP, Miller, R and Landis, DMD The effect of abstractor training on reliability of stroke registry data. *Stroke* (in press, 2006)



## Scientific Presentations, Lectureships, and Program Participation

(incomplete listing: begins 1986; does not include post-graduate courses)

1. "The form of dendritic spines and their architectural framework". Symposium on Intrinsic Determinants of Neuronal Form. CWRU School of Medicine. May 13.1986
2. "Synaptic structure and synaptic modulation". Cellular Mechanisms of Conditioning and Behavioral Plasticity. Satellite Symposium. International Union of Physiological Sciences. University of Washington. July 14. 1986
3. "Function of the synapse". Neuroscience Grand Rounds, University Hospitals of Cleveland, January 8. 1987
4. "Alterations in membrane structure in astrocytes following circulatory arrest." The Biochemical Pathology of Astrocytes. Satellite Symposium. International Society for Neurochemistry. University of Miami. May 29.1987
5. " New Views of Synaptic Structure. " Gordon Conference on Neural Plasticity, Wolfeboro NH July 20. 1987
6. " Structure and Function at Synaptic Junctions " . Mountain States Society for Electron Microscopy. Denver. Colorado. April 28. 1988
7. "Astrocyte Membrane Structure and Function". Discussions in Neuroscience, CWRU School of Medicine, May 4. 1988
8. " Patient presentations." Neuroscience Grand Rounds, University Hospitals of Cleveland. September 30, 1988
9. "Structural components of synaptic junctions and their potential roles in synaptic plasticity" Cellular and Molecular Approaches to Synaptic Plasticity. Short course, Society for Neuroscience, Toronto, Ontario, May 13, 1988.
10. "Sleep rhythms and insomnia". Amici Medicinae, CWRU School of Medicine, December 7, 1988.
11. "Synaptic structure and function" Seminar, Department of Neurobiology, Northeast Ohio Universities College of Medicine, Rootstown, OH January 24, 1989
12. "Structure and function of synapses" Seminar, Program in Neuroscience, University of California San Francisco, California, May 4, 1989
13. "New views of synaptic structure." The George William Church Lectures in Neuroscience, The University of Texas Health Science Center at San Antonio, May 19, 1989.
14. "Aspects of synaptic structure which may be related to neural plasticity." Gordon Conference on Neural Plasticity, Wolfeboro, NH July 21, 1989
15. "Astrocyte function in normal and injured brain." Neuroscience Grand Rounds, University Hospitals of Cleveland, January 12, 1990
16. " Structure and function of astrocytes." Seminar, Laboratory of Neurobiology, National Institutes of Health, Bethesda, MD, January 17, 1990
17. "The many faces of glia." Platform presentation, Winter Conference on Brain Research. Aspen. CO, January 29, 1990
18. "Astrocyte responses in pathologic states— Membrane responses." Session chairman, Workshop on 'Role of astrocytes in inflammatory demyelination,' National Multiple Sclerosis Society. Galveston. TX March 24, 1990
19. "Astrocyte membrane structure and function." Seminar. Institute for Advanced Studies, Mexico City, Mexico March 29, 1990
20. "Structure and function at synapses." Seminar, Universidad Nacional Autonomia de Mexico, Mexico City, Mexico, March 30, 1990
21. "Structure and function at synaptic junctions." Seminar, Department of Biology, Case Western Reserve University, Cleveland. OH October 4. 1990.
22. "Structure and function at synaptic junctions." Seminar, Department of Pharmacology, Robert Wood Johnson School of Medicine, Piscataway NJ. October 12. 1990.
23. "Venous and Arterial Thrombosis." Neuroscience Grand Rounds, University Hospitals of Cleveland, OH, January 18, 1991
24. "Improving the recovery of function after brain injury." Seminar, Department of Neurology, SUNY at Stony

- Brook, New York, June 17, 1991
25. "Monoclonal antibodies which bind to astrocyte cell surfaces epitopes." Seminar, GliaTech, Inc., August 12, 1991.
  26. "Damage and Recovery in Injured Brain." Neuroscience Grand Rounds, University Hospitals of Cleveland, OH December 13, 1991
  27. "The role of astrocytes in the brain's response to injury." Neuroscience Alliance, University Hospitals, Cleveland, OH, December 19, 1991.
  28. "Mechanisms of brain injury and recovery." Neurology Grand Rounds, Cleveland Clinic Foundation, Cleveland, OH March 2, 1992
  29. "Cytoplasmic structure in cerebellar and hippocampal dendritic spines revealed by rapid freezing methods." Symposium speaker, American Association of Anatomists, New York, NY, March 13, 1992
  30. "The brain's response to injury." Neurology Grand Rounds, University of California, San Diego, March 27, 1992
  31. "Molecular architecture of the synapse." Seminar, Graduate Program in Neurosciences, University of California, San Diego, March 27, 1992
  32. "Blood-brain interface." Seminar, Department of Neurosurgery, Cleveland Clinic Foundation, Cleveland, OH, April 8, 1992
  33. "Monoclonal markers of astrocytic differentiation.", Symposium speaker, Ireland Cancer Center, Case Western Reserve University, April 9, 1992
  34. "The brain's response to injury." Lecture, Neurobiology of Human Neurological Disease, Cold Spring Harbor, NY, June 5, 1992
  35. "Astrocyte differentiation and reaction to injury." Seminar, National Institutes of Health, Bethesda, MD, June 19, 1992
  36. "Structure and Function at Synaptic Junctions." Seminar, Institut für Hirnforschung, University of Zürich, Switzerland, September 9, 1992
  37. "Monoclonal antibodies and localization." Lecture, Short Course I, New Methods in Immunology, Society for Neuroscience annual meeting, Anaheim, CA, October 25, 1992
  38. "Astrocyte differentiation and reaction to injury." Seminar, Entwicklungs-Neurobiologie-Kolloquium, University of Zürich-Irchel, Switzerland, November 9, 1992
  39. "The vesicle hypothesis." Lecture, Special Course on the Synapse, Institut für Hirnforschung, University of Zürich, Switzerland, November 11, 1992
  40. "The brain's response to injury." Lecture, Neurobiology of Human Neurological Disease, Cold Spring Harbor, NY, August 15, 1993
  41. "What do glia do?" Lecture, Review and Update in Neurobiology for Neurosurgeons, Woods Hole, MA, October 25, 1993
  42. "Astrocyte function and the brain's reaction to injury." Lecture, Depts Neurology and Neurosurgery, Cleveland Clinic Foundation, Cleveland, OH, October 28, 1993
  43. "Brain injury and recovery." Neurology Grand Rounds, Indiana University, Indianapolis, IN, October 28, 1993
  44. "Binding of rat astrocyte-specific monoclonal antibodies to human cerebral neoplasms." Seminar, Ireland Cancer Center, Case Western Reserve University, Cleveland, OH, January 10, 1994
  45. "Astrocytic reaction to injury." Seminar, Department of Neurosciences, Case Western Reserve University, Cleveland, OH, February 9, 1994
  46. "Brain Attack." Neuroscience Grand Rounds, University Hospitals of Cleveland, Cleveland, OH, February 11, 1994
  47. "Brain Attack." Morbidity and Mortality Conference, Department of Medicine, Case Western Reserve University, Cleveland, OH, February 24, 1994
  48. "Molecular organization at synaptic junctions." Seminar, Department of Anatomy and Cell Biology, Wayne State University, Detroit, MI, March 9, 1994
  49. "Brain Attack." Grand Rounds, Department of Emergency Medicine, Case Western Reserve University, Cleveland, OH, April 5, 1994
  50. "The brain's response to injury." Lecture, Neurobiology of Human Neurological Disease, Cold Spring Harbor, NY, June 23, 1994
  51. "Brain Attack: Recent experience at University Hospitals." Neuroscience Grand Rounds, University

- Hospitals of Cleveland, Cleveland, OH, September 2, 1994
52. "Huntington's Disease." Medicine Grand Rounds, MetroHealth Medical Center, Cleveland, OH, January 12, 1995
  53. "Brain Attack: New treatments for stroke." Neuroscience Grand Rounds, Department of Neurology, Cleveland Clinic Foundation, Cleveland, OH, March 1, 1995
  54. "Advances in cerebrovascular disease: thrombolysis and carotid endarterectomy" Medicine Today, Department of Medicine, Case Western Reserve University, Cleveland, OH, March 10, 1995
  55. "Synaptic vesicle proteins and synaptic release." Gordon Conference on Neural Plasticity, Wolfeboro, NH, July 18, 1995
  56. "The brain's response to injury." Lecture, Neurobiology of Human Neurological Disease, Cold Spring Harbor, NY, August 10, 1995
  57. "Brain Attack: Update on experience at University Hospitals." Neuroscience Grand Rounds, University Hospitals of Cleveland, Cleveland, OH, September 22, 1995
  58. "Brain Attack: the role of thrombolysis in acute cerebrovascular disease." Special Seminar, Al Jazeera Hospital, Abu Dhabi, UAE, September 30, 1995
  59. "Panel on responsible conduct in science: the ethics of publication." (moderator), Society for Neuroscience, San Diego, CA, November 10, 1995
  60. "Design and implementation of thrombolytic therapy for stroke." Special Lecture, Department of Neurology, University of Maryland, Baltimore, MD, November 29, 1995
  61. "Thrombolytic therapy for Stroke: the future is now". Special Seminar, Bugshan General Hospital, Jeddah, Saudi Arabia, January 8, 1996
  62. "Brain Attack", Seminar, Emergency Medicine, Geauga Community Hospital, Geauga, OH, January 19, 1996
  63. "Thrombolytic therapy for Stroke." Medical Conference, Meridia Southpointe Hospital, Cleveland, OH, February 26, 1996
  64. "Brain Attacks--What's up with my head?" Emergency and Pediatric Trauma Symposium, University Hospitals of Cleveland, Cleveland, OH March 7, 1996
  65. "Thrombolytic therapy for strokes." Medical Grand Rounds, Fairview Hospital, Cleveland, OH, March 11, 1996
  66. "Stroke and TIA." Medical Grand Rounds, Trumbull Memorial Hospital, Warren, OH, March 12, 1996
  67. "Brain Attack." Medical Rounds, Emergency Medicine, EMH Regional Medical Center, Elyria, OH, April 3, 1996
  68. "Thrombolytic therapy for stroke." Journal Club, University Suburban Health Center, South Euclid, OH, April 17, 1996
  69. "Thrombolytic therapy in stroke." Grand Rounds, Meridia Euclid Hospital, Euclid, OH, October 3, 1996
  70. "Stroke Carepaths," panelist, Rapid Identification and Treatment of Acute Stroke, NINDS National Symposium, Crystal City, VA, December 12-13, 1996
  71. "Brain Attack: thrombolytic therapy for stroke." Grand Rounds, Broward General Medical Center, F. Lauderdale, FL, March 13, 1997
  72. "Older Adults Task Force," panelist, The Brain Matters Stroke Initiative, Pentagon City, VA, March 20, 1997
  73. "New standards for care of stroke." Medicine Grand Rounds, University Hospitals of Cleveland, Cleveland, OH, May 13, 1997
  74. "Update in Brain Attacks." Medical Staff Rounds, Geauga Regional Hospital, Geauga, OH, May 20, 1997
  75. "Research and Stroke.", Symposium talk, Congress of Neurological Surgeons Annual Meeting, New Orleans, LA, September 30, 1997
  76. "Brain Attack: Progress in the management of acute ischemic stroke." Neurology Grand Rounds, Wayne State University, Detroit, MI, October 31, 1997
  77. "Stroke care in the new millennium." Emergency Medicine Grand Rounds, Broward General Medical Center, Ft. Lauderdale, FL, May 12, 1998
  78. "Brain Attack: Update on experience at University Hospitals." Neuroscience Grand Rounds, University Hospitals of Cleveland, Cleveland, OH, January 29, 1999
  78. "Medical therapy for stroke." Joint meeting of the Section on Cerebrovascular Surgery and the American Society of Interventional and Therapeutic Neuroradiology, Nashville, TN, February 3, 1999



79. "Brain attack protocols at University Hospitals." Morbidity and Mortality Rounds, Department of Medicine, University Hospitals of Cleveland, OH, April 22, 1999
80. "Anticoagulation in acute ischemic stroke" Medical Staff Rounds, Southwest General Hospital, April 7, 2000
81. "Operation Stroke and Brain Attack programs in UHHS" Emergency Room Directors, UHHS, University Hospitals of Cleveland, December 19, 2000
82. "Emergency care of acute ischemic stroke", St. John West Shore Hospital, February 1, 2001
83. "Emergency care of acute ischemic stroke", Richmond Heights Hospital, March 2, 2001
84. "Training of physician scientists." Neurology and Psychiatry Geriatric Educational Retreat, St. John, US VI, March 30, 2001
85. "Training Clinician Researchers for the Next Century: The NIH Perspective." Society of Neurological Surgeons, Cleveland, OH, May 20, 2001
86. "Research Training and Career Development for Neurologists." Cleveland Clinic Foundation, Cleveland, OH September 20, 2001
87. "Mentoring K-awardees", co-organizer and moderator, American Neurological Association, Chicago, IL, September 29, 2001
88. "Research training and career development for neurologists", Association of University Professors of Neurology, Chicago, IL, September 30, 2001
89. "Stroke Prevention and Management." University Hospitals Regional Network Grand Rounds, Cleveland, OH, October 17, 2001
90. "Thrombolysis in acute ischemic stroke", Grand Rounds, Department of Neurosurgery, Cleveland Clinic Foundation, Cleveland, OH, December 2, 2002
91. "Research and training support for physician scientists." MD-PhD mentoring course, Association of University Professors of Neurology and NINDS, June 21, 2003
92. "New guidelines in the management of acute ischemic stroke." University Hospitals Regional Network Grand Rounds, Cleveland, OH January 7, 2004
93. "Thrombolysis in ischemic stroke", Fourth GCC Neurology Conference, Doha, Qatar, February 24, 2004
94. Research and training support for physician scientists." MD-PhD mentoring course, Association of University Professors of Neurology and NINDS, June 21, 2004
95. Research and training support for physician scientists." MD-PhD mentoring course, Association of University Professors of Neurology and NINDS, June 18, 2005
96. "Physician scientists in Neurology", National Association of MD-PhD Programs, Keystone, CO, July 30, 2005
97. "Management of acute ischemic stroke", Medical Staff Quarterly Meeting, Richmond Heights Hospital, Willoughby, OH, December 7, 2005
98. "Management and prevention of stroke", University Hospitals Regional Network Grand Rounds, Cleveland, OH, February 22, 2006

### **Participation in post-graduate education courses**

1. Review and Update in Neurobiology for Neurosurgeons  
1988--1997
2. Update in Internal Medicine, Northeastern Ohio Universities College of Medicine, Rootstown, OH, May 3, 1993. Huntington's disease
3. "Genetics and Medicine--the future is now." CWRU Medical Alumni Reunion Weekend, Cleveland, OH June 4, 1994
4. "Medical Intervention for stroke prevention." CME (University Hospitals), Brain Attack: Multidisciplinary Management Strategies. Landis, conference co-director. Cleveland, OH, April 29, 1995.
5. "The acute management of stroke: what is the standard of care?" Medicine Spring 1996, Patient Management Issues for Primary Care Physicians. Department of Medicine, Case Western Reserve University, Independence, OH, May 14, 1996
6. "Prevention and Emergent Treatment of Stroke." CME (University Hospitals), Cleveland, OH, June 11, 1996.

7. "New strategies in transient ischemia and stroke." CME (University Hospitals), Cleveland, OH, November 30, 1999
8. "Best Practice in Emergency Care: Stroke." CME (University Hospitals), Cleveland, OH., May 20, 2000
9. "Thrombolytic therapy for acute ischemic stroke—promise and reality", Kenneth Johnson Symposium, University of Maryland, Baltimore, MD, October 12, 2001
10. "Secondary prevention of ischemic stroke", CME (St. John Westshore Hospital, Westlake, OH, August 31, 2005
11. "Causes of ischemic stroke", the Center for Neurosciences First Annual Stroke Symposium, Cleveland, OH, November 30, 2005 (also, organizer of this course, sponsored by UHC and AHA)
12. "Management of acute ischemic stroke," Neuroscience Nursing Stroke Symposium, University Hospitals of Cleveland, Cleveland, OH, May 3, 2006

### **Participation in Community and Paramedical Forums**

1. "The Recent Discovery of the HD Gene and the Challenge Ahead." Address, Huntington's Disease Society of America, Northeast Ohio area. May 15, 1993
2. "Brain Attack: Prevention and treatment." Organized by University Hospitals of Cleveland, presented at Holiday Inn, Independence, OH, June 13, 1994
3. "Brain Attack." Amici Medicinae, School of Medicine, Case Western Reserve University, December 14, 1994
4. "Emergency care of Brain Attacks." EMS Department, Medina General Hospital, Medina, OH, January 3, 1995
5. "Brain Attack: Stroke Prevention and Treatment." TRW Employee Health Series, February 28, 1996.
6. "Brain Attack Update." Cleveland Heights EMS, March 13, 1996
7. "Brain Attack Update." Shaker Heights Fire Department, April 2, 1996
8. "Brain Attack: can strokes be prevented?" Consumer Health Institute, University Hospitals of Cleveland, April 9, 1996
9. "Brain Attack: stroke prevention and treatment." Public forum, University Primary Care Practices, University Hospitals Health System, Chagrin Falls, OH, April 16, 1996
10. "Brain Attack: can strokes be prevented?" Consumer Health Institute, University Hospitals of Cleveland, Westlake, OH, April 18, 1996
11. "Brain Attack Update." University Heights Fire Department, April 23, 1996a
12. "The Aging Brain." Public Forum on Alzheimer's Disease and Stroke. Case Western Reserve University, Cleveland, OH, May 13, 1996
13. "Recent progress in understanding Huntington's Disease." Address, Huntington's Disease Society of America, Northeast Ohio Chapter, Cleveland, OH, May 19, 1996
14. "Brain Attack: New success in treating stroke." Mahoning-Shenago Alumni Chapter, Case Western Reserve University, Warren, OH, May 23, 1996.
15. "Brain Attack and pre-hospital care." Geauga County EMS, Geauga General Hospital, August 16, 1996.
16. "Brain Attack: stroke treatment and prevention." Consumer Health Institute, University Hospitals of Cleveland, Hudson, OH, August 26, 1996
17. "Cerebrovascular disease", participant panel discussion, Cleveland Health Quality Choice, Academy of Medicine in Cleveland, Independence, OH, August 28, 1996
18. "Community standards for stroke care", participant panel discussion, Greater Cleveland Hospital Association, Cleveland, OH, October 2, 1996
19. "Brain Attack: stroke treatment and prevention." Consumer Health Institute, University Hospitals of Cleveland, Westlake, OH, October 3, 1996
20. "Emergency care of stroke." American Heart Association, Northeastern Ohio affiliate, February 12, 1997.
21. "Brain Attacks: Can strokes be prevented?" Consumer Health Institute, University Hospitals Health Systems, Landerhaven, OH, October 21, 1997
22. "Brain Attack and pre-hospital care." EMS and paramedics, Geneva Hospital, Geneva, OH, March 3, 1998
23. "Brain Awareness and Brain Attack." Brain Awareness symposium, Baldwin-Wallace College, Berea,

OH, March 4, 1998

24. "Management of acute ischemic stroke." EMS Spring training program, Auburn, OH, April 17, 1998
25. "Women and Stroke." American Heart Association Wellness at the Worksite Symposium. Mayfield Hts, OH., November 6, 1998
26. "Brain Attack: Stroke is a medical emergency." Board of Trustees of Health Systems Agency of North Central Ohio, University Club, Cleveland, OH, March 24, 1999
27. "Brain Attack: emergency care for stroke." EMS Spring training program, Auburn, OH, April 24, 1999
28. "Brain Attack." EMS training program, Independence, OH, May 19, 1999
29. "Brain Attack." Stroke Survivors Club, Euclid Avenue Christian Church, Mayfield Heights, OH, August 18, 1999
30. "Progress in stroke networks." Board of Trustees of Health Systems Agency of North Central Ohio, University Club, Cleveland, OH, September 15, 1999
31. "Emergency Care for Stroke." EMS, Trumbull Memorial Hospital, Warren, OH, November 3, 1999
32. "Brain Attack." EMS, University Heights, OH, April 18, 2000
33. "Brain Attack." Ashtabula County EMS, Jefferson, OH May 18, 2001.
34. "Brain Attack." EMS, Shaker Heights, OH, June 6, 2001
35. "Emergency Room Brain Attack Protocols." Emergency Room Nurses Association, Cleveland, OH, October 17, 2001
36. "Questions and answers about multiple sclerosis." National Multiple Sclerosis Society, Beachwood, OH, October 27, 2001
37. "Brain Attack and first responders." EMS, Richmond Heights Hospital, Cleveland, OH, January 8, 2004
38. "Prevention and treatment of stroke." Retired Executives Club, Highland Hts, OH September 16, 2004
39. "Brain Attack and first responders." EMS, University Hospitals of Cleveland, Cleveland, OH, May 5, 2005
40. "Treatment and Prevention of Stroke" Amici Medicinae, School of Medicine, Case Western Reserve University, Cleveland, OH, May 9, 2005
41. "Brain Attack and first responders" EMS Regional Symposium, Lyndhurst, OH September 21, 2005

## Teaching Responsibilities, Case Western Reserve University

This listing is in addition to clinical teaching responsibilities, which include acting as Attending Physician on the Neurology Service and on the Neurology Consultation Service, and supervising Morning Report.

### Academic year 1986-87

Lecturer, Mind Committee. Cerebellar Anatomy, 2 hours  
Lecturer, Homeostasis I. Nervous System component. Synaptic Transmission. 4 hours  
Lecturer, Neuropharmacology, Cell Biology of Neurons. 3 hours  
Lecturer, Optical Methods, Freeze Fracture. 3 hours

### Academic year 1987-88

Lecturer, Mind Committee, Cerebellar Anatomy 1 hour. Clinical Correlations of Brainstem Anatomy 1 hour  
Lecturer, Homeostasis I, Nervous System component. Synaptic Transmission. 4 hours.  
Preceptor, Neurologic History-taking and Neurological Examination. 4 hours  
Lecturer, Department of Neurology Neuroscience Lecture series. Cerebellar Structure. 1 hour  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

### Academic year 1988-89

Lecturer, Mind Committee, Cerebellar Anatomy 1 hour, Brainstem Structure & Function, 1 hour, Limbic System Structure and Function, 1 hour, Hypothalamus and Neuroendocrine Function, 1 hour  
Lecturer, Homeostasis I, Nervous System Component, Synaptic Transmission, 4 hours  
Lecturer, Developmental Neuroscience (N 427), Development of the Neuromuscular Junction, 3 hours  
Sponsor, Research Opportunities in Neuroscience (Type A Elective)  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Lecturer, Pharmacology 505: Synaptic neurochemistry and pharmacology, Synaptic Transmission at the Neuromuscular Junction, 3 hours, Astrocyte function in the central nervous system, 3 hours  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

### Academic year 1989-90

Lecturer, Mind Committee, Cerebellar Anatomy, 2 hours, Brainstem Structure and Function. 1 hour  
Lecturer, Homeostasis I. Synaptic Transmission, 3 hours  
Sponsor, Research Opportunities in Neuroscience (Type A Elective)  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

### Academic year 1990-1991

Lecturer, Mind Committee. Brainstem Anatomy 2 hours; Cerebellar Anatomy, 1 hour.  
Lecturer, Homeostasis I. Synaptic Transmission. 3 hours  
Lecturer, Developmental Neuroscience (N 427). Development of the Neuromuscular Junction. 3 hours  
Sponsor, Research Opportunities in Neuroscience (Type A Elective)  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Introduction to Clinical Neurology (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 1991-1992**

Lecturer, Homeostasis I. Synaptic Transmission. 3 hours  
Sponsor, Research Opportunities in Neuroscience (Type A Elective)  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Introduction to Clinical Neurology (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 1992-1993**

(Sabbatical study, July-December)  
Sponsor, Introduction to Clinical Neurology (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 1993-1994**

Lecturer, Homeostasis I. Synaptic Transmission 2 hours  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 1994-1995**

Lecturer, Homeostasis I. Synaptic Transmission 2 hours  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 1995-1996**

Lecturer, Homeostasis I. Synaptic Transmission 2 hours  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 1996-1997**

Lecturer, Homeostasis I. Synaptic Transmission 2 hours  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 1997-1998**

Lecturer, Homeostasis I. Synaptic Transmission 2 hours  
Sponsor, Brain Attack (Type A Elective)  
Sponsor, Neurology Morning Report (Type A Elective)  
Sponsor, Structure and Function of Synapses (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 1998-1999**

Lecturer, Homeostasis I. Synaptic Transmission 3 hours  
Lecturer, Mind Committee. Cerebrovascular disease, 1 hour  
Sponsor, Brain Attack (Type A Elective)  
Sponsor, Neurology Morning Report (Type A Elective)  
Sponsor, Structure and Function of Synapses (Type A Elective)

**Academic year 1999-2000**

Lecturer, Homeostasis Neuromuscular Junction 2 hours  
Lecturer, Mind Committee. Cerebellar and basal ganglia disorders, 1 hour  
Sponsor, Brain Attack (Type A Elective)

**Academic year 2000-2001**

Lecturer, Homeostasis Neuromuscular Junction 2 hours

Sponsor, Brain Attack (Type A Elective)  
Sponsor, Neurological Morning Report (Type A Elective)  
Sponsor, Neuroscience in Clinical Neurology (Type A Elective)

**Academic year 2001-2002**

Lecturer, Homeostasis Neuromuscular Junction 2 hours  
Sponsor, Brain Attack (Type A Elective)  
Sponsor, Neurological Morning Report (Type A Elective)

**Academic year 2002-2003**

Lecturer, Homeostasis Neuromuscular Junction 2 hours  
Sponsor, Brain Attack (Type A Elective)

**Academic year 2003-2004**

Lecturer, Homeostasis Neuromuscular Junction 2 hours  
Sponsor, Brain Attack (Type A Elective)  
Sponsor, Neurological Morning Report (Type A Elective)

**Academic year 2004-2005**

Lecturer, Homeostasis Neuromuscular Junction 2 hours

## **Media Appearances/Citations (begins 1996)**

### **Television Appearance**

1. "New progress in stroke" The Morning Exchange, Channel 5, Cleveland, OH June 19, 1996
2. "Screening tests for stroke" Investigative News, Channel 3, Cleveland, OH April 26, 1997
3. "Timing of therapy for acute stroke" News, Channel 5, Cleveland, OH, May 15, 1997
4. Neurology Medical Commentator, Fox News, Channel 8, Cleveland, OH beginning 1/9/99
  - "Brain cell transplantation for stroke," February 18, 1999
  - "Thrombolytic therapy for stroke", April 1, 1999
  - "Carpal Tunnel Syndrome", May 21, 1999
  - "Differences in brain structure between men and women", June 16, 1999
  - "Brain injury in athletes", September 10, 1999
  - "New cells in the brain", November 11, 1999
  - "Alcohol and risk of stroke", December 5, 1999
  - "Migraine and the weather, February 18, 2000
  - "Thrombolysis in acute stroke", February 25, 2000
  - "Care for stroke in Cleveland", March 5, 2000
  - "Rehabilitation after stroke", June 2, 2000
  - "Concussion in football players", September 12, 2000
  - "Multiple sclerosis", August 21, 2001
5. "Regeneration in the brain," Golden Opportunities, Channel 3, Cleveland, OH, December 5, 1999
6. "Former President Ford's stroke" Evening News, Channel 3, Cleveland, OH, August 3, 2000
7. "Stroke in Women", Channel 8, Cleveland, OH, June 8, 2002

### **Radio**

1. "Multiple Sclerosis and Lou Gehrig's Disease" The Academy of Medicine Cleveland, HealthCare '96 radio program, February 7, 1996
2. "Brain Attack—emergency care for stroke" WERE radio, May 3, 1999
3. "Operation Stroke" WDOK radio, June 30, 2002
4. "Prevention and treatment of stroke" Heathlines, WCLV radio, December 9, 2005

### **Citations/Quotations in print**

1. Cited in "Slowpoke emergencies." Forbes magazine, page 150-151, February 26, 1996
2. Cited in "Why Tom Nowak is alive..." Northern Ohio Live magazine, pages 41-44, February, 1997
3. Cited in "Brain Attack!" Northern Ohio Live magazine, pages 54-56, February, 1998
4. Cited in "Survivors at heart" Northern Ohio Live magazine, pages 57-60, February, 1999
5. Cited in "Screening..." Plain Dealer, August, 1999
6. Cited in "Hospital group..." Plain Dealer, pages 1, 16A, August 18, 1999
7. Cited in "City risking lives..." Plain Dealer, pages 1, 18A, August 26, 1999
8. Cited in "City had 'new' stroke plan..." Plain Dealer, pages 1, 12A, August 28, 1999
9. Cited in "Good stroke treatment..." Plain Dealer, page 4H, September 12, 1999
10. Cited in "Clinic test tracks use of drug in strokes" Plain Dealer, pages 1, 2B, December 1, 1999
11. Cited in "promising stroke treatment" Chagrin Valley Times, December 9, 1999
12. Cited in "Stroke Savior?" Plain Dealer, page 1, January 23, 2000
13. Cited in: "Ford's prognosis 'good'. ABCNEWS.com 8/2/00
14. Cited in: "Emergency rooms often victims of CT scanners..." Plain Dealer, page 7-A, April 2, 2001
15. Cited in: "Clinic tries to cut stroke drug risks." Plain Dealer, page 1, A6, February 19, 2002
16. Cited in: "Budget deficits, Medicare Cuts..." Neurology Today, page 1, March, 2003
17. Cited in: "Schiavo autopsy..." Plain Dealer, April 1, 2005

### **Miscellaneous**

1. Best Doctors in Northern Ohio, 2000-
2. Who's Who Among American Teachers 2004-
3. Who's Who in Medicine and Healthcare
4. Who's Who in Science and Engineering
5. Who's Who in Medical Sciences Education, 2005
6. Guide to America's Top Physicians, 2004-2005
7. Best Doctors in America, 2005-



**Summary Extramural Funding by Individual Grants (through 2002)**

<b>Investigator</b>	<b>Title, Source, Identification</b>	<b>Project Dates</b>	<b>Total Direct Costs</b>
Landis Principal Investigator	Freeze-fracture study of synaptogenesis Harvard Medical School Milton Fund	7/1/1978 - 6/30/1979	\$2,000
Landis Principal Investigator	Membrane structure during synaptogenesis NIH NINCDS (Teacher-Investigator Award) NS00353	8/1/1978-7/31/1983	\$184,799
Landis Principal Investigator	Membrane structure in neurons and Astrocytes NIH NINCDS R01 NS 15573-01 to 03	7/1/1979-6/30/1982	\$153,076
Landis Investigator	Immunocytochemical studies of Huntington's Disease NIH NINDS P01 NS 16367-01 to 05	7/1/1980-6/30/1985	\$320,067
Landis Investigator	Modulation at vertebrate neuromuscular Junctions Muscular Dystrophy Association	7/1/1982-6/30/1984	\$18,000
Landis Principal Investigator	Membrane structure in neurons and astrocytes Massachusetts General Hospital-BRSG	7/1/1982-3/31/1983	\$17,219
Landis Investigator	Modulation at vertebrate neuromuscular junctions Amyotrophic Lateral Sclerosis Society of America	7/1/1982-6/30/1984	\$40,000
Landis Principal Investigator	The effects of neuroactive compounds on LTP Warner-Lambert	1/1/1983-12/31/1984	\$48,709
Landis Principal Investigator	Membrane structure in neurons and astrocytes NIH NINCDS R01 NS 15573-03S1	4/1/1983-3/31/1984	\$27,261
Landis Principal Investigator	Membrane structure in neurons and astrocytes NIH NINCDS R01 15573-03S2	12/1/1983-3/31/1984	\$29,629
Landis Principal Investigator	Membrane structure in neurons and astrocytes NIH NINCDS	4/1/1984-8/31/1985	\$25,930

	R01 NS 15573-04 to 05		
Landis Investigator	Immunocytochemical study of neuronal loss in AD NIH NIA Alzheimers Disease Research Center	1/1/1985-8/31/1985	\$25,930
Landis Principal Investigator	Membrane structure in neurons and astrocytes NIH NINDS R01 NS 23641-01 to 02	9/1/1985-3/31/1987	\$169,446
Landis Principal Investigator	Astrocyte membrane structure and cerebral edema American Heart Assoc. NEO Affiliate	1/1/1986-12/30/1986	\$21,500
Landis Principal Investigator	Structure and function of astrocytes NIH NINDS R01 NS 22614-01 to 03	8/1/1986-7/31/1989	\$330,282
Landis Principal Investigator	Transmission electron microscope facility NIH BRS Shared Instrumentation Grant	1/1/1987-12/31/1987	\$181,000
Landis Principal Investigator	Structure and function at synapses NIH NINDS R01 NS 23641-04 to 08	12/1/1987-11/30-1982	\$681,837
Landis Principal Investigator	Structure and function of astrocytes NIH NINDS Javits Award R01 NS 22614-04 to 10	8/1/1989-7/31/1996	\$1,020,336
Landis Principal Investigator	Astrocytes in spinal cord injury GliaTech, Inc.	8/1/1990-12/31-1991	\$44,500
Landis Principal Investigator	Astrocyte response in spinal cord injury Paralyzed Veterans	11/15/1991-11/14/1992	\$27,273
Landis Investigator	Monoclonal antibodies that bind to astrocytic neoplasms NIH NCI P01 CA 60171-01 to 03	4/1/1993-3/31/1996	\$57,000
Landis Investigator	Brain Tumor Resource Core NIH NCI P30 CA 43703-05 to 07	8/1/1993-7/31/1995	\$30,000
Landis Site Principal Investigator	Lubeluzole: effects of intravenous therapy in subjects with acute ischemic stroke Janssen Pharmaceuticals	2/1/1995-3/31/1996	\$29,500
Landis Site Principal	Eliprodiol in patients with acute ischemic stroke	10/1/1995-7/30/1996	\$18,421

Investigator	Lorex Pharmaceuticals LES01		
Landis Site Principal Investigator	The effects of 500mg citicholine on the evolution of lesion volume in human stroke Interneuron Pharmaceuticals	10/1/1997-4/30/1998	\$71,655

Landis Investigator	Interventional Management of Stroke NIH NINDS R01 NS 39160-01 to 03	9/30/2001-10/1/2003	\$50,148
Landis Investigator	Incidence and prevalence of stroke in Ohio CDC Coverdell Grant	10/1/2001-9/30/2002	\$13,000
Landis Investigator	Interventional Management of Stroke II	9/30/2002-10/1/2005	
Landis Investigator	Interventional Management of Stroke III	4/1/2006...	
		<b>TOTAL FUNDING</b>	<b>\$3,741,890.00</b>

**Development activities (1997--)**

1. Parke-Davis. Gift for development of computer-based medical records.	1997	200,000
2. Ray and Elizabeth Evans Foundation Trust. Gift for research related to Parkinson's disease.	1998	200,000
3. Blanchette Hooker Rockefeller Foundation. Gift for research related to Alzheimer's disease.	1999	750,000
Renewed, 2002		.800,000
4. Elizabeth Evans, Gift for research related to Parkinson's disease,	1999	250,000
5. MacAfee Foundation, Gift for research related to Parkinson's disease	2001	
	received	25,000
	committed	75,000
6. Taubman Estate, Gift for research related to multiple sclerosis,	2002	
	received	635,000

**Development in conjunction with the Dean's Office**

1. Holmes Chair in Neurology. (to support research on neuromuscular disorders, Especially Guillain-Barre syndrome)	1999	1,200,000
2. Blair-Daroff Chair in Neurology (in honor of the contributions of Dr. Robert Daroff)	1998	
	received	600,000
	Committed	1,400,000
3. Mrs. Blair. Gift for neurological research, in honor of the contributions of Dr. Robert Daroff.	1998	750,000

**Development in conjunction with University Hospitals of Cleveland**

1. Gilbert W. and Louise Ireland Humphrey Foundation. Gift to the endowment of the Gilbert W. Humphrey Chair.	1998	25,000
	1999	10,000
	2000	10,000
2. Maxine Stone and John Flower Professorship (to support research and patient care for patients with cerebrovascular disease)	2004	1,500,000