

July 19, 2016

Dear Committee Members

It is my pleasure and honor to nominate Paula Dore-Duffy, PhD, Professor of Neurology and Associate in Immunology and Microbiology, for the Lawrence Weiner Award for Contributions to the School of Medicine by a non-alumnus award. Dr Dore-Duffy has been an important member of the faculty at Wayne State University School of Medicine, and at Wayne State University, for 28 years. As a prior winner of this prestigious award and as the Chair of Neurology who helped recruit Dr Dore-Duffy to Wayne State University in 1988, I believe I can appreciate her contributions to WSU/SOM and how those contributions merit her winning this award.

Dr Dore-Duffy was instrumental in the development of the Comprehensive Multiple Sclerosis Center at Wayne State University and Detroit Medical Center. When she joined the faculty there were some elements for such a center in Neurology, Immunology and Microbiology and Anatomy and Cell Biology but it was her contributions both as a scientist interested in inflammatory mediators, prostaglandins, adhesion molecules and then her development of a new area of research in cells involved in the blood brain barrier and her organizational skills, that served to galvanize the center. This lead to the addition of faculty involved in neurogenetics, both clinical and basic science investigators, and then addition of other faculty who expanded the clinical trials program and an experimental imaging program. Although not a physician Dr Dore-Duffy helped organize multidisciplinary clinics and got involved with patient support groups. She served for many years as the Co-Director of the Center/Program. Under her leadership WSU was awarded a Translational Center of Excellence by the National Multiple Sclerosis Society, a 5year award limited to only 3 centers nationally per year. The MS Center at WSU/SOM has been one of the leading MS centers in the USA and also is recognized internationally as well. And the MS Center was a critical component of the Department of Neurology, nationally and internationally known for leadership in research and clinical care in diseases of the nervous system.

Dr Dore-Duffy also was a leader in development of neurotrauma research at WSU/SOM and Detroit Receiving Hospital which then helped attract faculty in neurocritical care, which has evolved into one of the first such programs in the US and the first in Michigan.

Dr Dore-Duffy's contributions to WSU/SOM include service on NIH study sections, study sections/research committees for the National MS Society as well as membership on the Research Program Advisory Committee of the MS Society, the society's equivalent as an NIH council. She has served on multiple editorial boards including as Deputy Editor of the Journal of the Neurological Sciences, the official

journal of the World Federation of Neurology. She is also an elected member of the American Neurological Association, which is unusual for a non-clinician. All of these have brought notice of the neurologic and neuroscience programs at WSU/SOM to the scientific community of the US and to the international scientific community.

Dr Dore-Duffy served as Vice –President and Chair of the nominating committee of the Wayne State University Academy of Scholars and then as its President. She has chaired the Bonner Book Award committee for the Academy. Her standing in the scientific community within WSU lead to her appointment to the WSU Office of Research Integrity (ORI) Scientific Investigation Committee.

Over the 28 years as a member of the faculty of the Wayne State University School of Medicine Paula Dore-Duffy has done much to help lead the development of several important programs in neurological diseases and the department of neurology at the institution. These programs and Dr Dore-Duffy's national roles and her national and international prominence have been very important to the School of Medicine. For these achievements and for this service to the School of Medicine Dr Dore-Duffy merits the Lawrence Weiner Award.

Sincerely yours,

Robert P Lisak, MD, FRCP (E), FAAN, FANA

Parker Webber Chair in Neurology

Professor of Neurology

Robert Prink VA

Professor of Immunology and Microbiology

Date of Preparation: 8/9/16

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Signature

PAULA DORE-DUFFY, PH.D.

Great.

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EDUCATION

Louisiana State University Medical School, New Orleans, Louisiana 70112 Dr. Calderon Howe, Advisor: "Immunochemical Characterization of the Measles Virus Receptor on Rhesus Erythrocytes."	Ph.D. = 1978
Baylor College of Medicine Department of Virology Houston, Texas	1972
Simmons College, Boston, Massachusetts	B.Sc 1970
POSTGRADUATE TRAINING	
Fellow - National Multiple Sclerosis Society University of Connecticut School of Medicine, Farmington, Connecticut	1979
Post Doctoral Fellow - University of Connecticut School of Medicine Dr. Robert B. Zurier "Role of prostaglandins in autoimmune diseases" Prostaglandin-mediated control of lymphocyte and monocyte adhesion.	1978 - 1979
FACULTY APPOINTMENTS	
Tenure - Department of Neurology Wayne State University School of Medicine Detroit, Michigan	1988 -
Professor – Department of Neurology Wayne State University School of Medicine Detroit, Michigan	1988 -
<u>Professor</u> - (Associate appointment) Department of Immunology and Microbiology, Wayne State University	1988 =
Tenure - University of Connecticut School of Medicine	1982-
Associate Professor - of Neurology University of Connecticut School of	1982 - 1988

Medicine Farmington, Connecticut

Associate Professor - of Medicine University of Connecticut School of Medicine Farmington, Connecticut	1982 - 1988
<u>Assistant Professor</u> - of Neurology and Medicine University of Connecticut School of Medicine, Farmington, Connecticut	1979 – 1982
PROFESSIONAL APPOINTMENTS	
<u>Co-Director</u> - Wayne State University Detroit Neurotrauma Institute, Detroit, Michigan	1995 - 1997
<u>Director of Research Programs</u> - Wayne State University Center for Neurotrauma	1994 - Open
Associate Staff - Harper Hospital, Detroit, Michigan	1991 - 2007
Medical Advisory Committee - Michigan Chapter of the National Multiple Sclerosis Society	1990 - Open
Chief - Division of Neuroimmunology Department of Neurology Wayne State University School of Medicine Detroit, Michigan	1988 - Open
<u>Director of Research</u> - Multiple Sclerosis Center Wayne State University School of Medicine	1988 - Open
Co-Director - Multiple Sclerosis Center Wayne State University School of Medicine Detroit, Michigan	1988 - Open
<u>Co-Director</u> - Neuroscience Graduate Program University of Connecticut School of Medicine Farmington, Connecticut	1984 - 1988
<u>Head</u> - Division of Neuroimmunology Department of Neurology University of Connecticut School of Medicine Farmington, Connecticut	1982 - 1988
<u>Director</u> - UCHC MS Center University of Connecticut School of Medicine Farmington, Connecticut	1982 – 1988
Co-Director - Multiple Sclerosis Clinic, UCHC MS Center University of Connecticut School of Medicine Farmington, Connecticut	1979 - 1988

MAJOR /PROFESSIONAL SOCIETIES

The Royal Society of Medicine, appointed – 2008
American Neurological Association 1995 (Elected)
Clinical Immunology Society, 1990
American Society for Microbiology, 1976-1980
Union of Concerned Scientists, 1976-1980
American Academy of Neurology
The American Association of Immunologists (AAI)
American Association for the Advancement of Sciences
International Society of Neuroimmunology
Society for Neuroscience

American Society for Neurochemistry National Neurotrauma Society International Society for Blood Flow & Metabolism International Brain Barrier Society

HONORS/AWARDS

National MS Society Research Program Advisory Council (RPAC)	2013-2016
President, Academy of Scholars, Wayne State University	2013-14
Vice President, Academy of Scholars	2012-2013
Academy of Scholars(elected) - Wayne State University	2008
WSU SOM Excellence in Research Award-Wayne State University School of Medicine	2007
International Who's Who	2000
Charles Gershenson Distinguished Faculty Fellow, Wayne State University	1996
National Multiple Sclerosis Society, Society-Michigan chapter, MS Research Award	1995
Committee for Annual Society of Immunochemistry Meeting, Los Angeles, 1995	1993
Award for Dedication to MS Research, National Multiple Sclerosis Society	1993
National Institute of Health Study Section (various study sections)	1988 = 2008
Who's Who in America	1987
The World's Who's Who of Women	1987
Visiting summer scientist, Mount Desert Island Biological Laboratories, Salisbury Cove, Maine	1985 – 1986
Kroc Foundation Endowment \$50,000 to establish a yearly Symposium on Multiple Sclerosis, University of Connecticut Health Center	1985
"Who's Who of American Women"	1982 - 1985
"Who's Who in Science and Technology"	1982
Multiple Sclerosis Society Bursar to the 4th International Congress of Immunology in Paris	1980
Outstanding Young Women of America	1979
National Multiple Sclerosis Society Fellowship Award	1977 = 1978

SERVICE

Wayne State University

Joint P&T Committee, Neurology and Pharmacology, 2014

Planning Committee, Translational Research Center, 2013-present

Women in Medicine and Science (WIMS) Advisory/Steering Committee, 2013-present

Investigation Committee, OVPR/OR, 2013-present

Strategic Planning Committee, Wayne State University, 2007

Committee on the Status of Women at Wayne State University, Chair, 1993

Patient Care

Co-Director MS Clinical and Research Center; Director MS Research; one morning per week to coordinate MS Clinic team activities. Consultation for newly diagnosed patients.

Director MS Research: one morning per week to coordinate MS Clinic team activities. Consultation for newly diagnosed patients, coordinate research activities

Professional Consultations

National Multiple Sclerosis Society Research Advisory Council 2012-

NMSS Collaborative Research Center Review Committee 2011-

American Heart Foundation, Reviewer, 2007-

Department of Defense Neurobiology Committee A, Member, 2007

National MS Society, Study Section, 2004, 2006-2007

National Institutes of Health, Study Section, BINP, Ad-hoc Reviewer, 2005-2008

VAH Neurobiology C Study Section, 2003-2006

National Institute of Arthritis and Rheumatism-Cytokines and CNS Lupus, Nov. 1999

National Institutes of Health, Study Section BDCN-4, 1998-2000

National Institutes of Health, Study Section, NSL-3, Member, 1995

National Institutes of Health, Study Section, NSP-A, (1988-1992) Ad-hoc Reviewer,

1992-1995

National Institutes of Health, Study Section C, Neurology - Ad-hoc Reviewer, 1995

National Institutes of Health, Study Section C, Neuropathology - Ad-hoc Reviewer, 1995

Public presentation as expert - "What is New in MS" to National MS Society

members. Upper peninsula, 1991 (numerous presentations of this over the years)

Public lecture - "What is MS?" Newly diagnosed patients. National Multiple

Sclerosis Society, Michigan Chapter, 1992.

Editorial Boards

Journal of Microvascular Research, 2013-present

Clinical Neuropharmacology, 2013-15

The Open Circulation and Vascular Journal, 2008-

Journal of Neurological Sciences, Deputy Editor 1998-2013

Neurobase, Associate Editor, Neuroimmunology Section, 1995-

Microcirculation, Editorial Board, 1995-

Clinical and Diagnostic Laboratory Immunology, Editorial Board, 1993-

Clinical Neuropharmacology, Editorial Board, 1996-

Journal of Microvascular Research, Editorial Board, 1995-

Neurology, Editorial Board, 1993-1997

Journal/Editorial Activity

Journal Neuropathol and Experimental Neurology (1/yr)

Neurology (> 3/yr)

Neuroscience letters (1/vr)

Journal of Neuroimmunology (3-4/yr)

Journal of Clinical Investigation (1-2/yr)

Annals of Neurology (1-2/yr)

Acta Neurological Scand., 2 reviews

Clinical Immunology and Immunopathology (2/yr)

New England Journal of Medicine (1/yr)

Journal of Neurochemistry (1/yr)

Journal of Neurosurgery (1/yr)

Prostaglandins, Leukotrienes and Medicine (2/yr)

Clinical Laboratory Immunology (1/yr)

Neuroscience (5/yr)

Journal of Neuroscience Research (1/vr)

Journal of Cereb Blood Flow Metabolism (5/yr)

Journal of Headache (1/yr)

Journal of Neurotrauma (2/yr)

Stroke (4/yr)

Brain (4/year)

Multiple Sclerosis (2/yr)

Microvascular Research(2-3/yr)

Other Professional

Research Advisory Council for the National MS Society (RPAC), 2014

Outreach Program, Winter Conference for Brain Research, 2014

Program Committee, American Society for Neurochemistry 2007

Program Committee, Winter Conference on Brain Research 2007-Present

Organizing Committee, Great Lakes Glia 2007-Present

Board of Directors, Winter Conference for Brain Research 2007-Present

American Society for Neurochemistry, Outreach Program 2000

American Society for Neurochemistry, Jordi Folch Pi Award Committee 1997-2000

Director, Outreach Program, Winter Conference for Brain Research 1995-1999

Board of Directors, Winter Conference for Brain Research 1995, 1996, 1997, 1999, 2007

Committee "Women's Issues" Conference, 1992-1993 Committee for Neurology = Five year analysis, 1992

Organizing Head for two symposia:

Myasthenia Gravis - Cellular Immune Mechanisms, 1990

Cellular Mechanisms in Neuroimmunology, 1989

State and Local Boards and Committees

Medical Advisory Board - Michigan Chapter of the National MS Society 1992

Medical Advisory Board - Connecticut Rivers Valley Branch of the 1982-1988

National MS Society

TEACHING

Years at Wayne State University:

Wayne State University School of Medicine, summer 1988-present

Faculty Advisor, Medical Student Summer Research, Georgiana Marusca (2016); James

Mellais (2015); Christopher Dobson (2013)

Faculty Advisor, Medical Student Summer Research, Quinn Ousley

Faculty Advisor, Research Rotation, Vladimir Katyshev, M.D.

Faculty Advisor, Zakhar Serkin, M.D. current

Postdoctoral Advisor, Nilufer Esen-Bilgin, M.D., PhD. Current

Faculty Mentor, Associate Professor Immunology, Dr. Melody Neely

Faculty Advisor, Rakhi Sharma, PhD. current

Thesis Committee, Derek Lenz, Dept. of Microbiology and Immunology

Postdoctoral Advisor- Sherry Wang, M.D.

Thesis advisor, R. Washington, Department of Biology

Postdoctoral Advisor - Roumen Balabanov, M.D.

Postdoctoral Advisor - Jarmilla Wagnerova, D.V.M.

Postdoctoral Advisor - Shahnaz Malek-Hedayat, Ph.D.

Postdoctoral Advisor - Andrey Katychev, M.D.

Postdoctoral Advisor - Carlos Batista, M.D.

Faculty Advisor, Medical Student Summer Research, Jason Puckett

Faculty Advisor, Medical Student Summer Research, Jesse Veenstra

Faculty Advisor, Medical Student Summer Research, Mehvish Mehrani

Years at Other Universities:

University of Connecticut School of Medicine, 1978-1988

Co-director, Neuroscience Graduate Program

Thesis advisor, 4 students

Postdoctoral advisor, 2 students

Teaching at Wayne State University

Undergraduate Students:

Arnulfo Mauricio Cazares, Wayne State Build Scholar

Annelise Marie Crabtree, Wayne State University Build Scholar

Quinn Ousley, Wayne State University

Jeff Burton, University of Detroit

Alexander Green II, Columbia University

John Dunn, Colgate University

Richard Trotter, Wayne State University

Alexandra Duffy, University of Michigan

Alexander Tapper, University of Michigan

Leah Lukasik, Wayne State University

Drew Bonkowski, University of Michigan

Fareea Khalig, Wayne State University

High School Students

Anuush Vejalla, Detroit Country Day Upper School

April McDonald, Cass Technical High School

Ainslie Woodward Jr., Cass Technical High School

Medical Students

MS Clinic lab rotations

Graduate

One lecture each year, Neuroscience Survey course

Two lectures, Immunology course on Autoimmunity, 1990, 1991, 1993

One lecture, Pathology Clinical Correlations in Molecular Biology, 1990

Medical Student lecture in Neuropathology section

Lecture Clinical Psychology

Residents

Neuroimmunology Series, Director for residents, basic neuroscience course. 8-10 lectures. (every other year)

Ph.D. Thesis Advisor for Ruth Washington, Department of Biology,

"Monocyte Activation Associated Antigen in MS", 1990-1995

GRANT FUNDING

Active

- P. Dore-Duffy, PI "A novel cellular based system to maximize delivery of chemotherapeutics across the Blood Brain Barrier". DMC Foundation, \$97,359.40
- P. Dore-Duffy, PI "Human Fat Pericytes induce repair in the Cuprizone Model of chemically induced demyelination" NMSS Pilot project, \$44,000.
- P. Dore-Duffy, PI. Aging Studies. Goldye-Nelson Endowment WSU/SOM, open, \$25,000.

Pending

- P. Dore-Duffy, PI "Human fat pluripotent pericytes in cell replacement therapy in MS", NMSS collaboration Grant \$536,254.40.
- P. Dore-Duffy, Co-I, X. Shi, PI "The role of the CNS pericyte in amelioration of hearing disorders, NIH, \$1,225,000.
- P. Dore-Duffy, PI "Transdermal administration of copaxone/GA induces tolerance in EAE, TEVA \$102,300.
- P. Dore-Duffy PI, Ketogenic diet in the treatment of MS., \$44,000
- P. Dore-Duffy PI, "MS Voice" DMC Foundation \$100,000.

Submitted (not funded)

- P. Dore-Duffy, PI "Human microvascular pericytes in repair neurodegenerative disease" NIH, \$1,377,601.00.
- P. Dore-Duffy, PI "Pericyte stem cell replacement mitigates neuronal dysfunction in Alzheimer's disease", Goldye J Nelson Endowment. WSU/SOM \$45,000.
- P. Dore-Duffy, PI "MS Voice" Pilot Study, PCORI, \$30,000.
- "MS Voice: African American MS patient-centered comparative effectiveness Research". DMC Foundation, \$80,000. DMC Foundation cancelled competition after grant was submitted

LOI for "MS Voice: African American MS patient-centered comparative effectiveness research". PCORI

"MS Voice: African American MS patient-centered comparative effectiveness research". PCORI, \$1,113,525.

LOI for "MS VOICE: Patient-generated data acquisition for African American Patients with MS". INPHAASE

"MS VOICE: Patient-generated data acquisition for African American Patients with MS". INPHAASE, \$55,609.

- P. Dore-Duffy, PI "Adaptation to Chronic Mild Hypoxia is protective in EAE" National Multiple Sclerosis Society, 10/01/2013-09/30/2018 \$1,018,622.70
- P. Dore-Duffy, PI. "Therapeutic angiogenesis in response to mild hypoxia ameliorates EAE", NIH, 12/01/10 11/31/15, \$1,468,406.
- P. Dore-Duffy, PI, "Use of therapeutic angiogenesis to treat multiple sclerosis", Department of Defense, 09/01/10 08/30/12, \$400,000.
- P. Dore-Duffy, PI "Pericyte Pluripotent Cell Lines: New Model Systems to Study Pericyte Biology", National Institutes of Health, 01/16/2010-01/07/2013. \$ 274,901.00
- P. Dore-Duffy, CO-I (Rafols, PI). "Endothelin and traumatic brain injury: implications for advancement TBI therapies" VA,11/01/10-10/31/14. \$1,1000,000
- P. Dore-Duffy, CO-I, Kreipke(PI), "Clazosentan: a novel treatment for traumatic brain injury". VA. 11/01/10-10/31/14. \$4,275,000.
- P. Dore-Duffy, PI National Multiple Sclerosis (supplement). Multimodal imaging: a comparison of PET and MRI to look at hypometabolism in multiple sclerosis. \$68,000.2012.
- P. Dore-Duffy, PI Bridge Funding Wayne State University "Characterization of murine and human pericyte lines. \$35,000. 2012.

Dore-Duffy, PI. "Therapeutic angiogenesis in response to mild hypoxia ameliorates EAE." NIH, \$1,837,291.

Dore-Duffy P, PI. "Adaptation to chronic mild hypoxia is protective in EAE." NMSS, \$1,018,622.70.

Dore-Duffy P, PI "Human microvascular pericytes in repair Neurodegenerative disease" NIH, \$1,377,601.00

Dore-Duffy P, PI "Human fat pluripotent pericytes in cell replacement therapy in MS" NMSS, \$479,153.40

Dore-Duffy P, PI "Human fat pericytes induce repair in the cuprizone model of chemically induced demyelination." NMSS, \$44,000

Completed Funding

- P. Dore-Duffy, PI. "Pericyte stem cell replacement in juvenile hearing loss. Carl's Foundation, 1/1/13-12/30/14, \$44,450.
- P. Dore-Duffy, PI. Carl's Foundation. "Pericyte stem cell replacement in juvenile hearing loss", 1/1/13-12/30/14, \$24,450.
- P. Dore-Duffy, Pl."Human fat stem cell studies." Eugene Applebaum Family Foundation, 1/1/13-12/30/14, \$50,000.
- P. Dore-Duffy, PI, National Multiple Sclerosis Society Pilot Project, "Human fat stem cell population in cell replacement therapy in MS cell replacement therapy in multiple sclerosis". 10/01/12 10/01/13, \$43,683.
- P. Dore-Duffy, Pl Questcor Pharmaceuticals, Inc: \$3,000, 9th Bi-Annual Great Lakes Glia Symposium 10/6/13-10/8/13
- P. Dore-Duffy, PI NMSS: \$3,000, 9th Bi-Annual Great Lakes Glia Symposium 10/6/13-10/8/13
- P. Dore-Duffy, PI Biogen Idec: \$2500, 9th Bi-Annual Great Lakes Glia Symposium 10/6/13-10/8/13
- P. Dore-Duffy, PI, Multiple Sclerosis Collaborative Research Center Award, National Multiple Sclerosis Society, 04/01/07 03/31/13, \$822,500
- P. Dore-Duffy, PI "Clinical and Scientific Advances in Neuroimmunology". Allergan. \$7000. 5/2012.
- P. Dore-Duffy, PI "Clinical and Scientific Advances in Neuroimmunology". Bayer. \$10,000. 5/2012.
- P. Dore-Duffy, PI "Clinical and Scientific Advances in Neuroimmunology". Genentech \$5000. 5/2012.

- P. Dore-Duffy, PI "Clinical and Scientific Advances in Neuroimmunology". Grifols USA \$5000. 5/2012.
- P. Dore-Duffy, PI "Clinical and Scientific Advances in Neuroimmunology". Janssen \$5000. 5/2012.
- P. Dore-Duffy, PI "Clinical and Scientific Advances in Neuroimmunology". Medtronic \$5000. 5/2012.
- P. Dore-Duffy, PI "Clinical and Scientific Advances in Neuroimmunology". Merck \$5000. 5/2012.
- P. Dore-Duffy, PI "Clinical and Scientific Advances in Neuroimmunology". UCB Pharma \$5000. 5/2012.
- P. Dore-Duffy, PI, "Pericytes, a novel new adult stem cell, ameliorate autoimmune Encephalomyelitis (EAE)", FCMSC/Bayer, 06/01/09 08/31/11, \$5,000.
- P. Dore-Duffy, PI "Loss of Metabolic homeostasis in the brain of patients with multiple sclerosis" FCMSC/Bayer 03/15/11/-05/25/2011. \$5000.
- P. Dore-Duffy, PI, National Multiple Sclerosis Society Pilot Project, "Pericyte cell replacement therapy in multiple sclerosis", 03/01/08-02/28/10, \$40,000.
- P. Dore-Duffy, PI, "VEGF gene expression in CNS microvascular pericyte", National Institutes of Health, 01/01/04-12/31/09, \$925,000.
- P. Dore-Duffy, Pl, "Pericytes, a novel new adult stem cell, ameliorate autoimmune Encephalomyelitis (EAE)", FCMSC/Bayer, 06/01/09 08/31/09, \$5,000.
- P. Dore-Duffy, PI, "Adaptive angiogenesis is neuroprotective in EAE: A potential non-invasive therapeutic approach to multiple sclerosis", FCMSC/Teva Neuroscience Research, 06/01/08 08/10/08, \$5,000
- P. Dore-Duffy, PI, "The Role of the CNS Microvascular Pericytes in EAE", National Institutes of Health, 06/01/99 5/31/06, \$961,807.
- P. Dore-Duffy, "Role of Microvascular Pericytes in Leukocytes Polarization at the Blood Brain Barrier", National MS Society, 4/01/98 09/31/03, \$395,627
- P. Dore-Duffy, "Headache Research Center", Henry Ford Health Systems, 8/01/97 7/31/00, \$80,000
- P. Dore-Duffy, "Integrin Dependent Vascular Remodeling in Cytokine-mediated Activation of Microvessels. National MS Society, 1998-1999, \$27,500.

- P. Dore-Duffy, Project 1 Acute EAE: Role of Endothelial Cell Activation Antigens, in Program Project "Cellular Targets in Neuroimmune Dysfunction", 12/01/92 11/30/97, year 01 \$129,482.
- H. Tse and P. Dore-Duffy, Project 2 Resistance Mechanisms in Murine Adoptive EAE, in Program Project "Cellular Targets of Neuroimmune Dysfunction", 12/01/92 11/30/97.
- P. Dore-Duffy, "Monocyte Activation Associated Antigen Mo3 in Multiple Sclerosis", National Institutes of Health, 12/01/93 11/30/98, year -01 \$171,169.
- R.P. Lisak and P. Dore-Duffy, Multiple Sclerosis Research, National MS Society, 9/30/96 = 10/1/97, \$8,500
- J.P. Muizelaar, and P. Dore-Duffy, "Ischemia and Cerebral Blood Volume in Human Head Injury", National Institutes of Health, 9/30/92-9/29/97, year-01, \$152,962.
- P. Dore-Duffy, The Role of Co-Polymer I in Monocyte Function in MS, Teva Pharmaceuticals, 01/01/92 12/31/94, year -01 \$58,332.
- R. Washington (P. Dore-Duffy, sponsor), "Human Monocyte Activation Antigen, Mo3 in Multiple Sclerosis", National Institute of General Medical Sciences, 02/01/93 01/31/95, year -01 \$15,372, \$30,744
- P. Dore-Duffy, Effect of Piroxicam on Prostaglandin and Zinc in Rheumatoid Arthritis, Multiple Sclerosis and Other Neurological Diseases, Pfizer Pharmaceuticals, 03/15/90 (non-restricted), \$42,375. (open ended)
- P. Dore-Duffy, Activated CNS Endothelium in EAE Susceptibility, National Multiple Sclerosis Society, 07/01/91 06/30/92, \$20,000.
- R. Washington, (P. Dore-Duffy, sponsor), Monocyte Activation Antigens in MS. Michigan Health Care Education and Research Fellowship, 1991-1992, \$3,000.
- P. Dore-Duffy, Lymphocyte Adherence in Multiple Sclerosis, National Institutes of Health, 07/01/86 06/30/89, \$288,622.
- P. Dore-Duffy, Prostaglandins in Multiple Sclerosis, National Multiple Sclerosis Society, 04/01/88 08/31/89, \$46,264.
- NIH; "Lymphocyte Adherence in Multiple Sclerosis"; P. Dore-Duffy, P.I.; \$366,377; 12/01/83 6/30/88

Connecticut Research Foundation: "Effects of sera, cerebrospinal fluid, and lymphocytes from multiple sclerosis patients on the myelinogenic potential of primary cultures and isolated oligodendrocytes of fetal rat brain"; P. Dore-Duffy, S. Pfeiffer, Co-Investigators; \$17,500; 6/86 - 5/87.

National Multiple Sclerosis Society: "Antigen specific T-cell clone in multiple sclerosis"; R. Clark, P.I., P. Dore-Duffy, Co-Investigator; \$173,719; 7/1/81 = 6/30/84, 1984 - 1987.

Efamol, Inc.- Prostaglandins in MS, \$25,000.: Unrestricted.

Lupus Foundation: "Prostaglandins, Immunology, & Immunopathology of Murine Lupus"; P. Dore-Duffy, P.I.; \$10,000.; Unrestricted.

NIH-Connecticut Chemosensory Clinical Research Center: "Role of Prostaglandins in Taste Perception in Multiple Sclerosis": P. Dore-Duffy, P.I.; \$169,088.; 4/1/81 - 3/31/84; F.A. Catalanotto, Center Grant P.I.

UPENN Consortium Grant (NIH): "Studies on Monocyte Function in NZB/W Mice"; P. Dore-Duffy, P.I.; \$65,020.; 9/1/80 - 8/31/84; R.B. Zurier, Center Grant P.I.

Arthritis Center Grant (NIH): "Zinc in Rheumatoid Arthritis"; P. Dore-Duffy, P.I.; \$70,323.; 9/1/81 - 8/31/83; N. Rothfield, Center Grant P.I.

National Institutes of Health: "Lymphocyte Adherence in Multiple Sclerosis"; P. Dore-Duffy; \$184,122; 12/1/79 - 11/30/83.

Glenbrook Laboratories: Effect of Aspirin in Lymphocyte Adherence"; P. Dore-Duffy; \$20,000; open ended.

National Multiple Sclerosis Society: 7/1/79 - 6/30/83; \$167,952; "Role of Prostaglandins in Altered Leukocyte Function in MS".

Connecticut Research Foundation; \$5,725; 1981.

Sterling-Winthrop Research Institute; \$17,125; 1981.

Kroc Foundation; \$23,450; 1980.

Kroc Foundation; \$27,040; 1979.

Kroc Foundation; \$23,128; 1978.

National Multiple Sclerosis Society; \$87,125; 1978-79.

Kroc Foundation; \$23,000; 1/1/83 - 12/31/84

<u>PATENTS</u> - "Pericytes are adult stem cells and useful for stem cell therapy"

PUBLICATIONS

- 1. Esen, N., Vejalla, A., Sharma, R., Treuttner, J.S., Dore-Duffy, P. Hypoxia Induced Let 7d has a Role in Pericyte Differentiation. Adv Exp Med Biol. (in press).
- 2. Esen, N., Katyshev, V., Katysheva, S., Serkin, Z., Dore-Duffy, P. Chronic mild hypoxia delays MOG-specific Th17 response in EAE. J Neuroinflamm. 13, 2016.
- 3. Truettner, J.S., Katyshev, V., Esen-Bilgin, N., Dietrich, W.D., Dore-Duffy, P. Hypoxia alters microRNA expression in rat cortical pericytes. MicroRNA 2, 32-45. 2013.
- 4. Prakash R, Somanath PR, El-Remessy AB, Kelly-Cobbs A, Stern JE, Dore-Duffy P, Johnson M, Fagan SC, Ergul A. Enhanced cerebral but not peripheral angiogenesis in the

- goto-kakizaki model of type 2 diabetes involves VEGF and peroxynitrite signaling. Diabetes. 2012 Jun;61:1533-42.
- Dore-Duffy, P., Mehedi, A., Wang, X., Trotter, R., Gow, A. Immortalized CNS pericytes are quiescent smooth muscle actin-negative and pluripotent: endothelial trophic signals increase the rate of differentiation. Microvasc Res. Jul;82(1):18-27. 2011.
- Dore-Duffy P, Wang S, Mehedi A, Katyshev V, Cleary K, Tapper A, Reynolds C, Ding Y, Zhan P, Rafols J, Kreipke CW. Pericyte-mediated vasoconstriction underlies TBIinduced hypoperfusion. Neurol Res. 33(2):176-86. Mar 2011.
- 7. Dore-Duffy, P., Wencel, M., Katyshev, V., Cleary, K. Chronic mild hypoxia ameliorates chronic inflammatory activity in myelin oligodendrocyte glycoprotein (MOG) peptide-induced experimental autoimmune encephalomyelitis (EAE). Adv Exp Med Biol.701:165-73, 2011.
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NOTEWORTHY INVITED AND/OR REFEREED PRESENTATIONS

- Role of Hypoxia-induced Let-7 microRNA in Pericyte differentiation. ISOTT, Cheng Du, China, 2015.
- Role of Fat Pericytes in Cell Replacement therapy. Brain/Brain PET, Vancouver BC, June 2015.
- "Role of Pericytes in Regulation of Leukocyte Migration and Trafficking". WCBR 2014, Steamboat Springs, CO, January 25-30, 2014.
- 4. "Pericyte-Endothelial Interactions". APS Experimental Biology, San Diego, CA April 26-30, 2014.

- "Pericytes: A Source of Adult Stem Cells". Gordon Conference, New London, NH, June 15-16, 2014.
- 6. "What is new in Ms Research?" Invited lecture to the Michigan Chapter of the National Multiple Sclerosis Society, 2014.
- Poster: "The Role of Let-7 microRNA precursor in Pericyte differentiation?" Department of Neurology Research Retreat. Detroit, MI September 27, 2014.
- 8. Women in Science and Medicine (WIMS) panel on disparities
- 8th Annual Wayne State University Multiple Sclerosis Symposium, Birmingham, MI, 2013.
- 10. Great Lakes Glia Symposium. Traverse City, MI. October 6-8 2013.
- 11. Lecture/discussion Case Western Research School of Medicine. July 2013.
- 12. Case Western Research School of Medicine. "Physiology of CNS Pericyte and respond to hypoxia." July 2013.
- "Chronic Mild Hypoxia Delays MOG-specific Th17 response and induces CXCL12 and CXCL13 in EAE."- poster CMSC, 5th cooperative meeting, Orlando, FL, May 29-June, 2013.
- 14. "Brain awareness week" Middle school lecture. "Pericytes" March 2013.
- 15. "Adult Stem Cells" 46th Annual Winter Conference on Brain Research, Breckenridge, CO, January 26-31, 2013.
- 16. "Brain Energy Metabolism & Blood Flow" Colby College, Waterville, ME August 12-17, 2012.
- 17. The Lasker /IRRP Initiative for Innovation in Vision Science. Washington DC 25-28 March, 2012.
- "Cerebral Microvascular Disease: Vascular Function, White Matter Disease, and Microbleeds" International Stroke Conference 2012. New Orleans, LA, February 1-3, 2012.
- 19. "Cerebrovascular remodelling in diabetes: relevance to stroke" 45th Annual WCBR, Snowbird, Utah. January 21- 26, 2012.
- 20. Neuroscience 2011, Washington, DC 12-16 November, 2011.

- 21. Great Lakes Glia. Acme, MI, 24-26 September, 2011.
- 22. Wayne State University. 7th Annual Multiple Sclerosis Symposium. Birmingham Michigan. 19 November 2011.
- 23. "Blood, Brain, Barrier on Angiogenesis" (Speaker). XXVth International Symposium on Cerebral Blood Flow. Barcelona, Spain, May 24(26)-28, 2011.
- 24. "Modulation of the Blood-Brain Barrier by Pathophysiological Stressors" Spring Brain Conference, 16-19 March 2011.
- 25. "Pericytes are a source of Adult Stem Cells" Keystone Symposium. "Genetics, Immunology and Repair in Multiple Sclerosis. Taos, New Mexico, February 15 20, 2011.
- 26. "Brain trauma, endothelin, and vascular control: A bloody mess!" WCBR 2011 January22-27, 2011.
- 27. "Role of the blood brain barrier in multiple sclerosis." Wayne State University 6th Annual Multiple Sclerosis Symposium. November 2010.
- 28. "What is a pericyte?" 40th Annual Meeting of the Society for Neuroscience 13-17 November 2010.
- 29. "CNS Pericytes are a source of adult stem cells." 13th International Blood-Brain Barrier Symposium, Zurich 2010/Keynote. Signalling at the blood-brain and blood tumor barriers September 2-4, 2010.
- 30. "The role of CNS microvascular pericytes in seizure disorders". 30th Annual European winter conference on Brain Research. Geneva, Switzerland March, 2010.
- 31. "CNS microvascular pericytes are involved in endothelin-mediated responses in traumatic brain injury." 28th Annual National Neurotravma Symposium. Las Vegas. NV June 2010.
- 32. "Role of the pericyte in adult stem cell activity." Myelin Conference(Gordon), Oxnard, CA, February 2010.
- 33. "Hypoxia-The Good, Bad and Ugly: Clinical Relevance and Rationale for Using "Therapeutic angiogenesis" as a Treatment Paradigm." 43nd Annual Winter Conference on Brain Research. Breckenridge, CO. January 2010.
- 34. "Pericytes are a source of adult stem cells", Great Lakes Glial Symposium, Traverse City, MI, October 2009.

- 35. "The capillary pericyte is a source of adult pluripotent stem cells", Brain and Behavior Discovery Institute-Regenerative Medicine, Medical College of Georgia, November 4, 2009.
- 36. "The role of the pericyte in physiologic and pathologic brain vascular function", Vascular Remodeling and Angiogenesis in the Brain Brain/BrainPET'09 (Chicago, IL), July 2009.
- 37. "The pericyte: a novel stem cell". Induction lecture for Academy of Scholars, Wayne State University, October 2008.
- 38. "Cerebral microvascular pericytes What can they do and not do?" [Invited speaker Gordon Conference]. Brain Energy Metabolism and Blood Flow. Proctor Academy, Andover NH, August 17-22, 2008.
- 39. "Development and Disease of Myelin". 9th Annual Conference Gordon Conference on Myelin, Lucca (Barga), Italy, May 4-9, 2008.
- 40. "The role of the neurovascular unit" [Invited discussion]. 26th Annual Princeton Conference, Houston, Texas, March 27-30, 2008.
- 41. "The Role of TNF superfamily members in the blood brain barrier response to hypoxia." 28th Annual European Winter Conference on Brain Research. Les Arcs 2000, France. March 8-15 2008.
- 42. "Role of the Pericyte in Angiogenesis." Angiogenesis Foundation. Cambridge, Massachusetts October 2007.
- 43. "The Role of TNF Superfamily members TWEAK and April in Physiological Angiogenesis." VAS COG 2007. San Antonio, Texas July 2007.
- 44. "Pericytes as a source of Adult Stem Cells." CVB 2007. Calgary, Canada June 2007.
- 45. "Pericytes as Adult Stem Cells." Plenary talk Brain 07. Osaka, Japan May 2007.
- 46. "CNS microvascular pericyte is a source of adult stem cells." National Multiple Sclerosis Society. San Francisco, California March 2007.
- 47. "The role of the pericyte in Angiogenesis." NIH Workshop on Angiogenesis. Washington, DC November 2006.

- 48. "The CNS microvascular response to traumatic brain injury." Kentucky Spinal Cord and Head Injury Research Center Trust Symposium. Lexington, Kentucky June 15-16 2006.
- 49. "The role of the pericyte in the blood brain barrier." University of Wisconsin. Madison, Wisconsin April 2006.
- 50. "CNS Pericytes have stem cell function." FASEB Meeting. San Francisco, California April 2006.
- 51. "Pericytes: A Source of adult pluripotential stem cells." MS Society Symposium on Stem Cells. San Francisco, California February 2006.
- 52. "Role of TWEAK in the CNS Pericyte stress response to hypoxia." Ohio State University. Columbus, Ohio January 2006.
- 53. "Role of the pericyte in vascular adaptation to stress." Winter Conference for Brain Research. Breckinridge, Colorado January 2005.
- 54. "Pericyte VEGF in Brain tumors" 10th Annual Neuro-Oncology and Blood Brain Barrier Disruption Consortium Meeting Portland Oregon March 2004.
- 55. Blood Brain Barrier Dysfunction in MS and Trauma. 10th Annual Neuro-Oncology and Blood Brain Barrier Disruption Consortium Meeting Portland Oregon March 2004.
- 56. "Role of the CNS Pericyte in the stress Response to hypoxia." 35th Annual Winter Conference for Brain Research, Snowmass, Colorado January 2003.
- 57. "Hypoxia induces VEGF Expression." National Neurotrauma Society. Tampa, Florida November 2002.
- 58. "Pericyte VEGF Gene-Expression-Gordon Conference on Blood Brain Barrier." Tilton, New Hampshire June 2002.
- 59. "Role of CNS Pericyte in the stress Response to hypoxia." Winter Conference for Brain Research, Snowmass, Colorado January 2002.
- 60. "Role of the CNS Microvascular Pericyte in tumors of the brain." World Congress of Microcirculation. Sydney Australia, August 2001.
- 61. "Transcellular Communication between the cellular constituents of the blood brain barrier. Role of the microvascular pericyte in the stress response." Cambridge, UK April 2001.

- 62. "Intracellular Pathways linking hypoxia to gene activation of stress adaptive proteins." 21st European Winter Conference for Brain Research. Arc, France March 3-11 2001.
- 63. "Role of the Blood Brain Barrier in MS and EAE." Panel at Winter Conference for Brain Research. January 20-27, 2001.
- 64. "Analysis of the MIT Report on the status of Women in Science." Society for Neurochemistry Annual Meeting. March 2000.
- 65. "Role of the cylopentenone prostaglandins in the CNS pericyte response to hypoxia." 20th Annual European Winter Conference for Brain Research. Villars Sur Ollon, Switzerland March 2000.
- 66. "Role of the CNS microvascular pericyte in Multiple Sclerosis and EAE." 33rd Annual Winter Conference for Brain Research. Breckenridge, Colorado, January 2000.
- 67. "Role of Inflammation in Traumatic Brain Injury." International Neurotrauma Meetings, Miami, Florida, November 1999.
- 68. "Role of cytokines in the pathogenesis of CNS Lupus." NIH Workshop on CNS Lupus, National Institute of Arthritis and Rheumatism. November 1999.
- 69. "Role of Vascular Pericytes T-cell Polarization." Brain 99, Copenhagen, Denmark, June 1999.
- 70. "Role of the CNS Pericyte in MS Research." 19th European Winter Conference for Brain Research, La Plagne, France, March 1999.
- 71. "Endothelial Activation in MS." Department of Neurology, University of Utah, February 1999.
- 72. "Role of the Pericyte in TBI." 16th Annual Symposium, National Neurotrauma Society, Los Angeles, CA, November 1998.
- 73. "Leukocyte Trafficking and Migration Across the Blood Brain Barrier." International Neuroimmunology Meetings and Session Chair, Montreal, Canada, August 1998.
- 74. "Multiple Sclerosis immune mechanisms in current research." Grand Rounds, Department of Physiology, University of Arkansas School of Medicine, Little Rock, AR, May 1998.

- 75. "The role of pericytes in T-cell activation." Grand Rounds, Department of Neurology, University of Arkansas School of Medicine, Little Rock, AR, May 1998.
- 76. "Role of CNS pericytes in T-cell polarization." Golden Anniversary (50th) Annual Meeting, American Academy of Neurology, Minneapolis, MN, April 1998.
- Moderator, Cell and Molecular Biology; and Physiology of the Blood-Brain Barrier and the Blood-CSF Barrier, Cerebral Vascular Biology Conference, Gleneden Beach, Oregon, March 1998.
- 78. "The Role of the CNS Microvascular Pericyte in Leukocyte Polarization." Plenary Talk, International Cerebrovascular Biology "Brain 97" Meeting, Baltimore, Maryland, June 1997.
- 79. "The Role of the PC in Neuroimmune Neutrals at the Blood Brain Barrier." American Academy of Neurology, April 1997, Boston, Massachusetts.
- 80. "Pericytes and the Blood Brain Barrier", Cardiology Lecture, April 1997.
- 81. "Endothelial Activation Adaptive Process or Deleterious Response to Stress" Killam Lecturer "Montreal Neurological Institute". Montreal, Quebec Canada. February 11, 1997.
- "Pericyte Response Following Traumatic Brain Injury: Migration of Pericytes from CNS Microvessels and Apoptosis". 13th Annual Neurotrauma Symposium. November 10-11, 1995. San Diego, California. Journal of Neurotrauma. Vol. 12:5. pp. 988. October 1995.
- 83. "Cultured CNS Microvessels Respond to Injurious and Protective Factors by Differential Immediate Early Gene (IEG) Expression", 13th Annual Neurotrauma Symposium. November 10-11, 1995. San Diego, California. Journal of Neurotrauma. Vol. 12:5. pp. 968 October 1995.
- 84. "Differential IEG Response of CNS Pericytes and Endothelial Cells to Calcium Ionophoremediated Injury: Regulation by TGFβ", 3rd International Neurotrauma Symposium, Toronto Canada, July 1995.
- 85. "Bi-directional Communication Between CNS Pericytes and Endothelial Cells in Response to Low Oxygen". XVII International Symposium on Cerebral Blood Flow and Metabolism. Cologne, Germany, 2-6 July 1995. Journal of Cereb. Blood Flow and Met. Vol. 15 Supp. 1 pg. s556.
- 86. "Endothelial Activation in Neurodegenerative Diseases". Vascular Biology Seminar Series. May, 1995.

- 87. "Pericyte-CNS Cross Talk in Hypoxia", Research Opportunities in Vascular Biology, May, 1995.
- 88. "CNS Endothelial Activation", Kresge Eye Institute. March, 1995.
- 89. "CNS Pericytes", Winter Conference on Brain Research Outreach Program, Guest Speaker, Steamboat Springs High School Neuroscience Lecture for 9th Grade Students, February, 1995.
- 90. "Pericyte-CNS Endothelial Cell Cross Talk During Hypoxia", 9th International Symposium on Hypoxia and Mountain Medicine, McMaster University, The Arctic Institute of North America and the University of Sydney.
- 91. "Endothelial Activation in MS", Parke-Davis Company, July, 1994.
- 92. "Endothelial Activation in Experimental Allergic Encephalomyelitis", Autoimmunity Seminar Series, June, 1994.
- 93. "CNS Pericytes Have Immune Potential." Blood Brain Barrier Workshop, Hungarian Academy of Sciences, Szeged, Hungary, July 1993.
- 94. "Endothelial Activation During Hypoxia." 2nd International Neurotrauma Symposium, Glasgow, Scotland, July 1993.
- 95. "CNS Vascular Pericytes Have Immune Potential. Expression of Macrophage Antigens and Production of Eicosanoids." American Academy of Neurology, New York, NY, April, 1993.
- 96. "Novel Neuroimmune-immune Cross Talk Mechanisms. Cytokines as Intrinsic Neuromodulators." Winter Conference on Brain Research, Whistler, Canada, January 1993.
- 97. "Endothelial Cell Activation in Inflammation, Vasculitis and Thrombosis" (Neuroimmunology Course) American Academy of Neurology, New York City, NY, 1993.
- 98. "Clinical Studies in MS." American Academy of Neurology, San Diego, May 1992.
- 99. "Endothelial Cell Activation Antigens in MS". American Academy of Neurology, January 1992.
- 100. "Transcellular communication involving Eicosanoids" Winter Conference on Brain Research, January 1992.
- 101. "Unique Cytokine CNS interactions" workshop for Winter Conference on Brain Research, January 1992.
- 102. "Multiple Sclerosis HLA and Cytokines." 4th International Congress for Neuroimmunology, Jerusalem, Israel, October 1991.

- 103. "Upregulation of Endothelial Cell Activation Antigens in Patients with MS". 4th International Congress for Neuroimmunology, Jerusalem, Israel, October 1991.
- 104. "Monocyte activation antigen Mo3, cytoskeletal interactions" 4th International Congress for Neuroimmunology, Jerusalem, Israel, October 1991.
- 105. "Multiple Sclerosis Mechanisms of Action." American Academy of Neurology, April 1991.
- 106. "Functional Desensitization of Monocytes from Patients with MS." Academy of Neurology, Boston, MA, April 1991.
- 107. "Prostaglandin-mediated desensitization of monocytes in patients with MS." Academy of Neurology, Neurology, April 1991.
- 108. "Lymphocyte Adherence to Myelin-role of PLP binding Leukocytes". Society for Neurochemistry, March 1991.
- 109. "Endothelial Cell Activation Antigens in MS." Third International Congress Neuroimmunology, Jerusalem, Israel, 1991.
- 110. Grand Rounds, October, 1990. "Prostaglandins in Altered Leukocyte Function in MS".
- 111. "Annual Speaker" Michigan MS Society UP Branch September 29, 1990
 "Activation Antigens in MS.
- 112. Cleveland Clinic, August, 1990. "Monocyte Activation Antigens in MS".
- 113. "American Academy of Neurology, May 5, 1990 "Activation Associated Antigens in MS".
- 114. "Annual Speaker" National MS Society, Michigan Chapter, Upper Peninsula, September 29, 1990.
- 100."Annual Speaker" National MS Society, Pennsylvania Chapter, April 1987.
- 101. "Functional Desensitization of MS Monocytes" International Neuroimmunology meeting, September 1987.
- 102. "Neuroimmune Mechanisms in MS" Colloquium. Lymphocyte Adherence to myelinated tissue in MS. April 1989. Wayne State University School of Medicine.
- Connecticut Physical Therapy Society. "Etiology of Multiple Sclerosis."
 New Haven, CT. May 1985.
- 104. International Multiple Sclerosis Societies. "CSF Prostaglandins." "Cellular Immune Aspects of Cerebrospinal Fluid in MS." Belgium. April 19-24, 1986.

- 105. National Multiple Sclerosis Society Workshop, Mechanisms of Demyelination, Airlie House, Virginia. "Role of Prostaglandins in Altered Leukocyte Function in MS." November 1984.
- 106. National Multiple Sclerosis Society Symposium, Gaylord Hospital. "Lymphocyte Adherence to Myelinated Tissue." October 6-7, 1983.
- 107. Franklin Institute, Philadelphia, PA. Current Concepts in Autoimmune Disease. July 25, 1983.
- 108. "Visiting Scientist." University of Chicago, Department of Neurology.

 Modulation of T-cell Surface Differentiation Antigens." February 1983.
- National Multiple Sclerosis Society, "Immunologic Aspects of Multiple Sclerosis." Maine. July, 1982.
- 110. National Multiple Sclerosis Society, Bergin Passaic Chapter Multiple Sclerosis Research Day, "Lymphocyte Adherence to Virus Infected Cells in MS." Fairleigh Dickenson University, Hackensack, New Jersey. October 17, 1981.
- 111. "Visiting Scientist." University of Pennsylvania School of Medicine (Depts. of Neurology and Medicine) and the Wistar Institute. "The Effect of Oral Ingestion of Prostaglandin on the Immune Response", "Lymphocyte Adherence in Multiple Sclerosis." June 5-7, 1981.
- 112. Advances in Immunology. "Immunopathology of Multiple Sclerosis." University of Massachusetts School of Medicine. April 1, 1981.
- 113. Advances in Allergy Clinical Immunology and Pulmonary Disease. (Postgraduate course) "Viral Immunology." Yale University and University of Connecticut Schools of Medicine, December 11, 1980.
- 114. National Institute of Health and National Multiple Sclerosis Society sponsored Workshop on Cell Aggregation and Adhesion, "Lymphocyte Adherence in Multiple Sclerosis." Bethesda, Maryland, September 28-30, 1980.
- 115. National Multiple Sclerosis Society, Bursar to the International Congress of Immunology. Paris, France. (\$1,500 award). July 20-25, 1980.
- 116. Mini symposium on fatty acids and MS, Transplantation Institute of Medical Research Council, Harrow, England, July 20, 1980.
- National Multiple Sclerosis Society Workshop, Cellular Immune Aspects of MS, January 1980, Airlie House, Virginia.
- 118. International Symposium on Fatty Acids and Disease, sponsored by the Rockefeller Institute, Belagio, Italy, August 1979.