



CYNTHIA ANN HUSTED  
CURRICULUM VITÆ  
cynthiahusted.com

[cynthiahusted@me.com](mailto:cynthiahusted@me.com)  
(805) 886-0320 cell

Freeland, WA  
Whidbey Island

## EDUCATION

Institute for Functional Medicine	Board Certification	2010-2013	Functional Medicine
University of California, San Francisco	post-doctoral	1991-1994	Neuroradiology
University of Illinois, Urbana, IL	Ph.D.	1990	Physical Chemistry
IUPUI/Purdue, Indianapolis, IN	B.S.	1984	Chemistry
Ball State University, Muncie, IN	B.S.	1979	Nursing

## PROFESSIONAL EXPERIENCE

- 2018 – pr Visiting Scholar, Department of Family and Preventive Medicine  
University of California, San Diego  
Integrative Functional Medicine
- 2013 – pr Clinical Consulting in Integrative Functional Medicine, systems biology medicine.  
• Evaluation of biochemical imbalances with epigenetics and functional biomarkers.  
• Emphasis on general internal medicine and family medicine, all ages, with experience in autoimmunity, toxins, neurotransmitters, moods, autism spectrum, neurodegenerative, cardiovascular and respiratory disorders, cancer, hormones, infertility, and end of life care.  
• Integration of Functional and Tibetan medical theories.
- 2012 – 2015 Visiting Fellow, Hoover Institute, Stanford University  
• Comparison of outcomes and costs of preventive health strategies for management of chronic health conditions, including Multiple Sclerosis.
- 2011 – 2014 Independent Study of the intersection of science and spirituality, health policy, Tibetan medicine, and integrative medicine. Spirit House, Woodside, CA.
- 2006 - pr Global Institute for Tibetan Medicine  
• Research of Tibetan Medicine with a focus on longevity, neurodegenerative disorders, immunity and autoimmunity, chronic disease, infertility.  
• Education, Research, Conservation of Tibetan Medicine.
- 1997-2005 University of California, Santa Barbara, Neuroscience Research Institute  
Director, Center for the Study of Neurodegenerative Disorders  
• Integrative research of neurodegenerative disorders, with approaches in physical chemistry, bioengineering, central nervous system cultures, medicinal plants and Tibetan Medicine.

- 1994-2005 University of California, Santa Barbara, Department of Chemical Engineering  
Research Engineer
- Characterization of myelin structure and changes in multiple sclerosis with approaches in physical chemistry and bioengineering, including magic angle spinning NMR spectroscopy, MRI microscopy, HPLC and GC analyses of myelin lipids, Langmuir isotherms and fluorescence microscopy, atomic force microscopy, x-ray reflectivity, confocal microscopy of myelin formation, atomic force microscopy of human brain progenitor cell differentiation, myelin bioreactor design.
  - UCSB Research Advising:  
Graduate advisor in chemical engineering, biology  
Graduate collaborator in religious studies  
Undergraduate advisor in chemical engineering, mechanical engineering, biology, pharmacology, physiology, and religious studies
  - Lecturer, Biochemical Engineering
- 2000-2002 Westmont College, Montecito, California
- Lecturer in neuroscience.
  - Advisor to honor's theses in neuroscience.
- 1993-1999 The University of Texas Medical Branch at Galveston  
Visiting Scientist, Department of Human Biological Chemistry and Genetics
- Magnetic resonance studies of myelin and multiple sclerosis
  - Solid state magic angle spinning NMR and MRI microscopy of MS
- 1991-1994 University of California, San Francisco  
Postdoctoral Research Fellow, Department of Radiology  
Technical development of *in vivo* MRI spectroscopy for:
- Clinical studies of brain myelin lipids and changes in multiple sclerosis
  - Clinical studies of brain lipid metabolites and energy metabolism in multiple sclerosis
- 1987 Lanzhou University, Lanzhou, Gansu Province, P.R. China  
Research Consultant, Chemistry Department, one semester
- Assisted with installation of superconducting nuclear magnetic resonance spectrometer and experiments to evaluate Chinese medicinal plants
  - Lecturer, graduate physics course on NMR theory and instrumentation
- 1984-1990 University of Illinois, Urbana-Champaign  
Academic and Graduate Assistant, School of Chemical Sciences,  
Thesis Advisor: Professor Eric Oldfield (NMR pioneer)  
Thesis Committee: Professors Paul Lauterbur (Nobel Laureate, MRI) and Herbert Gutowsky (NMR Pioneer)  
Thesis Topic: *Solid state magic angle spinning NMR of myelin membranes*
- Applications of magic angle spinning NMR spectroscopy to biomembranes
  - Evaluation of myelin membrane fluidity with solid state NMR spectroscopy
  - Characterization of myelin development and changes in multiple sclerosis
  - Construction of home-built NMR spectroscopy system
  - Teaching Assistant, Thermodynamics, Physical Chemistry
  - Lecturer, General Chemistry and Lab
  - Independent study, Lanzhou University, China (physics, chemistry, medicinal plants)

- 1983-1984 Indiana University-Purdue University at Indianapolis  
 • Teaching Assistant, General Chemistry Lab
- 1981-1984 Indiana University-Purdue University at Indianapolis  
 Research Assistant, physical organic chemistry  
 • Carried out metal-ammonia reductions of polycyclic aromatic hydrocarbons  
 • Stereochemical analysis of reaction products with NMR spectroscopy
- 1979-1986 Registered Nurse  
 • Intensive care unit; St. Vincent Hospital, Indianapolis, IN, 1979-1986  
 • Health education program development; Belize, Central America, 1985
- 1978-1979 Ball State University, Muncie, IN  
 Research Assistant, Human Performance Lab  
 • Exercise physiology testing - Human Performance Laboratory  
 Advisor: Professor Bud Getchell  
 • Implemented exercise and nutrition rehabilitation programs for people with myocardial infarction and stroke

### **PROFESSIONAL EXPERIENCE: COMPLEMENTARY & ALTERNATIVE MEDICINE**

- 1999-pr Research on Traditional Tibetan Medicine in collaboration with Dr. Lobsang Dhondup.  
 Research focus on longevity, neurodegenerative disorders, immunity and autoimmunity.
- 1998-2003 Management of 3-acre Medicinal Plant Project on private ranch in collaboration with the University of California, Santa Barbara. Greenhouse medicinal plants included.
- 1997 Participated in NIH Consensus Conference on Acupuncture, Bethesda, MD.
- 1997-1998 Santa Barbara College of Oriental Medicine, Santa Barbara, CA  
 • Taught science overview to acupuncture students  
 • Wrote successful grant to study the benefits of TCM for hepatitis C
- 1994 Northern California National Multiple Sclerosis Society, Conceptualized Annual Meeting "The Mind-Body Connection" and chaired session "Positive Daily Living: Complementary Methods for Enhancing Well-being"
- 1993 Health Promotion Programs for Multiple Sclerosis,  
 • American College of Traditional Chinese Medicine, San Francisco, CA  
 Designed and implemented outcomes study exploring benefits of t'ai chi for MS  
 • Channel Islands Chapter of National MS Society, Santa Barbara, CA  
 Assisted with design and implementation of MS Wellness Resource Center  
 • Rehabilitation Hospital of Indiana, Indianapolis, IN  
 Assisted with outcomes study exploring benefits of t'ai chi for MS
- 1987-1988 Independent study of Chinese, Tibetan, and Ayurvedic medicines  
 • Traveled, worked, and studied for one year in China, Tibet, and India.
- 1985 Health education program development, Belize, Central America

- Worked with Ministry of Health of Belize to teach health care while teaching English as a second language to refugees; independent study of Mayan medicine.

1975 - pr Studies in nutrition, exercise, massage, herbalism, meditation, yoga, Ayurveda, acupuncture, t'ai chi, qi gong, Tibetan medicine, somatic education including Rolfing and Hanna Somatics, pranic healing/energy medicine, Functional Medicine, world traditional medicines.

## **PROFESSIONAL ACTIVITIES**

### **Memberships in Professional Organizations**

Institute for Functional Medicine  
 New York Academy of Sciences  
 American Chemical Society  
 American Association for the Advancement of Science  
 Sigma Xi, national science honor society  
 Sigma Theta Tau, national nursing honor society

### **Service to Professional Organizations**

#### *Editorial Advisory Board*

TANG, International Journal of Traditional Medicine

#### *Journal Referee*

Biochemical Biophysical Research Communications  
 Biochemistry  
 Biochimica et Biophysica Acta  
 European Biophysics Journal  
 Expert Review of Clinical Immunology  
 International Journal of General Medicine  
 Journal of Molecular Modeling  
 Neuroscience Research Communications  
 Proceedings of the National Academy of Sciences

#### *Grant Reviewer*

Alzheimer's Association  
 Italian Multiple Sclerosis Society

#### *Advisory Boards*

Board Member, Southern California IEEE Biomedical Engineering Chapter, 2000-2005  
 Advisory Committee, Neuroscience Research Institute, UCSB, 1999-2000, 2002-2005  
 Advisory Board, American College of Traditional Chinese Medicine, San Francisco, 1993-1994  
 Board of Trustees, Channel Islands Chapter of the National MS Society, 1994-1998  
 Professional Advisory Committee, No. CA Chapter of the National MS Society, 1991-1994

## **AWARDS**

Riverview Hospital Foundation, Woman of the Year in Self, Health, Wealth. Noblesville, IN, 2014  
 Soroptimist International, Santa Barbara Woman of Distinction in Health, 1997  
 National Multiple Sclerosis Society, Advanced Postdoctoral Fellowship, 1993-1994  
 National Multiple Sclerosis Society, Postdoctoral Fellowship, 1991-1993  
 Abbott Laboratories Research Scholarship, 1989, 1990  
 Society of Magnetic Resonance in Medicine, travel award, 1989, 1990, 1992  
 Traditional Medicine Research Scholarship, 1988  
 Research Fellowship, Lanzhou University, P.R. China, 1987

Outstanding Teaching Award, University of Illinois, Urbana, 1985  
American Chemical Society National Undergraduate Research Competition, 3rd place, 1984  
Loren T. Jones Research Scholarship, Purdue University at Indianapolis, 1983  
Sigma Xi Undergraduate Research Competition, Purdue Univ. at Indianapolis, 1st place, 1983  
Kappa Kappa Kappa nursing scholarship, 1975-1979

## **GRADUATE STUDENTS**

Benjamin Ohler, Ph.D., Chemical Engineering, UCSB, February 2003. The role of lipids in normal myelin structure and diseases of myelin. Primary research advisor.

Julie Burgher, M.S., Ecology, Evolution and Marine Biology, UCSB, June 2001. The Role of MAG in Myelination: Friend or Foe? Primary research advisor.

## **PUBLICATIONS, Basic Science**

Min Y, Kristiansen K, Boggs J, Husted C, Zasadzinski J, Israelachvili J. Interaction forces and adhesion of supported myelin lipid bilayers modulated by myelin basic protein. *Proc Natl Acad Sci*, 2009; 106:3154-3159

Husted C. Structural insight into the role of myelin basic protein in multiple sclerosis. *Proc Natl Acad Sci*, 2006; 103:4339-4340.

Hu Y, Doudevski I, Wood D, Moscarello M, Husted C, Genain C, Zasadzinski J, Israelachvili J. Synergistic roles of lipids and myelin basic proteins: Force measurements between and structural imaging of model myelin membranes, *Proc Natl Acad Sci*, 2004; 101:13466-13471.

Ohler B, Graf K, Bragg R, Lemons T, Coe R, Israelachvili J, Genain C, Husted C. Role of Lipid Interactions in Autoimmune Demyelination, *BBA Mol Basis Disease*, 2004; 1688:10-17.

Graf K, Husted C, Baltes H, Ahrens H, Helm CA. Structure of hydroxylated galactocerebrosides from myelin at the air-water interface, *Biophys J*, 2002; 82:896-907.

Ohler B, Revenko I, Husted C. Atomic force microscopy of nonhydroxy galactocerebroside nanotubes and their self-assembly at the air-water interface, with applications to myelin, *J Struct Biol*, 2001; 133:1-9.

Husted C, Matson GB, Adams D, Goodin DS, Weiner MW. In vivo detection of myelin phospholipids in multiple sclerosis with phosphorus magnetic resonance spectroscopic imaging, *Ann Neurol* 1994; 36:239-241.

Husted C. Contributions of neuroimaging to multiple sclerosis, *Current Opinion in Neurology* 1994; 7:234-241.

Husted C, Goodin DS, Maudsley AA, Hugg JW, Tsuruda JS, Matson GB, Weiner MW. Biochemical alterations in multiple sclerosis lesions and normal appearing white matter detected in brain by in vivo <sup>31</sup>P and <sup>1</sup>H magnetic resonance spectroscopic imaging, *Ann Neurol* 1994, 36:157-165.

Husted C, Duijn J, Matson G, Maudsley AA, Weiner MW. Molar quantitation of in vivo proton

metabolites in human brain with 3D magnetic resonance spectroscopic imaging, *Magn Reson Imag* 1994; 12(4):661-667.

Montez B, Oldfield E, Urbina JA, Pekerar S, Husted C, Patterson J. Editing <sup>13</sup>C-NMR spectra of membranes. *Biochim Biophys Acta* 1993; 1152:314-318.

Husted C, Montez B, Le C, Moscarello M, Oldfield E. Carbon-13 "magic-angle" sample spinning nuclear magnetic resonance studies of human myelin, and model membrane systems. *Magn Reson Med* 1993; 29:168-178.

Hugg JW, Laxer KD, Matson GB, Maudsley AA, Husted C, Weiner MW. Lateralization of human focal epilepsy by <sup>31</sup>P magnetic resonance spectroscopic imaging. *Neurology* 1992; 42:2011-2018.

Meyerhoff DJ, Maudsley AA, Husted C, Weiner MW. Magnetic Resonance Spectroscopic Imaging. *MR Quarterly* 1992; 2:47-52.

Forbes J, Husted C, Oldfield E. High-field high-resolution proton "magic angle" sample-spinning nuclear magnetic resonance spectroscopic study of gel and liquid-crystalline lipid bilayers, and the effects of cholesterol. *J Amer Chem Soc* 1988; 110:1059-1065.

Rabideau PW, Day LM, Husted C, Mooney JL, Wetzel DM. Stereochemistry of metal-ammonia ring reduction of aryl carboxylates and ketones and NMR conformational analysis of the dihydro aromatic products. *J Org Chem* 1986; 51:1681-1686.

Rabideau PW, Wetzel DM, Husted C, Lawrence JR. The <sup>13</sup>C NMR conformational analysis of 9,10-dihydroanthracene monoanions. *Tetrahedron Letters* 1984; 25:31-34.

Rabideau PW, Husted C, Young DM. Metal-ammonia reduction of 1-acetylnaphthalenes. *J Org Chem* 1983; 48:4149-4150.

## **PUBLICATIONS, Traditional Medicines**

Pennyroyal G, Dhondup L, Husted C. A Review of Medicinal Plant Patents. *Recent Patents on Biomedical Engineering*, 2011; 4:126-138.

Husted C. and Dhondup L. Bridging the Gap Between Science and Traditional Medicine: Microscopic and Macroscopic Agreement of Three *nyes pa* Descriptions of Multiple Sclerosis. In Mingji Cuomu, Sienna Craig, Francis Garrett and Mona Schrempf (eds.), *Studies of Medical Pluralism in Tibetan History and Society*. (Proceedings of the 11th Seminar of the International Association for Tibetan Studies, Bonn 2006). Andiast: International Institute for Tibetan and Buddhist Studies GmbH (IITS), 2011.

Husted C and Barrett B. *Echinacea angustifolia* therapeutics and safety profile, in *Echinacea angustifolia* Standards of Analysis, Quality Control and Therapeutics, Roy Upton (Editor), American Herbal Pharmacopoeia, 2010.

Husted C and Dhondup L. Tibetan medical interpretation of myelin lipids and multiple sclerosis. *Ann NY Acad Sci*, 2009; 1172: 278-296.

Dhondup L and Husted C. Regeneration and Tibetan medicine. *Ann NY Acad Sci*, 2009; 1172: 115-122.

Husted C, Pham L, Hekking AMA, Niederman RS. Improving quality of life for people with chronic disabilities: the example of t'ai chi and multiple sclerosis, *Alt Therap Health Med*, 1999; 5:70-74.

### **PUBLICATIONS, Electronic Papers, Published Abstracts**

Pham L, Bragg R, Uchio K, Husted C. Biomedical Research Mentorship: The Young Investigators' Innovative High School Program. Eight-Year Mentorship Program with Emphasis on Multiple Sclerosis, Center for the Study of Neurodegenerative Disorders, January 23, 2006.  
<http://repositories.cdlib.org/csnd/mpems/2>

Jacob M and Husted C. Medicinal Plant Mentorship Program. Eight-Year Mentorship Program with Emphasis on Multiple Sclerosis, Center for the Study of Neurodegenerative Disorders, January 19, 2006.  
<http://repositories.cdlib.org/csnd/mpems/1>

Wilson A, Medina M, Smith J, Husted C. Confocal and light microscopy of myelination in cerebellar slice cultures. Imaging and multiple sclerosis (macro-to-micro), Center for the Study of Neurodegenerative Disorders, December 14, 2004. <http://repositories.cdlib.org/csnd/ims/1>

Koopman E and Husted C. Sphingomyelin-cholesterol superlattices as detected with Langmuir isotherms: their potential role in myelin and demyelination. Physical chemistry of myelin lipids and changes in multiple sclerosis, Center for the Study of Neurodegenerative Disorders, October 14, 2003,  
<http://repositories.cdlib.org/csnd/pcmlcms/1>

Ohler, B.; Graf, K.; Lemons, T.; Coe, R.; Jahangir, S.; See, W.; Genain, C.; Husted, C. American Society for Neurochemistry. Myelin lipid research using Langmuir monolayers. *J Neurochem* 1999; 72:S15.

Husted C, Nguyen M-H, Hauser SL, Genain, CP. Changes in myelin lipid fatty acid unsaturation during EAE in the common marmoset detected with carbon-13 magic angle spinning NMR spectroscopy. *Neurology*, 1995; 45:A211.

Husted CA and Post JFM. Decreases in myelin lipids in multiple sclerosis normal appearing white matter detected with carbon-13 magic angle spinning NMR spectroscopy. *J Neurochem* 1995; 64:S3C.

Husted C, Goodin DS, Maudsley AA, Tsuruda JS, Weiner MW. Biochemical alterations in multiple sclerosis lesion and normal white matter detected in brain by in vivo  $^{31}\text{P}$  and  $^1\text{H}$  magnetic resonance spectroscopic imaging. *Neurology* 1993; 43:A182.

Meng X, Husted C, Cheng J, Cui Y, Chen Y. Structure of norhendosin, a spirosecokarene diterpenoid from *Rabdosia henryi*, Department of Chemistry, Lanzhou University, China, 1987.

### **INVITED TALKS**

Functional Tibetan Medicine: A synergy for optimizing clinical outcomes. Tibetan Medicine Conference on Mind-Body Health, Harvard Medical School, Boston, October 6, 2017.

Neurotransmitters and Moods from the View of Functional Tibetan Medicine. Spiritual Emergence Seattle and Mind Freedom Seattle, May 7, 2016.

Eastern Medicine. Draper University, San Mateo, CA, June 13, 2012.

Rafts and domains in MS normal-appearing myelin and acute demyelination. Rafting and Misrafting Myelin with a Look to Autoimmunity, MARIE Network of the European Science Foundation. Giovinazzo, Italy, September 28–October 1, 2006, invited speaker and session chair.

Tibetan medical interpretation of myelin and multiple sclerosis. Tibet House U.S. & Columbia University Integrative Medicine Program, Longevity & Optimal Health Conference: Integrating Eastern & Western Perspectives, September 18-21, 2006.

Synergistic roles of lipids and myelin basic proteins: Force measurements between and structural imaging of model myelin membranes. Myelin Structure and its role in Autoimmunity II, MARIE Network of the European Science Foundation. Potenza, Italy, May 1-5, 2005, invited speaker and session chair.

Tibetan medicine interpretation of myelin and multiple sclerosis. Department of Anthropology, History and Social Medicine and Osher Center for Integrative Medicine. Workshop on Tibetan Medicine. University of California, San Francisco, May 2004.

Tibetan medicine interpretation of myelin and multiple sclerosis. Second International Congress on Tibetan Medicine. Washington, DC, November 2003.

Integrative approaches to the study of Multiple Sclerosis with an emphasis on the study of medicinal plants. University of California, Santa Barbara Restoration Ecology Seminar, February 2003.

Overview of Tibetan Medicine and Multiple Sclerosis. Ball Memorial Family Practice Residency Program, Indiana University, November 2002.

Structural characterization of myelin in multiple sclerosis. Southern California IEEE Biomedical Engineering Society Annual Meeting. Anaheim, CA, September 2002.

Research overview of integrative approach to problem solving. University of California, QUEST Mentorship Program, August 2002.

Progress toward understanding multiple sclerosis. University of California, Santa Barbara Registrar's Office, Santa Barbara, CA, June 2002.

Progress toward understanding multiple sclerosis. University of California, Santa Barbara, Continuing Education for Student Health Center Physicians, May 2002.

The physical chemistry of myelin in multiple sclerosis. Huntington Medical Research Institute, Pasadena, CA, April 2000.

Imaging studies of myelin and multiple sclerosis. California State University, Northridge, CA, February 2000.

Progress toward understanding multiple sclerosis. Schulte Research Institute Annual Meeting, Santa Barbara, CA, November 1998.



A multidisciplinary approach to multiple sclerosis. Department of Psychology, Graduate program in biopsychology, University of California, Santa Barbara, October 1997.

The physical chemistry of myelin. Institute for Theoretical Physics and Materials Research Lab Summer School, University of California, Santa Barbara, CA, July 1997.

Bioengineering characterization of myelin and changes in multiple sclerosis. Centaur Pharmaceuticals. Sunnyvale, CA, July 1997.

Bioengineering characterization of myelin and changes in multiple sclerosis. UCLA Neuroimmunology Research Group. June 1997.

Bioengineering characterization of myelin membranes and changes in neurodegeneration. Department of Chemical Engineering, University of California, Davis, May 1997.

Magic angle spinning NMR studies of myelin lipids. Cottage Hospital Annual Research Symposium, Santa Barbara, CA, January 1997.

Bioengineering characterization of myelin and changes in multiple sclerosis. UCSF Neuroimmunology research group, November 1996.

Characterization of myelin and changes in neurodegeneration - a bioengineering approach. Department of Chemical Engineering, University of California, Santa Barbara, October 1996.

Magnetic resonance studies of demyelination in MS and EAE. Neuroscience Research Institute Annual Symposium, University of California, Santa Barbara, June 1995.

Magnetic resonance studies of myelin lipids in multiple sclerosis. Neurosurgery and Neurology Grand Rounds, Cottage Hospital, Santa Barbara, CA, October 1994.

Magnetic resonance studies of demyelination in multiple sclerosis. Neuroscience Research Institute Seminar Series, University of California, Santa Barbara, CA, December 1994.

Magnetic resonance characterization of multiple sclerosis normal appearing white matter. Department of Human Biological Chemistry and Genetics, University of Texas Medical Branch at Galveston, November 1993.

Magnetic resonance studies of myelin lipids. Magnetic Resonance Science Center, University of California, San Francisco, September 1993.

Proton and phosphorus magnetic resonance spectroscopic imaging of multiple sclerosis. Neuroradiology Research Conference, University of California, San Francisco, August 1993.

Molar quantitation of *in vivo* proton metabolites in human brain with 3D magnetic resonance spectroscopic imaging. In Vivo Magnetic Resonance Workshop, University of California, San Francisco, 1992.

Normal appearing white matter changes in multiple sclerosis detected by proton and phosphorus MR spectroscopic imaging. In Vivo Magnetic Resonance Workshop, University of California, San Francisco, 1992.

Proton and phosphorus magnetic resonance spectroscopic imaging of multiple sclerosis. Neuroradiology Research Conference, University of California, San Francisco, July 1992.

Proton and phosphorus magnetic resonance spectroscopic imaging of multiple sclerosis. In Vivo Magnetic Resonance Workshop, St. Louis, 1991.

Solid state carbon-13 magic angle spinning NMR studies of normal and diseased myelin membranes. Membrane Seminar Series, University of Toronto, March 1990.

## **CONTRIBUTED POSTERS AND TALKS**

Adsorption and Bridging Adhesion of Myelin Basic Protein with Cytoplasmic Model Myelin Membranes. American Institute of Chemical Engineers, Nashville, TN, November 8-13, 2009.

Min Y, Kristiansen K, Boggs J, Husted C, Zasadzinski J, Israelachvili J. Interaction Forces and Adhesion of Myelin Lipid Bilayers as Modulated by Myelin Basic Protein. American Institute of Chemical Engineers, Philadelphia, PA, November 16-21, 2008.

Husted C, Ohler B, Bragg R, Genain C, Israelachvili J, Revenko I, Zasadzinski J. The physical chemistry of myelin lipids in multiple sclerosis. Neuroscience Institute at Stanford, 2<sup>nd</sup> annual meeting, May 2-4, 2003.

Kusza B and Husted C. Non-invasive method of measuring distributed impedance of neuron fibers. Measurement Science Conference, 2002.

Ohler B, Revenko I, Husted C. Atomic force microscopy of galactocerebroside nanotubes and their self-assembly at the air-water interface, with applications to multiple sclerosis. Presented at the Neuroscience Research Institute Annual Symposium, University of California, Santa Barbara, June 2000.

Hu Y, Ohler B, Husted C, Israelachvili. Characterization of the adhesion between model myelin membranes by Surface Forces Apparatus. 2000 UC-System Biomedical Engineering Symposium, April 30-May 1, 2000, University of California, Davis.

Ohler B, Revenko I, Husted C. Atomic force microscopy of galactocerebroside nanotubes and their self-assembly at the air-water interface, with applications to multiple sclerosis. Presented at the Materials Research Outreach Symposium, University of California, Santa Barbara, February 28 - March 1, 2000, *received doctoral student award*.

Hu Y, Ohler B, Husted C, Israelachvili J. Stability of myelin structure as a result of varying membrane adhesion and lipid packing. 44th Annual Biophysical Society Meeting, February 12-16, 2000, New Orleans.

Husted C. Overview of Research of Multiple Sclerosis. Presented at the Santa Barbara Public Library in collaboration with Cottage Hospital. Month of January 2000.

Ohler B, Graf K, Lemons T, Medina M, Coe R, Genain C, Husted C. Alterations in membrane forming properties of myelin lipids may explain demyelinating process in multiple sclerosis. Presented at the Society for Neurochemistry annual meeting, New Orleans, March 1999, *received doctoral student award*.

Husted C. Overview of Research of Multiple Sclerosis. Presented at the Santa Barbara Public Library in collaboration with Cottage Hospital. January 1999.

Husted C, Ohler B, Bragg R, Lemons T, Wilson A, Pham L, Jahangir S, Detch J. The physical chemistry of myelin. Presented at Frontiers of Myelin Biology and Demyelinating Disease, Mystic, CT, July 1997, *awarded most innovative approach to studying myelin*.

Husted C, Ohler B, Bragg R, Lemons T, Wilson A, Pham L, Jahangir S, Detch J. The physical chemistry of myelin. Presented at Langmuir Blodgett 8, Pacific Grove, CA, August 1997.

Hong M, Schmidt-Rohr K, Lee YK, Husted C, Pines A. Investigation of polymers and lipids by chemical shift anisotropies in sample-hopping experiments. Presented at 35th Experimental NMR Conference, MP229, Asilomar, CA, April 1994.

Husted C, Goodin DS, Maudsley AA, Hugg JW, Tsuruda JS, Matson GB, Weiner MW. Biochemical alterations in multiple sclerosis lesions and normal appearing white matter detected in brain by *in vivo*  $^{31}\text{P}$  and  $^1\text{H}$  magnetic resonance spectroscopic imaging. Presented at Advances in the Understanding and Treatment of MS, Boston, 1992.

Duijn JH, Husted C, Matson GB, Maudsley AA, Weiner MW. Molar quantitation of *in vivo* proton metabolites in human brain with 3D MR spectroscopic imaging. Presented at 11th Annual Meeting of the Society of Magnetic Resonance in Medicine, p. 3807, Berlin, 1992.

Husted C, Duijn JH, Goodin DS, Fein G, Dickinson M, Maudsley AA, Weiner MW. Normal appearing white matter changes in MS detected by H-1 and P-31 MR spectroscopic imaging. Presented at 11th Annual Meeting of the Society of Magnetic Resonance in Medicine, p. 1912, Berlin, 1992.

Chung J, Husted C, Werbelow L, Oldfield E. Solid State NMR of Mobile Solids. Presented at 33rd Experimental NMR Conference, p. 124, Asilomar, CA, 1992.

Husted C, Hugg JW, de Bie SH, Duyn JH, Matson GB, Maudsley AA, Weiner MW.  $^1\text{H}$  and  $^{31}\text{P}$  MR spectroscopic imaging (MRSI) of multiple sclerosis. Presented at Tenth Annual Meeting of the Society of Magnetic Resonance in Medicine, p. 83, San Francisco, 1991.

Husted C, Montez B, Oldfield E.  $^{13}\text{C}$  magic angle spinning NMR dynamical studies of normal and diseased myelin membranes. Presented at Ninth Annual Meeting of the Society of Magnetic Resonance in Medicine, p. 1058, New York, 1990.

Husted C, Shan X, Oldfield E. High-field, high-resolution  $^{13}\text{C}$  MASS NMR spectroscopy of model membranes and myelin. Presented at Eighth Annual Meeting of the Society of Magnetic Resonance in Medicine, p. 1096, Amsterdam, 1989.

Husted C, Forbes J, Moran L, Shan X, Oldfield E. Solid state  $^{13}\text{C}$  MAS NMR of myelin. Presented at 30th Experimental NMR Conference, p. 85; Asilomar, CA, 1989.

Shan X, Husted C, Knight C, Oldfield E. High resolution MAS NMR study of lipid bilayers and myelin. Presented at American Physical Society Annual Meeting, St. Louis, MO, 1988.

Oldfield E, Bowers J, Forbes J, Husted C, Walter TH, Shan X. Second observation of  $^1\text{H}$  MASS NMR of lipids and membranes; and  $^{17}\text{O}$  cross polarization of inorganic solids. Presented at 28th Experimental NMR Conference, MF31; Asilomar, CA, 1987.

## COMMUNITY SERVICE

Santa Barbara community presentations on research of myelin and multiple sclerosis  
Laboratory Technician's CEU Update on Multiple Sclerosis, San Luis Obispo, 2003  
Santa Barbara Soroptimists, University Club, December 1999  
Beyond Disease, UCSB General Affiliates Lecture, November 1997  
Santa Barbara MS research and wellness update, September 1997  
UCSB Chancellor's Community Breakfast, Santa Barbara, June 1997  
Kiwanis Club, Santa Barbara, April 1997  
Rotary Club, Santa Barbara, March 1997  
San Luis Obispo MS research and wellness update, March 1997  
Westlake MS research and wellness update, January 1997  
Channel Islands NMSS annual meeting, November 1996

Science presentations on myelin and multiple sclerosis to pre-college students  
Biomedical research mentorship program with high school students, Santa Barbara, CA, 1995-2003  
San Marcos High School, Santa Barbara Career Day, Santa Barbara, CA, March, 1999  
Girls, Inc., Santa Barbara, CA April, 1997  
Crane School, Montecito, CA, March, 1995, April, 2000  
Amador High School, Foothill, CA, May, 1994  
Foothill High School, Foothill, CA, May, 1994  
Washington High School, San Francisco, May, 1993

Northern California Chapter of the National Multiple Sclerosis Society

A) *"Proton and phosphorus MR spectroscopic imaging of multiple sclerosis"*  
MS Society Annual Meeting, Berkeley, CA, October, 1993; October 1994  
MS Society Professional Symposium, Foster City, CA, November 1993  
MS Society Board Meeting, San Francisco, CA, March 1992  
MS Society Programs and Services Committee, Oakland, CA, January 1992  
MS Society Professional Advisory Committee, Oakland, CA, November 1991

B) *"Current research and treatment for multiple sclerosis"*  
Workshop/support groups, Marin, CA, April 1994  
Workshop/support groups, San Francisco, CA, January 1994  
Workshop/support groups, Napa, CA, August 1993  
Workshop/support groups, Ukiah, CA, February 1993  
Workshop/support groups, Monterey, CA, April 1992

## RESEARCH SUPPORT

BALM Foundation, Reweaving Our Health, Medicinal Garden Project, 2002-2003, principal investigator, \$15,000.

National Institutes of Health, Reproducible Feverfew Preparations for Migraine Trials, Grant Number: 1 R44 AT00770-01, 9/17/2001 - 11/30/2002, collaborator, \$202,970.

Unrestricted gift, Research at the Interface of Global Medicine and Neurodegenerative Disorders, with a Particular Emphasis on Multiple Sclerosis, 2000-2005, \$500,000.

Equipment Agreement: Atomic Force Microscope and associated supplies, Digital Instruments, Santa Barbara, CA, 2000-2002, principal investigator, \$120,000.

County of Santa Barbara Work Training Program, Salary support for four garden workers, including one supervisor, at the Medicinal Plant Project, April - June 2000, \$15,000.

University of California Biotechnology Special Opportunity Award for Young Investigator's Program, 1999-2000, principal investigator, \$15,000.

Digital Instruments, Santa Barbara, CA, Support of doctoral student in Chemical Engineering and associated research supplies for atomic force microscope studies of myelin and multiple sclerosis, June 1999 - June 2002, \$75,000.

Anonymous donation for student support, 1999-2000, \$10,000.

Cottage Hospital Research Grant, An in vitro model of demyelination in multiple sclerosis, 1998-1999, principal investigator, \$15,000.

Dos Pueblos Ranch, Santa Barbara, CA, in-kind support of Medicinal Plant Project, 1998-2001, \$30,000.

UCSB Research Across Disciplines, Establishment of a Medicinal Plant Greenhouse, Gardens and Tissue Culture Facility, 1998-1999, \$30,000.

BALM Foundation, in collaboration with the Global Medicine Project at UCSB, funds for purchase and operation of a medicinal plant greenhouse, 1998-1999, \$75,352.

University of California Biotechnology Special Opportunity Award for Young Investigator's Program, 1998-1999, principal investigator, \$15,000.

University of California, Santa Barbara, Howard Hughes Medical Institute Mentorship Program, funds for Biomedical Research Mentorship Program, 1997-1998, \$20,000.

University of California Biotechnology training grant: salary and fees for one Ph.D. student in Chemical Engineering at UCSB, 1997-1999, \$33,732.

Anonymous donation for research support, 1997-1998, \$5,000.

University of California Biotechnology STAR grant with Centaur Pharmaceuticals: A model of in vitro myelin modification in neurodegeneration. 1997-1998, principal investigator, \$375,000.

University of California, Santa Barbara, QUEST Mentorship Program, funds for Biomedical Research Mentorship Program, 1996-1997, \$15,000.

Research Grant, Institute on Aging, National Institutes of Health: NMR studies of myelin membrane fluidity in aging, 1996-1997, principal investigator, \$50,000.

Equipment Agreement: Langmuir trough, biohood and associated materials, USDA Center for Human Nutrition Research on Aging, 1996-1997, principal investigator, \$30,000.

Research Grant, National Multiple Sclerosis Society: Magic angle NMR evaluations of myelin membrane fluidity in MS and EAE, 1996-1999, principal investigator, \$301,210.

Cottage Hospital Research Grant, 1995-1996, principal investigator, \$14,987.

Research Planning Grant, National Science Foundation: Magic angle spinning NMR evaluations of myelin membrane development, 1995-1996, principal investigator, \$18,000.

Pilot Grant, National Multiple Sclerosis Society, 1995-1996, principal investigator, \$21,000.

Wellness Research Grant, MS Community Services, 1994, principal investigator, \$1,000.

Wellness Research Grant, MS Foundation, 1994, principal investigator, \$5,000.

Research Grant, National Multiple Sclerosis Society: MR spectroscopic imaging of normal white matter axonal density and myelin in MS, 1994-96, co-investigator, wrote grant, \$233,000.

Advanced Postdoctoral Fellowship, National Multiple Sclerosis Society: In vivo magnetic resonance characterization of brain phospholipids in MS, 1993-1994, \$37,000.

Instrumentation grant, Multiple Sclerosis Foundation, 1993, principal investigator, \$4,300.

Research Grant, National Multiple Sclerosis Society: MR spectroscopic imaging of normal white matter axonal density and myelin in MS, 1993-1994, co-investigator, \$58,800.

Pilot Grant, Research Evaluation and Allocation Committee, University of California, San Francisco: Microanatomic correlates of brain myelination as assessed by proton and carbon-13 nuclear magnetic resonance, 1992-1993, co-investigator, \$15,000.

Postdoctoral Fellowship, National Multiple Sclerosis Society: In vivo magnetic resonance studies of phospholipid metabolism in MS, 1991-1993, \$56,600.