

CURRICULUM VITAE
ELAINE L. BEARER, BM, MA, MD, PhD, FAAAS, FCAP

Professor

The Harvey Family Professor of Pathology
Visiting Associate, California Institute of Technology
Fellow, American Association for the Advancement of Science
Fellow, College of American Pathologists

May 8, 2019

NPR Interview on Morning edition, Sept 21, 2018

<http://www.kunm.org/post/neuropathologist-combines-music-composition-brain-research>

Department of Pathology
University of New Mexico School of Medicine
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<http://pathology.unm.edu/faculty/faculty/ebearer.html>

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EDUCATION

Undergraduate

Bachelor of Music Carnegie Institute of Technology & The Manhattan School of Music

Majoring in Computer Engineering, Musical Theory and Composition

Pupil of **Nadia Boulanger**, Ecole des Beaux-Arts at Fontainebleau and Ecole Normale Supérieure,
Paris, France

Master of Arts, New York University, Musicology

Thesis: *Structural Innovation in the String Quartets of Haydn*

Advisors: Gustav Reese, Jan LaRue, James Haar and David Burrows

Post-Baccalaureate Pre-Med Stanford University, Program in Human Biology,

Teaching Assistant in Human Biology with **Don Kennedy**, PhD

Student Research Assistant in Neuroscience with **John G. Nicholls**, MD, FRS

Graduate and Medical School

MD-PhD University of California, San Francisco

Medical Scientist Training Program (NIH-funded) (Bearer was the first graduate)

Ph.D. in Program in Cell Biology (Experimental Pathology) with Daniel S. Friend, MD; Committee
Chair: Ed Smuckler, MD.

Thesis: *Anionic lipid distribution in membranes*

POSTGRADUATE TRAINING:

Post-doctoral Fellowships in Cell Biology and Biochemistry/Biophysics:

- **University of California, San Francisco, Cancer Research Institute**

Post-doctoral Fellow with Steve Shoet, MD, Cancer Cell Biology,

6-9/1983

- **Centre Medical Universitaire, University of Geneva, Switzerland**

Post-doctoral Fellow with **Lelio Orci**, MD in Cell Biology

Dept. of Morphologie et Embryologie

9/1983-6/1984

- **University of California, San Francisco,**
Post-doctoral Fellow with **Bruce M. Alberts**, PhD in Biochemistry and Molecular Biology
 Department of Biochemistry and Biophysics,

Clinical post-graduate training:

- University of California, San Francisco, Department of Pathology**
Resident, Anatomic Pathology, 7/1984-6/1986
Fellowships in cytopathology and medical genetics

FORMAL TRAINING IN LEADERSHIP AND EXECUTIVE SKILLS

Harvard University School of Public Health, Diploma Leadership Development for Physicians in Academic Health Centers (2-week intensive workshop)	11/2009
American Association of Medical Colleges (AAMC) Diploma Mid-career Women Faculty Professional Development Workshop	8/2003
Chester Karrass Negotiating Skills Workshop Pepperdine series	3/2002
Conflict Resolution Training, Johnston, RI	2002

RECENT ADDITIONAL WORKSHOP PARTICIPATION

Methods in Computational Neuroscience, MBL	8/2017
Neuroscience School of Advanced Studies, Epigenetics in Psychiatric Disorders, workshop	6/2016
Stanford University, Optogenetics Workshop with Karl Diesseroth	9/2014

PROFESSIONAL LICENCES AND BOARD CERTIFICATION

Medical License, State of California (active since 1985- present)
 Medical License, State of New Mexico (since June 2011-present)
 Board Certified, Anatomic Pathology, American Board of Pathologists 11/1986;
 Voluntary Recertification, 1/2014
 Credentialed, UNMH, UNMMG and Tricore Reference Laboratories for practice of Molecular
 pathology of the brain and nervous system
 Fellow, College of American Pathologists

LEADERSHIP ROLES (selected)

Chair, Committee on the Status of Women at Brown University (2001-2004)

This is a standing committee of the University and the chair is elected by an all-University vote. The task of the committee is to advise the administration and other governing bodies on emerging issues that disproportionately affect women faculty. Accomplishments of the committee during my chairmanship include:

- (1) Establishment of a policy for Family Leave and stop-the-clock for tenure for childbirth:
- (2) Equity analysis of faculty promotion, assignments, benefits.
- (3) Childcare access and availability: The committee solicited an outside consultant to review childcare options for Brown students, faculty and staff. The report was made to the President and awaits action.

*Upon my sabbatical leave (spring 2004), a new Associate Provost position was created to support these activities.

- **Vice Chair for Research**, Department of Pathology University of New Mexico Health Sciences Center (2009-2015). Under my leadership the department ranking increased from 29th to 7th nationally. I also served as Acting Chair for Research (2012-2013).

- **Leader, Child Well Being Initiative**, UNM-HSC (2017-current). I recruited 8 UNM-HSC Departments and Centers to partner with Pathology on this initiative. We have raised funds for research and outreach, and developed over 70 community-based partners. The Child Well Being Initiative was named by the UNM Regents as the most important project at UNM today.

- **Principal Investigator (PI) of NIH RO1 grants continuously funded for 25+ years**. For the past 10 years, I have lead as PI of large multi-institutional grants that include Caltech and UCLA as subawardees.

As detailed below, I am also a leader in my field, and in 2018, I organized and chaired a Nanosymposium at the annual Society for Neuroscience meeting in San Diego in November; and in 2019, organized and chaired a Symposium for International Society for Magnetic Resonance in Medicine in Montreal.

In addition, I am a leader in Medical and Graduate Education, creating and directing integrated courses for emerging integrated medical education, designing and directing courses for graduate students, and serving a chair for subcommittees for educational program development. I have participated in LCME reviews both at Brown and at UNM, most recently in 2017-2018 at UNM.

ACADEMIC APPOINTMENTS

- University of California, San Francisco** 7/1989-6/1991
Clinical Instructor, Department of Pathology
Assistant Research Biochemist (a junior faculty appointment), Department of Biochemistry and Biophysics
- Brown University** 6/1991-10/2009
Division of Biology and Medicine, Department of Pathology and Laboratory Medicine
Professor of Medical Science with tenure (2005- 2009)
Associate Professor (with tenure) (1998-2004)
Assistant Professor (tenure-track) (1992-1997)
Director, Phenotyping Core for *The New Stem Cell Biology*, NIH-funded Center of Biological Research Excellence, Roger Williams Medical Center and Brown University, PI Peter Quesenberry (2003-2008)
Secondary appointments in:
Division of Engineering (Secondary) **Professor of Engineering with tenure (2006-2009)**
Department of Music (Secondary) **Professor of Music (1992-2009)**
- University of New Mexico Health Sciences Center** 9/2009-present
Department of Pathology (primary appointment)
Professor, The Harvey Family Professor of Pathology, with tenure
Vice Chair for Research (2009-2015)
Acting Chair for Research (2012-2013)
Department of Neurosurgery (secondary appointment), **Professor**
Department of Music (secondary appointment) **Professor of Musical Theory and Composition**
UNM Cancer Center, **Member**

Director, new Initiative in **Child Well Being in New Mexico** (multiple departments)

OTHER APPOINTMENTS

California Institute of Technology

2/2004-present

Visiting Associate in Biology, Beckman Institute Biological Imaging Center, spring 2004

Moore Distinguished Scholar in Biology, 2004-2005

Visiting Associate in Biology, Beckman Institute, Biological Imaging Center, 2005-present

Collaboration with **Russell E. Jacobs**, Member of the Beckman Institute at Caltech

Marine Biological Laboratory, Woods Hole, MA

6/1988-present

Member of the Corporation, Marine Biological Laboratory, 1991-present

Member, Education Committee, 1994-1999

Chair, Search Committee to recruit Directors of the Embryology Course

Chair, Microscopy Course Review Committee

Chair, Microbial Diversity Course Review Committee

Senior Scientist (Adjunct), 2008-2019 (renewed for five years in summer 2014)

Participant/Instructor/lecturer in summer courses: Physiology (1988), Neurobiology (1989-2009);

Biology of Aging (2008); Neural Systems and Behavior (2016)

Institute of Electrical and Electronics Engineers, Inc.

Engineering in Medicine and Biology Society (EMBS)

Women in Engineering

Treasurer and Founding Officer, Providence Chapter

9/2006-6/2008

San Lucas Health Project, San Lucas Toliman, Guatemala

8/1993-present

Director of Guatemala Elective Clinical Clerkship in Community Health for Medical

Students through Brown University

5/1993-3/2010

Co-Director and co-founder of the project and its non-profit foundation

10/2004-present

POSTGRADUATE HONOR'S AND AWARDS

Postdoctoral and Graduate School Awards:

Chancellor's Award for Basic Science Research, University of California, San Francisco, 1981

First Place, Graduate Student Research Award, University of California, San Francisco, 1982

Dean's Prize for Medical Student Research, University of California, San Francisco, 1983

Swiss National Science Foundation Fellowship, University of Geneva, Switzerland, 1983-84

Giannini-Bank of America Fellowship, 1987-88

American Cancer Society, Senior Post-doctoral Fellowship, 1988-90

Academic Honors, Awards and Honorary Degrees (selected):

Brown University, (Honorary) Master of Arts Degree ad Eundem, 1998

Frederik Bang Summer Research Fellowship, Marine Biological Laboratory, Woods Hole, MA
1988, 1989, 1999

Award for Humanism in the Practice of Medicine, Jaffe Foundation, 1999

Public Service Award, Foundation for Children and the Aged, Kansas City, Kansas, 2002

Honorary Diploma, Oglala Sioux College, Pine Ridge Reservation, South Dakota, 2002

•**Dean's Awards for Excellence in Medical Student Teaching**, Brown Medical School, 2001,
2002, 2003, 2007, 2008.

Distinguished Neuroscience Lectureship Award, Rosenstiel BioMedical Center, Department of
Neuroscience, and the NIEHS Marine Biology Center, University of Miami Medical School, 2003

Honor Wall, Smithsonian Museum of the American Indian, 2003
Munroe Memorial Lectureship, California Institute of Technology, 2004
Dart Scholar of Learning and Memory, Marine Biological Laboratory, 2005
Moore Distinguished Scholar, Caltech Brain Imaging Center, California Institute of Technology, 2005
Chemical Heritage Foundation: Chemist-Composer of the Year, 2006
Distinguished Lectureship in Pathology, University of Iowa School of Medicine, 2008
Top Pathologists, Consumer's Research Council of America, for each year 2007-2017
Harvey Family Professorship in Pathology (endowment) 2009-present
Fellow, American Association for the Advancement of Science 2012, “*for distinguished contributions in pathologic basis of disease, cargo motor attachments in axonal transport, actin dynamics, and neuropathology, and for distinguished service in interdisciplinary training.*”
Fellow, College of American Pathologists, 2014
• **Dean's Award for Excellence in Teaching**, University of New Mexico Health Sciences Center, 2017.
• **Elected Chair of Education Committee**, American Society for Investigative Pathology, 2019

Membership in Scientific Academies

California Academy of the Sciences (since 1987)
New York Academy of Sciences (since 1999)
US-Canadian Academy of Pathology (since 2006, intermittent)

Additional Honors (selected):

Featured in *Nature*, May 6, 2000
National Institutes of Health, NIGMS, *Findings*, September, 2002 (NIH publication for Congress and public outreach)
Featured in *Lancet*, June 23, 2002
Featured in *The Scientist*, June 15, 2002
Features in *Findings* by NIH-NIGMS *The Cell* Nov. 2006
Featured in SACNAS News, spring 2006
Featured in CBS News, USA Today, ABQ Journal, the LATimes, etc in 2011, for discoveries on HSV and amyloid precursor protein reported in *PLOS ONE* March 31, 2011.
Featured in Albuquerque Journal, front page, for work on PTSD, December 2012, October 2013
Featured KUNM, Music Today, interview with Spencer Beckwith
Featured Cape Cod Magazine, October 2015, “Where Science and Art Merge” by Richard Holmes
Featured in Scientific American, March 2016 “Microbes and Alzheimer’s”
<http://www.scientificamerican.com/article/controversial-new-push-to-tie-microbes-to-alzheimer-s-disease/>
Research mentioned in NYTimes, front page article, May 25, 2016
http://www.nytimes.com/2016/05/26/health/alzheimers-disease-infection.html?_r=0
Featured in *The Scientist*, September 2017 "Microbes and Alzheimer's Disease"

Grant Review Boards, Panels and Study Sections (selected recent):

National Institutes of Health

Member, (ad hoc) Study Section (Cell Development and Function 4), 2004

Member, Review Group for Program Project Grants, NIHLB, 2004-2005
 Member, Review Group for Program Project Grants, NIHLB, Jan 12, 2006
 Member (regular member) Study Section (Cell Development and Function 4), 2005-2008
 Member, Study Section, ZRG-1 CB-D (30)M, Oct 29-31, 2008
Member, Review Group, NIH NIHLB July 23-24, 2009
Participant and lecturer, 8th annual Structural Birth Defects Working Group, NICHD, Aug. 2011
 Member, Study Section, ZRG-1 CB-D (30)M, Nov. 2-4 2011
 Member, Study Section ZRG-1 CB(D) (51), May 8, 2012
 Reviewer, Study Section CDIN (mail in), June 7-8, 2012
 Reviewer, Scientific Review Group for NIH Director's Innovator Awards, ZRG1 BCMB-A (51), 3/18/2014
 Reviewer, Special Emphasis Panel, 2014/05 ZRG1 MDCN-E (02), Neuroscience April 9, 2014
 Reviewer, Review Group for 01408_ZRG1_BST_A50, Single Cell Analysis, June 30-July 1, 2014
 Reviewer, 2015/01 ZRG1 F05-R (20) L, Fellowships: Cell Biology, Developmental Biology and Bioengineering; October 28-29, 2014
 Reviewer, 2015/08 ZMH1 ERB-L (06) R, BRAIN Initiative: Development and Validation of Novel Tools to Analyze Cell-Specific and Circuit-Specific Processes in the Brain. 06/21/2015-06/22/2015
 Reviewer, 1016/01 ZRG1 CB-T (30) I, Shared Instrumentation: Confocal Microscopy and Imaging. Nov 2-3, 2015.
 Reviewer, Special Emphasis panel 2016/10 ZRG1 F05-U (20) L, "Fellowship: Cell Biology, Developmental Biology, and Bioengineering (F05-U)", June 23-24, 2016.
 Reviewer, Special Emphasis panel ZMH1 ERB-D 03 R "Emotional Regulation in Aging" Dec 20, 2016
 Reviewer, NIH-NIAAA Review Group, RFA-AA-17-016Alcohol-PTSD Comorbidity: Preclinical Studies of Models and Mechanisms (R01)
 Reviewer and Co-chair, NIH NOIT and ETTN 53 L study sections, Feb. 16-17, 2017 and June 8-9, 2017, Feb 8-9, 2018, June 7-8, 2018
 Reviewer, Review Group for NICHD CAPSTONE center grant proposals, Feb. 20-21, 2018
 Reviewer, SIG10 Review Group, Nov. 14-17, 2018
 Reviewer, EITN study sections June 5-7, 2019

Non-NIH grant review boards:

Alzheimer's Association, Grant Reviewer, 2004-2019
 American Heart Association, Northeast Regional
 Advisor and Panelist (regular member on study section reviewing research grants), 2002-2006
 American Indian Education Foundation, member of the Scholarship Committee (2007-present)
 National Science Foundation, Program in Cell Biology
 Cellular Organization Panel, Advisor and regular panelist 1999- 2003
 POWR Program, Panelist, 1997-1998
 Cellular Organization Panel, panelist, April 27, 2005

Neural Systems Panel, reviewer, September 2013
NASA
Cellular & Molecular Biology Panel, study section member for research grant reviews,
2003-2004.
National Research Council, National Academy of Science
Participant, Graduate Program Assessment Committee (2008-2009), responsibility: Assessment of
Graduate Training Programs in Immunology and Infectious Disease

International grant review boards (selected)

- Medical Research Council (MRC), Great Britain, Developmental Clinical Studies, Reviewer,
4/26/2011
- The Netherlands Organization for Health Research and Development (ZonMw), Reviewer for the
“TOP programme”, Aug 18-Sept 4, 2012
- Wellcome Trust, Clinical Post-doctoral Award program, Reviewer, September 9, 2014
- Medical Research Council (MRC), Great Britain, Developmental Clinical Studies for Alzheimer’s
disease, June 27, 2016
- Agence Nationale de la Recherche, France, MoTornetworks, Defi: Vie, Sante et Bien-Etre, Recherche
fondamentale, May 15, 2017

Fellowship/Scholarship selection committees:

American Indian Educational Fund, 2004-present
Rhodes Fellowship Selection Committee (Rhode Island), 1995-1998
Howard Foundation, Fellowship Selection Committee, 1995
NIH (See above)

Editorial Boards and Reviewer (selected):

Research in Human Development, Member Editorial Board (2003-present)
Pediatric Research, Reviewer
Frontiers in Cellular and Developmental Biology: Membrane Traffic, Editorial Board
(2013-present)
PLoS ONE, Associate Editor (2011-present)
Analytical Cellular Pathology, Associate Editor (2010-2016)
Alzheimer’s and Dementia, Editorial Board (2013-2017)
Developmental Biology, Reviewer (2004- present)
Neurobiology of Aging, Reviewer (2006-present)
New England Journal of Medicine, Reviewer (2009-present)
NeuroImage, Reviewer (2007-present)
Journal of Neurovirology

Other Board memberships:

Center for Hispanic Health, White Memorial Medical Center, Adventist Health Corp.
Chair of the Board and Founding Executive Director (2015-2017)
(worked to create a UNM-WMMC collaborative project for Child Well Being)

UNIVERSITY COMMITTEES

University of New Mexico (2009-current)

Vice Chair for Research in the Department of Pathology (2009-2015), lead multiple search committees and promotions committees, including recruitment of 5 new tenure-track faculty to the department, and CTSC scholars for our Center for Translational Sciences Award. Responsible for evaluations and mentoring of PhD faculty in the department, many of whom are cell biologists and biochemists.
Director of Training and Outreach, UNM Center for the Spatiotemporal Modeling of Cell Signaling funded by NIGMS, fall 2009-2015.
Chair mid-probationary for tenure review for Tione Buranda, PhD, 2014
Chair, Departmental Seminar Committee, 2012-2015
Chair, Brain and Behavioral Health Institute, Imaging Subcommittee, July 2010-2011
Member, Pathology Department Executive Committee, 2009 to current
Member, Committee on Research Ethics (ad hoc), fall 2009
Member, Brain and Behavioral Institute Leadership/Vision/Steering Committee, Jan 2010-present
Member, Biomedical Sciences Graduate Program Curriculum Committee, fall 2009-2012
Member, Biomedical Sciences Graduate Program Steering Committee, Aug 2010-present
Member, MD-PhD Steering Committee, Sept. 2010-present
Member, Medical School Curriculum Committee, 2012-2015; 2016-2019
Includes participation in LCME review 2017-2018, site visit scheduled for Feb 27 2018.
Mentor, BA/MD Program 2011-2014
Member, Science Advisory Council, 2012-present
Member, Human Tissue Oversight Committee, Sept 2010-2017
Member, Search Committees for: Pathology (2009-2010, 2010-2011, 2011-2012) with successful recruitment of 5 tenure-track research faculty and a neuropathologist, and CTSC scholars (2010-2011)

Brown University, Graduate Programs and Medical School (1991-2009):

Departmental Committees: (Department of Pathology and Laboratory Medicine)

Member, Search Committees for PhD scientists to tenure track positions, 1997-1998; 2002-2003; 2003-2004
Member, Steering Committee, Pathology Residency Training Program, 1992- 2000
Director and Originator, Pathology Research and Teaching Rounds, 1995-2000

Director, Joint Use Microscope Facilities, 1993-2003; 2005-2009
Director, Digital microscope imaging facility, Molecular Pathology Research Lab, 1999-2009
Member, Graduate Admissions Committee, Pathobiology Graduate Program

Medical School Committees

Chair, Confocal Microscopy Users Committee (1994-2003, 2007- 2009)
Member, Steering Committee for **Center for Population Health and Epidemiology** (2007-2009)
Chair, Executive Committee, LeDuc BioImaging Facility (2003-2009)
Member, Edd's Lectureship Committee, 1993- 2009
Member, Search Committees for other departments (1994-1995; 1999-2000; 1998-1999)
Member, Admissions Committees, (Molecular, Cell and Biochemistry Graduate Program, 1996-2000; M.D.-Ph.D. Program, 2000-2003)

Educational and Curricular Committees

Member, Community Health Assessment Committee, MD 2000, 1997- 2000

Member, Second Year Medical School Problem-Based Learning Initiative, 1991 - 1998

Member, Medical School Curriculum Committee, 2002 - 2009

(including participation in 3 rounds of curriculum revision and 2 LCME reviews).

Member, Pathobiology Graduate Program Steering Committee

Member, Molecular, Cellular Biology and Biochemistry Graduate Program and Training Grant Steering Committee

Member, NCI-designated Cancer Research and Training Center

Member, Center for Infectious Disease and Immunity

Member, Steering committee, Brain and Behavioral Health Institute

University-wide Committees

Chair, Committee on the Status of Women at Brown University (CSW), 2001-2004 (as above)

This is a standing committee of the University and the chair is elected by an all-University vote.

The task of the committee is to advise the administration and other governing bodies on emerging issues that disproportionately affect women faculty.

Member, Women in Science and Engineering Committee (WISE), 1994- 2009

Member, (ad hoc) Committee for Materials Sciences, BioEngineering and Biophysics, 1995 - 2004

Member, Steering Committee for Brown-MBL joint graduate program, 2002-2009

Member, Provost's Working Group on Global Health Care, 2006-07

Member, Curriculum Committee, Biomedical Engineering, 2007-2008

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Membership in Scientific Societies

American Society for Cell Biology, American Association for the Advancement of Science, Society for Neuroscience Society for Developmental Biology, Society for the Study of Human Development, American, Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), American Society for Investigative Pathology, Association of Pathology Chairs, American Chemical Society, International Society for Magnetic Resonance in Medicine, ISTAART.

Membership on Committees for National Professional Societies

Judge, Panel of judges, Minority Affairs Symposium, Graduate Student Poster Session,

American Society for Cell Biology annual meeting, San Francisco, CA, Dec. 13-18, 2003.

Member, Program Planning Committee, *American Society for Investigative Pathology*, 2000-2002

Member, Committee for Career Development, Women and Minorities, *American Society for Investigative Pathology*, 1999- 2003

Member, Program Planning committee, *Undergraduate Medical Educators section (UMEDS), Association of Pathology Chairs*, 2008-2012

Associate member of Women in Cell Biology, 2011-present

Secretary (elected) , *Undergraduate Medical Educators section (UMEDS)* Association of Pathology Chairs, 2010-2013

Member, q-bio summer course at Los Alamos, advisory committee (2009-2016)

Membership in Musical Societies

American Musicological Society (1970-present), Northeast Chapter (1992-2009)
American Society for Composers and Performers (ASCAP) 1970-present)

PUBLICATIONS LIST

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS (Selected)

1. **Bearer, E.L.**, and Friend, D.S. (1980). Anionic lipid domains: Correlation with functional topography in a mammalian cell membrane. *Proc. Natl. Acad. Sci. U.S.A* **77**: 6601 - 6605. PMID: 6935671 PMCID: PMC350334.
2. Friend, D.S., and **Bearer, E.L.** (1981). B-hydroxysterol distribution as determined by freeze fracture cytochemistry. *Histochem. J.* **13**: 535 – 546. PMID: 6796549
3. **Bearer, E.L.**, and Friend, D.S. (1982). Modifications of anionic lipid domains preceding fusion. *J. Cell Biol.* **92**: 604 - 615. PMID:7085750 PMCID: PMC2112035.
4. **Bearer, E.L.**, Duzgunes, N., Friend, D.S., and Papahadjopoulos, D. (1982). Fusion of phospholipid vesicles arrested by quick-freezing: The question of lipidic particles as intermediates of membrane fusion. *Biochim Biophys Acta.*: **693**: 93 - 98. PMID: 7150597
5. **Bearer, E.L.** and Friend, D.S. (1986) Lipids of the platelet membrane. *Lab Invest.* **54**:119-21. PMID: 3945047
6. **Bearer, E.L.**, and **Orci, L.** (1985). Endothelial fenestral diaphragms. *J. Cell Biol.* **100**: 418 - 428. PMID: 3968170 PMCID: PMC2113429.
7. **Orci, L.** and **Bearer, E.L.** (1986). Rose windows in blood capillaries. *Diabetes Forecast* (February, 1986) pp31-33.
8. **Bearer, E.L.** and **Orci, L.** (1986). A simple method for quick-freezing. *J. Electron Microsc. Tech.* **3**: 233 - 241.
9. **Bearer, E.L.** (1990) Platelet membrane skeleton revealed by quick freeze-deep etch. *Anat. Rec.* **227**: 1-11. PMID: 2368921
10. **Bearer, E.L.** and Friend, D.S. (1990). Morphology of mammalian sperm membranes during differentiation, maturation, and capacitation. *J Electron Microsc Tech.***16**: 257-281. PMID: 2250184.
11. **Bearer, E.L.** (1991) Actin in the Drosophila embryo: is there a relationship to developmental cue localization? *BioEssays* **13**(4):199-204. PMID: 1859400.
12. **Bearer, E.L.** (1991) Direct observation of actin filament severing by gelsolin, and binding by gCap 39 and CapZ. *J. Cell Biol.* **115**: 1629 - 1638 PMID: 1661732.
13. **Bearer, E.L.** (1992) Cytoskeleton in development. Introduction. *Curr Top Dev Biol.* 1992;26:1-7. PMID: 1563274.
14. **Bearer, E.L.** (1992) Actin and actin-associated proteins in Xenopus eggs and early embryos: contribution to cytoarchitecture and gastrulation. *Curr Top Dev Biol.* **26**:35-52. PMID: 1563278
15. **Bearer, E.L.** (1992) An actin-associated protein present in the microtubule organizing center and the growth cones of PC-12 cells. *J. Neurosci* **12**(3):750 - 761. PMID: 1372044 PMCID: PMC3376081.
16. **Bearer, E.L.** (1992) Fluorescence microscopy of single actin filaments labeled by conjugation to rhodamine. *Biol. Bull.* **183**: 361 - 362.
17. **Bearer, E.L.**, DeGiorgis JA, Bodner RA, Kao AW, Reese TS. (1993) Evidence for myosin motors on organelles in squid axoplasm. *Proc Natl Acad Sci U S A.* 1993 Dec 1;90(23):11252-6. PMID: 8248236.

18. **Bearer, E.L.** (1993) Role of actin polymerization in cell locomotion: molecules and models. *Am J Respir Cell Mol Biol.* **8**(6):582-91. PMID: 1372044.
19. **Bearer, E.L.** (1994) Distribution of Xrel in the early *Xenopus* embryo: a cytoplasmic and nuclear gradient. *Euro. J. Cell Biol* **63**: 255 - 268. PMID: 8082650
20. **Bearer, E.L.** (1995) Cytoskeletal domains in the activated platelet. *Cell Motil Cytoskeleton.* **30**: 50-66. PMID: 7728868 PMCID: PMC3626093.
21. Cheng, J.C., Frackelton, A.R., **Bearer, E.L.**, Kumar, P.S., Kannan, B., Santos-Moore, A., Rifai, A. and Clark, J.W. (1995) The p100 type II rasGAP is induced and complexes with Tyrosine-phosphorylated p190 during PMA-induced myelomonocytic differentiation of human leukemic cells. *Cell Growth Differ.* **6**:139-148. PMID: 7756172
22. **Bearer, E.L.**, DeGiorgis, J.A., Medeiros, N., Reese, T.S. (1996) Actin-based motility of isolated axoplasmic organelles. *Cell Motil Cytoskeleton.* **33**: 106 -114. PMID: 8635200
23. **Bearer, E.L.**, DeGiorgis, J.A., Medeiros, N.A., Jaffe, H. and Reese, T.S. (1996) An axoplasmic myosin with a calmodulin-like light chain. *Proc. Nat. Acad. Sci. USA* **93**: 6064 - 6068. PMID: 8650220
24. **Bearer, E.L.**, Liu, J., Hsu, A. and Reese, T.S. (1996). A method to visualize axoplasmic filaments by electronmicroscopy. *Biol. Bull.* **191**:272-273.
25. Medeiros, N.A, Reese, T.S., Jaffe, H., DeGiorgis, J. A, and **Bearer, E.L.** (1998). Primary peptide sequences from squid muscle and optic lobe myosin IIs: A strategy to identify an organelle myosin. *Cell Biol. Int.* **22**: 1-9. PMID: 9878103
26. **Bearer, E.L.** and Abraham, M. (1999). 2E4: A novel actin-associated protein from human blood platelets found in lamellipodia and the tips of the stereocilia of the inner ear. *Euro. J. Cell Biol.* **78**, 117-126. PMID: 10099934
27. **Bearer, E.L.** and Reese, T.S. (1999). Association of actin filaments with axonal microtubule tracts. *J. Neurocytol.* **28**: 85 - 98. PMID: 10590510
28. **Bearer, E.L.** Schlieff, M. L., Breakefield, X.O., Reese, T.S. and LaVail, J.H. (1999) Squid axoplasm supports the retrograde axonal transport of Herpes Simplex Virus, *Bio. Bull.* **197**: 257-258. PMID: 10573844.
29. **Bearer, E.L.**, Chen, A.H., Chen, A.F., Mark, H.F.L., Li, Z., Smith, R.J. and Jackson, C. (2000) 2E4/Kaptin: A candidate gene for the deafness locus, DFNA4. *Ann of Hum. Genet.* **64**: 189-196. PMID: 11409409 PMCID: PMC3376086; Genbank Access. No. AF105369.
30. **Bearer, E.L.** Breakefield, X.O., Schuback, D., Reese, T.S. and LaVail, J.H. (2000) Retrograde axonal transport of Herpes Simplex Virus: Evidence for a single mechanism and a role for tegument. *Proc. Natl. Acad. Sci. USA*, **97**: 8146-8150. PMID: 10884436 PMCID: PMC16684.
31. **Bearer, E.L.**, Prakash, J., Manchester, R., and Allen, P.G. (2000) VASP modulates gelsolin effect on actin filaments: Implications for platelet actin reorganizations. *Cell Motil. Cytoskeleton* **47**(4):351-364. PMID: 11093254
32. Abraham, M.T., Kuriakose, A., Sacks, P., Yee, H., Chiriboga, L., **Bearer, E.L.**, Delacure, MD (2001) Motility-related proteins as markers for head and neck squamous cell cancer. *Laryngoscope.* **111**:1-5. PMID: 11568556
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 - This paper was published by the post-doc in my lab, Joe Gallagher, and accidentally omitted my name from the author list. The text is a direct copy of my grant and the imaging protocol was developed under my direction. The erratum attempts to correct this.
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OTHER PEER-REVIEWED PUBLICATIONS

1. **Bearer, E.L.** (2006) Marine Invertebrate Models of Learning and Memory: Dart Symposium on Learning and Memory. *Biol Bull* 2006 210: 334.

BOOKS AND BOOK CHAPTERS

Books:

1. **Bearer, E.L.** *Cytoskeleton in Development*. San Diego, CA: Academic Press, 1992.
2. Garcia-Coll, C., **Bearer, E.L.** and Lerner, R. *Nature and Nurture: The complex interplay of genetic and environmental influences on human behavior and development*: Totowa, NJ: Erlbaum Publishing Co. 2003. ISBN-10: 0805843876

Chapters in books:

1. **Bearer, E. L.** 1999. Courage under siege. In: *Doctor's Afield*. ed. Mary Curnen, Howard Spiro, and Deborah St. James, Yale University Press, New Haven, CT. *Reviewed in JAMA*, June 21, 2000;283:3129; *British Medical Journal*, 2000; 321:121.
2. Bearer EL. Microsequencing of myosins for PCR primer design. *Methods Mol Biol*. 2001;161:9-15. Review. PubMed PMID: 11190519.

3. **Bearer, E. L.** 2003. Health Needs of the Third World: Perspectives from a Maya village in Guatemala. In: *Field Guide to Appropriate Technology*, eds. Barrett Hazeltine and Christopher Bull, Academic Press, San Diego, CA, pp 535-544. ISBN 13: 9780123351852.
4. **Bearer, E. L.** 2004. Behavior as influence and result of the genetic program: Non-kin rejection, ethnic conflict and issues in global health care. In: *Nature and Nurture*: Garcia-Coll, C., **Bearer, E.L.** and Lerner, R., Erlbaum publishers, pp171-199.
5. **Bearer, E. L.** 2005. Structure-Function of the Platelet Cytoskeleton. In: *Platelet Function: Assessment, Diagnosis, and Treatment*, eds. Martin Quinn and Desmond Fitzgerald, Humana Press, London.
6. **Bearer, E.L.** 2007. Intracellular Pathogens and the actin cytoskeleton. In: *Actin, Actin-Binding Proteins and Disease*, eds by C G dos Remedios and D. Chhabra, Springer New York.
7. **Bearer, E.L.** 2010. Songs My Mother Taught Me: Gene-environment interactions, brain development and the auditory system: Thoughts on non-kin rejection, Part II. In: *Handbook of Developmental Science, Behavior and Genetics, in Memoriam for Gilbert Gottlieb*. Editors: Kathryn Hood, Carolyn Tucker Halpern, Gary Greenberg and Richard Lerner, Wiley Blackwell Publishers, Malden MA 2010. ISBN-13: 9781405187824; ISBN-10: 1405187824

PUBLICATIONS SUBMITTED OR IN PREPARATION

Sud, S., Starbuck, K, Dalal, M., Page, T., Jacinto, E., Tun, R., McCloy, S.G., and **Bearer, EL.** HIV Risk Among the Guatemalan Maya: Studies from a Small Market Town in the Western Highlands (submitted to NEJM, in revision)

Sia, G., Jelinkova, L, Seamster, PL, and **Bearer, EL.** Peptides from Jun-kinase interacting protein mediate fast axonal transport of exogenous engineered cargo: Implications for drug delivery. (In revision for PNAS).

Spear, S, Amaro, H, and **Bearer, EL.** “Just a little piece”: Acceptability of hair collection for a study on relapse prevention among women in substance use disorder treatment, (In revision).

Bearer, EL, Mannifold-Wheeler, B, Gonzales, A, Gallagher JG, Zhang, XW, Jacobs, RE. 2017 Dis-entangling plaques: Aging mice expressing mutant human APP with and without tangles. (MS in revision for *Neurobiology of Aging*).

Bearer, EL, Santa-Cruz, K, Wotjer, R, and Donoghue, J. Abeta plaques during HSV encephalitis. (MS in preparation).

Barto, D., Riviere, AH, Mulligan, BS, and Jacobs RE and **Bearer, EL.** Early life stress, fear and the serotonergic system collaborate to alter brain circuitry: a mechanism for PTSD. (MS in preparation)

Mulligan, BS, Zimmerman, AJ, Stephens, J. and **Bearer, EL.** Autism-related DNA methylation changes in very young children: Biological markers for early detection and monitoring of treatment outcomes. (MS in preparation)

Mulligan, BS and **Bearer, EL.** Pediatric trauma alters the methylome: A high-throughput analysis of changes in DNA methylation levels in a longitudinal study of children ages 4-8. (MS in preparation).

PATENTS, LICENCES and INVENTIONS

- STC.UNM 2017-003-02 – MRG 310.01130201 International Application No. PCT/US2017/042201 DNA METHYLATION SIGNATURES ASSOCIATED WITH CHILDHOOD TRAUMA AND METHODS INVOLVING SAME
- 43781-0001PR AMYLOID PRECURSOR PROTEIN-BASED PEPTIDES AND THEIR USES
- 43781-0002PR PEPTIDES FACILITATING RETROGRADE TRANSPORT AND THEIR USES
- License: Hybridoma producing 2E4 monoclonal antibody, licensed to Covance, Inc.

CONSULTING

Illumina Biosciences Inc. Chair, mouse methylation chip consortium. (2-way non-disclosure signed by UNM and Illumina July, 2017)

Biosciences, Inc

Point Richmond Tech Center, 501 Canal Blvd., Suite A100, Richmond, CA 98404

XDx, Inc.

750 Gateway Blvd., Suite H., South San Francisco, CA 94080

Intralytix, Inc.

The Warehouse at Camden Yards, 323 W. Camden Street, Suite 675, Baltimore, MD 21201

Reify Corporation

101 Main Street, Eighteenth Floor, Cambridge, MA 02142

Wolfram Research

Corporate Headquarters, Wolfram Research, 100 Trade Center Drive, Champaign, IL 61820

Morehouse University, Atlanta, Georgia

For the Dean, JK Haynes, Dean of Science and Mathematics

Genentech, South San Francisco, invited for Visiting Scientist position in Pathology group

Debevoise and Plimpton, LLP, Madison Ave, NY, NY. Expert witness

OTHER PUBLICATIONS

Newspaper Editorials:

Bearer, E.L. (2000) New Roads Bring AIDS to the Maya. Op. Ed. Providence Journal. Dec 10, 2000.

Bearer, E.L. (1999) Altruism, Evolution, and Ethnic Cleansing. Op. Ed. Providence Journal.

Bearer, E.L. and McCloy, S.G. (1996) Give Peace a Chance: Guatemalan Peace Accords. Op Ed, Providence Journal

Bearer, E.L. and McCloy, S.G. (1995) Don't Criminalize Kevorkian. Op. Ed, Providence Journal

PUBLISHED ABSTRACTS and PEER REVIEWED SHORT PAPERS

(reverse chronological order)

Listed by Project, Trainee co-authors indicated by underline

All have been published in the meeting proceedings or in the society journal.

Project 1: Molecular-Cellular Pathology, Neuropathology and Neuroscience

1. Mulligan, BS, Stephen, JM, **Bearer, EL**. 2018. Reducing Noise in Spit and Brain: multi-tissue deconvolution analysis reveals epigenetic differences in young children diagnosed with Autism Spectrum Disorder. Session Number: 639, Genes and Molecules Implicated in Autism Spectrum Disorders. Society for Neuroscience, Nov 7, 2018, San Diego, CA.
2. **Bearer, EL**, Barto, D, Riviere, ARH, Medina, CS, and Jacobs, RE. 2018. Witnessing the evolution of functional anatomy across the whole brain of living mice by MEMRI: Lessons for Alzheimer's disease, early life stress, and post-traumatic stress disorder. Session 549, Computation, Modeling, and Simulation: Network Models: Theory and Experimentation. Society for Neuroscience, Nov 6, 2018, San Diego, CA. Selected for Nanosymposium.
3. Barto, D, Riviere, ARH, Jacobs, RE, and **Bearer, EL**. 2018. Acute and Persistent Anxiety Provoked by Predator Odor: An MEMRI Approach to Compare *In Vivo* Global Brain Changes Between WT and SERT-KO Mice Across Multiple Time points. Session 549, Computation, Modeling, and Simulation: Network Models: Theory and Experimentation. Society for Neuroscience, Nov 6, 2018. San Diego, CA. Selected for Nanosymposium.
4. Medina, CS, Chaves, FC, Jacobs, RE and **Bearer, EL**. 2018. An MRI study of the effect of mutant amyloid precursor protein (APP) decoupled from effect of plaque on axonal transport in the live mouse brain, Session 186: Brain Wellness and Aging: Molecular Mechanisms. Society for Neuroscience, Nov 4, 2018. San Diego, CA. Selected for Nanosymposium.
5. Medina, CS, Chaves, F., Jacobs, RE, and **Bearer, EL**. 2017. Decoupling the effect of mutant amyloid precursor protein (APP) from the effect of plaque on axonal transport dynamics in the living mouse brain: A correlation MRI-microscopy study. American Society for Cell Biology Annual meeting, Philadelphia, PA Dec 2017.
6. Mulligan, BS, **Bearer EL** 2017. Differential epigenetic patterns in children with documented trauma. 2017-S-13559-SfN Society for Neuroscience annual meeting, Washington, D.C. Nov. 11-15, 2017
Selected for Press Release by Society for Neuroscience
7. Riviere, A, Jacobs, RE, **Bearer, EL**, 2017. Neurocircuitry changes in response to unconditioned fear in mouse models of PTSD. 2017-S-14795-SfN Society for Neuroscience annual meeting, Washington, D.C. Nov. 11-15, 2017
8. Medina CS, Chaves, FL, Jacobs RE, **Bearer EL**. 2017. Decoupling the effects of the amyloid precursor protein and plaque on neuronal transport in the mouse brain. 2017-S-15785-SfN Society for Neuroscience annual meeting, Washington, D.C. Nov. 11-15, 2017. **** Selected for Nanosymposium platform presentation.**
9. **Bearer, EL**, Mulligan, BS, Stephen JM. 2017 Differential methylation across multiple tissues as a means of determining causality in Autism Spectrum Disorder. 2017-S-16044-SfN Society for Neuroscience annual meeting, Washington, D.C. Nov. 11-15, 2017
10. Bojja, SG, Dogra, P, **Bearer, EL**. 2016. Transport Dynamics of JIP-1 Nano-Beads and Statistical Modeling of Cargo-Motor Interactions in Squid Giant Axon. American Society for Cell Biology Annual meeting, San Francisco, Dec 3-7, 2016.
11. Manifold-Wheeler, B, Floruta, CM, Medina, CS, Zimmerman, AJ, Chaves, Jacobs, RE, **Bearer, EL**. 2016. The inflammation connection between PTSD, Alzheimer's Disease, and infection. Society for Neuroscience annual meeting, San Diego, Nov. 12-16, 2016. **Nanosymposium** platform presentation.

12. Bearer, EL, Calhoun, V, and Jacobs, RE. 2016. Impact of early life stress on functional circuitry in mouse models of PTSD: A neuroimaging study. Society for Neuroscience annual meeting, San Diego, Nov. 12-16, 2016. **Nanosymposium** platform presentation.
13. Zimmerman, AJ, Mennen, F. and Bearer, EL. 2016. Epigenetic Alterations of Brain-Expressed Genes Apparent After Severe Childhood Trauma. Society for Neuroscience annual meeting, San Diego, Nov. 12-16, 2016.
14. **Medina, CS***, Biris, O, Chaves, F, Zimmerman, AJ, Falzone, T, Jacobs, RE and **Bearer, EL**. 2015. Kinesin-1 defects lead to altered axonal transport in the important hippocampal to basal forebrain memory circuit in living intact mouse brain. **Minisymposium 20** Cell Biology in the Real World, American Society for Cell Biology Annual meeting, abstract M170, Wednesday Dec 15, 2015, San Diego, CA. *Recipient of a Travel Award and presenter.
15. Zimmerman, AJ, Martinez, J, DeLora, A, Mennen, F, Stephen, J, and **Bearer, EL**, 2015. Comparative analysis of DNA methylation in saliva and brain of children. Society for Neuroscience, Oct 18, 2015 Chicago, Il, USA.
16. McCoy, DQ, Gonzales, A, Jacobs, RE, Calhoun, V, and **Bearer EL**. 2015 Secondary Data Analysis of SERT Knockout and Wild-type Mice using FastICA to Isolate Active Circuitry. Society for Neuroscience, Oct 17, 2015 Chicago, Il, USA.
17. Mitchell, A, Mohed, AF, Jacobs, RE and **Bearer, EL**. 2015. Neuro Circuitry Changes to Response to Unconditioned Fear Exposure. Society for Neuroscience, Oct 18, 2015 Chicago, Il, USA.
18. **Bearer, EL**, Medina, CS, Chaves, FL, Zhang, XW Jacobs, RE, 2015. Decoupling the effects of the amyloid precursor protein and plaque on neuronal transport in the mouse brain. Society for Neuroscience, Oct 18, 2015 Chicago, Il, USA.
19. **Medina, CS****, Biris, O, Falzone, T, Zhang, XW, Jacobs, RE, **Bearer, EL**. 2015. Axonal transport is dependent on intact kinesin-1 in the important memory circuit from hippocampus to basal forebrain: A magnetic resonance imaging study. Society for Neuroscience, Oct 18, 2015 Chicago, Il, USA. ** **selected for platform presentation.**
20. Martinez, J, DeLora, A, Stephen, JA and Bearer, EL. 2015. Comparative analysis of DNA methylation in saliva and brain of children with and without autism spectrum disorder (ASD). **DNA Methylation, Keystone Conference, Keystone Colorado, March 29-April 2, 2015.**
21. Foruta, C*, Chaves, FL, Medina, CS, **Bearer, EL**. 2014 . Developing a Model for Slow Hypoxic Injury and Vascular Degeneration in Amyloid Burdened Brains. American Society for Cell Biology, Philadelphia, PA, Dec. 6-10, 2014 ***Molec Biol Cell***. * ***Student Travel Award***
22. Chaves, FL*, Medina, CS, Zhang, XW, Jacobs, RE, and **Bearer, EL**. 2014. Witnessing microtubule-based transport in the living brain: Impact of the cargo-motor receptor, amyloid precursor protein, and Alzheimer's plaques. American Society for Cell Biology, Philadelphia, PA, Dec. 6-10, 2014 ***Molec Biol Cell***. * ***Student Travel Award***.
23. DeLora, A, Gonzales, A, Jacobs, RE, and **Bearer, EL**. 2014. Automation of mouse brain extraction for computational neuroimage analysis. Society for Neurosciences, Washington DC, Nov. 13-18.
24. Gonzales, A, Gallagher JG, DeLora, A, Jacobs, RE and **Bearer, EL**. 2014. Unbiased comprehensive analysis of neural activity in response to fear with in vivo MR imaging of

- animal models of PTSD. Society for Neurosciences, Washington DC, Nov. 13-18.
Selected for oral presentation.
25. Gonzales, Q, Chaves, F, Zhang, XW, Jacobs, RE and **Bearer, EL**. 2014. Axonal transport is altered in aging mice with and without plaques induced by overexpression of human APP. Society for Neurosciences, Washington DC, Nov. 13-18. **Selected for oral presentation.**
 26. Sanchez, AC*, Jelinkova, L, **Bearer, EL**. 2014. Anterograde axonal transport is regulated by affinity of motors for select cargo receptors. Society for the Advancement of Chicanos and Native Americans in Science, Los Angeles, Oct 14-18, 2014. ***Student Travel award.**
 27. McCoy, DQ, Gonzales, A, Jacobs, RE, Calhoun, V, and Bearer, EL. 2014. A new data-driven approach to define functional circuitry from tract-tracing by manganese enhanced magnetic resonance imaging (MEMRI), Society for the Advancement of Chicanos and Native Americans in Science, Los Angeles, Oct 14-18, 2014.
 28. **Bearer, EL**, Wang ZW, and Cristini, V. 2014. Mathematical modeling and correlation of Histopathology with perfusion-contrast CT for prediction of vascular permeability and chemotherapeutic diffusion parameters. American Society for Investigative Pathology, San Diego, CA April 26-30, 2014. **Selected for Oral Presentation.**
 29. Chaves, F, DeLora, A, Gonzales, A, Kilpatrick, K, Zhang, XW, Jacobs, RE, and Bearer, EL. 2013. Defects in Axonal Transport and Changes in Cholinergic Neurons During Aging. American Society for Cell Biology, New Orleans, LA Dec.12-14, 2013. **Molec Biol Cell.**
 30. Jelinkova, L, Gonzales, A, Bearer, EL 2013. Analysis of transport dynamics in the squid giant axon: Competition and differential binding of intracellular cargo to kinesin motors. American Society for Cell Biology, New Orleans, LA Dec.12-14, 2013. **Molec Biol Cell.**
 31. Triche, T, Bajaj, S, Bearer, EL, 2013. FEZF1AS implicated in early life brain development. 8th Brain Research Conference, RNA metabolism in Neurological Disease. San Diego, Nov 7-8, 2014.
 32. **Bearer, EL**, Gallagher, JG, Zhang, XW, Gonzales, A and Jacobs, RE. 2013. Aging deficits in axonal transport are exacerbated by ABeta plques: An MEMRI study. International Society for Magnetic Resonance in Medicine, annual conference, #6257, Salt Lake City, April 2013.
 33. **Bearer, E.L.**, Gallagher, JG, Zhang, XW, Gonzales, A and Jacobs, RE. 2013. Alzheimer's Association International Conference, Boston, MA, July 2013.
 34. **Bearer, E.L.**, Woltjer, R, Donahue, JE, and Kilpatrick, K. 2013. Herpes Encephalitis, American Society for Investigative Pathology, Boston, April 20-24, 2013.
 35. Pascal, J., Loewenberg, M., Gonzales, A, Adair, E, Cristini, V. and Bearer, EL. 2012. Measurements and modeling of axonal transport: Amyloid precursor protein wins over negative charge in the race to the synapse. American Society for Cell Biology, San Francisco, Dec 13-19, 2012, **Mol Biol Cell** 23:24 4663; 1984.
 36. **Bearer, E.L.**, Woltjer, R, Donahue, J, Kilpatrick, K. 2012. Herpes simplex virus encephalitis and Abeta plaques in human patients: Case reports. Program No. 313.01. 2012 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, Annual meeting. New Orleans, LA, October 15, 2012. Online. Selected for **Oral Presentation.**
Selected for Oral presentation.

37. Gonzales, A., Gallagher, J.J., Zhang, X.W., Jacobs, R.E., and **Bearer, E.L.** 2012. Live Imaging of Mesolimbic Circuitry and Activity in Transgenic Mouse Models of Post-Traumatic Stress by Manganese-Enhanced MRI. Program. No. 774.24. 2012 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, Annual meeting. New Orleans, LA, October 17, 2012. Online.
38. Ziomek, G., Lowenberg, M., **Bearer, E.L.** 2012. Quantitative analysis and modeling of particle transport in the living axon: Further evidence for a role of amyloid precursor protein in axonal transport. Program No. 850.03 Program No. 313.01. 2012 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, Annual meeting. New Orleans, LA, October 15, 2012. Online.
39. **Bearer, E.L.**, Woltjer, R., Donahue, J., Kilpatrick, K. 2012. Subacute herpes simplex virus encephalitis and Abeta plaque formation: A report from two cases. 37th annual International Herpesvirus Workshop, Calgary, Alberta, CA, August 7, 2012. **Selected for Oral presentation.**
40. **Bearer, E.L.**, Gallagher, J. J., Gonzales, A., and Jacobs, R.E. 2012. Imaging functional anatomy in the brain of mouse models of human disease. American Society for Investigative Pathology, San Diego, April 23, 2012. **Selected for Oral presentation.**
41. Reyes, M., Kilpatrick, K., and Bearer, EL 2012. Development of molecular pathology tests for allelic variation in the serotonin transport gene. American Society for Investigative Pathology, San Diego, April 24, 2012.
42. Ferland, P., Kilpatrick, K. and **Bearer, E.L.** 2011. Live imaging of membrane compartments interacting with herpes simplex virus during production: Evidence for HSV1- recruitment of fast vesicular transport machinery. American Society for Cell Biology, Denver, CO, Dec 3-7 2011, *Mol Biol Cell* 22, 772.
43. **Bearer, EL**, Seamster, P., Harris, Z., Loewenberg, M., DeGiorgis, J., and Cristini, V. 2011. Mathematical Modeling of Competitive Cargo Motor Receptors in the Squid Giant Axon. American Society for Cell Biology, Denver, CO, Dec 3-7 2011 *Mol Biol Cell* 22, 1185.
44. Gallagher J.J., Zhang X-W., Ziomek G., Jacobs RE., **Bearer EL.** 2011. APP knock-out mice display axonal transport deficits in two distinct anatomical circuits by manganese-enhanced MRI. Poster Presentation No. 453.19. 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2011. Online.
45. Ziomek, G., Zhang, X-W., Biris, O., Gallagher, J.J., Jacobs, R.E., **Bearer, E.L.** 2011. Decreased axonal transport from hippocampus to forebrain in a mouse model of Alzheimer's disease detected by manganese-enhanced MRI. Society for Neuroscience, Washington DC, Nov. 12-16, 2011, Oral Presentation No. 118.02. 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2011. Online.
46. **Bearer, E.L.**, Cheng, S-B., Ferland, P. and Webster, P. 2011 Redistribution of amyloid precursor protein in virus-infected cells. Society for Neuroscience, Washington DC, Nov. 12-16, 2011. Oral presentation No. 12.10. Neuroscience Meeting Planner, Washington, DC: Society for Neuroscience, 2011. Online.
47. Cheng, SB., Ferland, P., Webster, P., Kipatrick, K. and **Bearer, EL.** 2011 Complex dynamics between herpes simplex virus type 1 glycoprotein E and cellular amyloid precursor protein. International Herpesvirus Workshop, Gdansk Poland, July 24-28, 2011
48. **Bearer, E.L.**, Biris, O., Zhang, XW and Jacobs, RE. 2011. Kinesin mutations induce defects in Mn²⁺ transport in the important memory circuit from hippocampus to basal

forebrain Kinesin mutations induce defects in Mn²⁺ transport in the important memory circuit from hippocampus to basal forebrain. International Society for Magnetic Resonance in Medicine, Montreal, May 9-13, 2011. (short paper)

49. Cristini, V. and **Bearer, E.L.** 2011. Physical laws predict that tumor eradication by systemic therapy is limited. American Society for Investigative Pathology, FASEB, April 9-13, 2011 Washington, D.C.
50. **Bearer, E.L.**, Zhang, XW, and Jacobs, RE 2010 Axonal Transport Witnessed in Living Mice by Magnetic Resonance Imaging. *Symposium: Advances in Disease Modeling for ALS and FTD*. Nov. 12, 2010.
51. ***Bearer, E. L.**, O. Biris, A. Toga and R. E. Jacobs. 2010. Transport dynamics and defects revealed by MEMRI. Gordon Research Conference, Proctor Academy NH July 25-30, 2010
52. *Langner, P and **E. L. Bearer, 2010**. Competition between transmembrane and scaffolding proteins for anterograde transport machinery: JIP-1 and APP in the giant axon of the squid. Submitted to ASCB for presentation Dec 11-15, 2010 at ASCB Annual national meeting in Philadelphia. PA.
53. *Cheng, SB, Ferland P, **Bearer, E.L., 2009**. Herpes simplex virus infection up-regulates phosphorylation of amyloid precursor protein: a novel involvement in Alzheimer's disease. Society for Neuroscience, Minisymposium platform presentation, Oct. 19, 2009. Presented by UNM trainee, Post-doctoral fellow, ShiBin Cheng.
54. *Chirila A, Nobrega D, Glasgow A, Cheng SB, **Bearer, E.L.**, 2009. Imaging APP and JIP in Action: Quantitative Spatial-Temporal Dynamics of Transport in Squid Giant Axons. American Society for Cell Biology, San Diego, Dec 8, 2009. Presented by UNM trainee graduate student Pam Langner.
55. Cheng, SB, Novikov, A, Ferland P, **Bearer, E.L.**, 2009. Dynamic Interaction between herpes simplex virus and amyloid precursor protein: a novel disease mechanism. American Society for Investigative Pathology annual national meeting, New Orleans, LA April 20, 2009 *(selected for platform presentation, presented by Brown PLME student, Aleksey Novikov).
56. Nobrega, D, Chirila, A, **Bearer, E.L.** 2008 Functional analysis of axonal transport in the squid giant axon: Synergies and competition between APP and JIP1/2 for kinesins. American Society for Cell Biology annual meeting, San Francisco, CA, Dec 13-15, 2008. Poster presentation.
57. Nobrega D and **Bearer, E.L.** 2008. Functional analysis of axonal transport machinery: How the motor meets its cargo. Society for Neuroscience Washington, DC, Nov. 15-18, 2008. ***Selected for oral presentation.
58. **Bearer, E.L.**, Biris B, Falzone T. and Jacobs RE. 2008. Mouse genetic approaches to determine the physiological and functional dynamics of MEMRI for tracing circuitry in living brains. Society for Neuroscience, annual meeting, Washington, DC, Nov. 15-18, 2008. Poster presentation.
59. Cheng, SB, Ferland, P, Novikov, A and **Bearer, EL.** 2008. Dynamic imaging and computational analysis of interactions between amyloid precursor protein and herpes simplex virus inside cells: Evidence for a role for APP in viral egress. Society for Neuroscience Washington, DC, Nov. 15-18, 2008. Poster presentation.

60. Ferland, P, Cheng, SB, and **Bearer, E.L.** HSV-1 has a vested interest in cellular levels of amyloid precursor protein. 33rd annual International Herpesvirus Workshop, Estoril, Portugal, July 29, 2008. ***Selected for oral presentation.
61. **Bearer, E.L.** and Cristini, V. Computational Modeling Identifies Morphologic Predictors of Tumor Invasion. American Society of Investigative Pathology, annual meeting, FASEB, San Diego, April 5-9, 2008. ***Selected for oral presentation.
62. Nobrega, D, Cheng, SB, Chirila, A, Sylvester, K, and **Bearer, EL**. Intracellular Transport, Amyloid Precursor Protein, and Herpesvirus: Cell Biological Evidence for Disease Mechanisms. Abstract #1386. American Society for Cell Biology annual meeting, Washington, DC, Dec 3-5, 2007. Poster presentation.
63. **Bearer, E.L.**, Zhang, XW, and Jacobs RE. Imaging transport in the living brain by MRI: Dynamic transport in the memory circuit from hippocampus to basal forebrain in normal and Down's syndrome mice. Society for Neuroscience annual meeting, San Diego, CA, Nov. 3-7, 2007. ***Selected for oral presentation
64. Nobrega, D, Conley, MP, and **Bearer, E.L.** Cargo-motor receptors revisited: Amyloid precursor protein and JIP1a are independently sufficient to mediate anterograde transport of nanobeads in axons. Society for Neuroscience annual meeting, San Diego, CA, Nov. 3-7, 2007. . ***Selected for oral presentation.
65. Cheng, SB, Ferland, P, Novikov, A., **Bearer, E.L.** Association of HSV and amyloid precursor protein during intraneuronal transport: A time-lapse live-imaging study. International Society for Neurovirology, annual meeting, San Diego, CA, Oct 31, 2007. ***Invited oral presentation.
66. **Bearer, E.L.** and Jacobs, RE. Mouse genetic approaches to determine the physiological and functional dynamics of MEMRI for tracing circuitry in living brains. Imaging 2020. Jackson Hole, WY Sept 17-21, 2007. Poster presentation.
67. **Bearer, E.L.** Emerging Concepts in Neuroimaging: Animal models, plasticity and circuitry. International Brain Mapping and Intraoperative Surgical Prevention Society annual world congress, Washington, DC, Sept 7, 2007. ***Invited oral presentation.
68. Cheng, SB, Nobrega, D, **Bearer, E.L.** Hitchhiking in the axon: Herpesvirus and peptide-nanobeads identify APP and JIP1/2 as cargo receptors for anterograde motors. International Brain Research Organization 6th World Congress, Melbourne Australia, August 2007. ***Invited oral presentation.
69. Cristini, V and **Bearer, E.L.** Computational modeling identifies morphologic predictors of tumor invasion. Society for Neuro-oncology, 12th annual meeting, May 23, 2007.
70. **Bearer, E.L.**, Nobrega, D, Novikov, A, Danaher, E and Ferland, P. Peptide Zipcodes Sufficient for Axonal Transport: A role for Amyloid Precursor Protein. American Society for Cell Biology annual meeting, late breaking abstract, San Diego, CA, Dec 12, 2006. Poster presentation.
71. Ferland, P, Conley, MP, Cleveland-Donovan, K., Kinney, B. **Bearer, E.L.**, A Dynamic Duo: APP and HSV-1. Society for Neuroscience, Atlanta, GA Oct. 15, 2006. ***Selected for oral presentation
72. **Bearer, E.L.**, Zhang, XW, Hiltner, T, Tyszka, JM, and Jacobs, RE. Time-Lapse Mn²⁺ MRI in the living brain. International Society for Magnetic Resonance in Medicine, Seattle, WA, May 9-15, 2006. Poster presentation.

73. Ferland, P., Conley, MP, **Bearer, E.L.**, A dynamic Duo: APP and HSV-1. International Herpesvirus Workshop, Seattle, WA, July 26-29 2006. Poster presentation.
74. Jacobs, RE, **Bearer, E.L.**, and Zhang, XW. Stereotaxic Mn²⁺ injection and in vivo track tracing with μ MRI. Asia Pacific Workshop on Biological Physics, 3-5 July 2006 National University of Singapore. Published in Meeting Proceedings. . ***Invited oral presentation.
75. **Bearer, E.L.**, Conley, MP. Mechanisms of cellular dynamics: Measurements of intracellular transport. Asia Pacific Workshop on Biological Physics, 3-5 July 2006 National University of Singapore. Published in Meeting Proceedings. ***Invited oral presentation.
76. **Bearer, E.L.**, Music and Mind. American Chemical Society, History of Chemistry, Chemist Composers Symposium, American Chemical Society meeting abstracts, <http://oasys2.confex.com/acs/231nm/techprogram/> ***Invited oral presentation.
77. **Bearer, E.L.**, Jacobs, RE, Conley, MP, Ferland, P, Jang, M, Burgos, I and Au, J. (2005) Herpes Virus and Amyloid Precursor Protein: Co-option of cellular transport machinery for viral egress, a multi-disciplinary analysis. (presented at American Society for Cell Biology, Annual meeting, Dec 13, 2005) Published in *Molec Biol. Cell*. Poster presentation.
78. Burgos, I and **Bearer, E.L.**, (2005) Herpes and Protein Coded Bead Transport in the Squid Giant Axon. BioEngineering session, SACNAS, Boulder, Colorado, Sept 30, 2005. **Received Carpenter student travel award**. <http://www.sacnas.org/abstracts.cfm>. Poster presentation.
79. Ferland, P.F., Cleveland-Donovan, K., and **Bearer, E.L.**, (2005) HSV interplay with amyloid precursor protein. 30th International Herpesvirus Workshop, July 29-Aug 4, 2005. Proceedings of the annual meeting. Poster presentation.
80. Tyszka, J.M., **Bearer, E.L.**, and Jacobs, R.E. (2005) Correlating histology with the diffusion tensor: Specific findings in the dysmyelinating shiverer mouse. International Society for Magnetic Resonance Microscopy, Utsunomya, Japan. Proceedings of the annual meeting, August 21-26, 2005. ***Selected for oral presentation
81. **Bearer, E.L.**, Zhang, X.W., Tyszka, J.M. and Jacobs. R.E. (2005) Using transport to map the brain: Stereotaxic Mn²⁺ injection and tract tracing by μ MRI in animal models. International Society for Magnetic Resonance Microscopy, Proceedings of the annual meeting, August, 21-26, 2005. ***Selected for oral presentation
82. Conley, M. Jang, M., DeGiorgis, J.A., and **Bearer, E.L.** (2005) Zipcode for the synapse: Do transport errors cause neurodegeneration? FASEB J. Abstracts. **Received Graduate Student Highlights award from American Society of Investigative Pathology.** ***Selected for oral presentation
83. Ferland, P., Conley, M.P., Cleveland-Donovan, K. and **Bearer, E.L.**, (2005). Association of Herpes Simplex Virus Type 1 with Amyloid Precursor Protein in Epithelial Cells. Published FASEB J. Abstracts. Poster presentation.
84. Jang, M., Conley, M.P., Ferland, P., Cleveland, K., DeGiorgis, J.A., and **Bearer, E.L.** (2004) Zipcode for the synapse: Live imaging identifies a peptide sufficient to deliver large cargo within axons to the synapse. *Molec. Biol. Cell* 15:406A. Poster presentation.

85. **Bearer, E.L.**, Zhang, X-W, Hiltner, T., Tyszka, J.M., Fraser, S.E., and Jacobs, R.E. (2004) Dynamic Imaging of Axonal Transport in Living Mice by μ Magnetic Resonance Imaging. *Molec. Biol. Cell* 15:406A. Poster presentation.
86. **Bearer, E.L.**, Satpute-Krishnan, P., DeGiorgis, J.A., Silva, P.G., Ferland, P., Conley, M., and Reese, T.S. (2003) Herpes Simplex Virus recruits host cell amyloid precursor protein which is sufficient for anterograde transport: Studies in the giant axon of the squid. *Molec. Biol. Cell* Abstract 1822. B290. Poster presentation.
87. Satpute-Krishnan, P. and **E.L. Bearer**. (2003) Anterograde transport of Herpes Simplex Virus: A role for Amyloid Precursor Protein. *FASEB J.*, Abstract 511.5. **Received Graduate Student Research Awards, from American Society for Investigative Pathology. ***Selected for oral presentation**
88. **Bearer, E.L.**, Satpute, P., Schlieff, M.L., Breakefield, X.O., Shuback, D., and Reese, T.S. (2001) Direct video observation of anterograde transport of human Herpes Simplex Virus in the giant axon of the squid: A model of anterograde axonal transport. *Molec. Biol. Cell* 12: 900. Poster presentation.
89. Jones, K.J., DeGiorgis, J.A., Reese, T.S. and **Bearer, E.L.** (2000) Identification of a Myosin I in squid axoplasm. *Molec. Biol. Cell* 11:165a. Poster presentation.
90. DeGiorgis, J.A., George, P.F., Schneider, E.W., Jones, K.J., Reese, T.S. and **Bearer, E.L.** (2000) Analysis of Myosin I, II and V expression in squid neuronal tissues: Implications for roles in transport. *Molec. Biol. Cell* 11:165a. Poster presentation.\
91. LaVail, J.H., Breakefield, X.O., Schuback, D., Reese, T.S. and **Bearer, E.L.** (2000) The retrograde transport of Herpes Simplex Virus in the living axon. *International Herpes Workshop*. ***Selected for oral presentation
92. **Bearer, E.L.** Breakefield, X.O., Schuback, D., Reese, T.S. and LaVail, J.H. (2000) Retrograde transport of human Herpes Simplex Virus: Live imaging allows a biochemical dissection of the requisite viral proteins. *FASEB J.* 14(4): A712. Poster presentation
93. Medeiros, N.A., Jaffe, H., Reese, T.S. and **Bearer, E.L.** (1997) Primary amino acid sequence information of a large brain myosin. *Molec. Biol. Cell* 8: 373a. Poster presentation
94. **Bearer, E.L.**, J.M. Liu, and T.S. Reese (1995) Cytoskeletal organization in the giant squid axon. *Molec Biol. Cell.* 6: 370a. v
95. DeGeorgis, J., Reese, T.S. and **Bearer, E.L.** (1994) Actin-based motility of isolated axoplasmic organelles . *Molec. Biol. Cell* 5: 42a. Poster presentation.
- Project 2: Actin dynamics and platelet coagulation:**
96. Prakash, J. M., Kim, E.S., and **Bearer, E.L.** (2002) Regulation of Arp2/3, actin polymerization and the role of small G-proteins in human blood platelets. *Molec. Biol. Cell* 13:317a.
97. Li, Z., and **Bearer, E.L.** (2002) Live video microscopy of actin dynamics in living cells: Role for Arp2/3 VASP, gelsolin and 2E4/katin in platelet spreading. *FASEB J.* Abstract 474.9
98. Li, Z., Kim, E.S. Prakash, J. and **Bearer, E.L.** (2001) The Arp2/3 complex is required for platelet shape change. *Mol. Biol. Cell* 12:1558.

99. **Bearer, E.L.** (2000) Platelet actin dynamics (Gordon Conference on Hemostasis and Thrombosis)
100. **Bearer, E.L.** (1999) Actin-binding proteins, a vertebrate transposable element and differentiation during hematopoiesis. Society for Developmental Biology, annual meeting, NE regional annual meetings, Woods Hole. **Platform talk.
101. Manchester, R., Allen, P.G. and **Bearer, E.L.** (1998) Effects of VASP and profilin on actin polymerization. *Molec. Biol. Cell* **9**: 141a.
102. Hunter, L.A., Li, Z., Manchester, R.D. and **Bearer, E.L.** (1998) Platelet activation: Identification of a novel protein involved in actin polymerization. *Fed. Proc.* **12**: A483.
103. Dunaway, S., Allen, P., Manchester, R., Doré, A., Bearer, E.L. (1997) Association between polyproline and Grb-2, VASP, and gelsolin from human platelets. *Mol. Biol. Cell* **8**: 255a.
104. Jackson, C. and **Bearer, E.L.** (1996) A human platelet protein, 2E4, maps adjacent to the Alzheimer's locus on chromosome 19. *Mol. Biol. Cell* **7**: 545a.
105. **Bearer, E.L., Yu, K.** and Abraham, M. (1993) Cloning, sequencing and overexpression of kaptin, a novel ATP-sensitive actin-binding protein *Mol. Biol. Cell* **4**: 258a
106. **Bearer, E.L.** (1993) Polarized distribution of an actin filament nucleator in PC-12 cell. *J. Cell. Biochem. Suppl.* **17B**: 281.
107. **Bearer, E.L.** (1991) Direct observation of actin filament severing by gelsolin and binding by GCap 39 and CapZ. *J. Cell Biol.* **115**: 2a--**Minisymposium presentation ASCB.**
108. **Bearer, E.L.** (1990) Detailed observations on the migration of *Limulus* amoebocytes by video- enhanced microscopy. *J. Cell Biol.* **111** (5): 128a--**Video Platform presentation ASCB.**
109. **Bearer, E.L.** and B.M. Alberts. (1989) ATP selectively extracts four putative actin-binding proteins from the leading edge of motile cells and from ADP-stimulated human blood platelets. *J. Cell Biol.* **109**: 173a.
110. **Bearer, E.L.** and B.M. Alberts. (1988). Novel actin-binding proteins associated with platelet activation. *FASEB J.* **2**: A1538.
111. **Bearer, E.L.** and B.M. Alberts. (1988). Novel actin-binding proteins associated with platelet activation. *FASEB J.* **2**: A1538.
112. **Bearer, E.L.** (1987). Platelet activation captured by quick freezing. *Fed. Proc.* **46**(4): 1314a.

Project 3: Membrane topography and lipid microdomains

113. **Bearer, E.L., Matsutani, K.** and Li, Z. (1999) The leading edge is a web of sub-domains. *Molec. Biol. Cell* **10**: 26a.
114. Kim, M. and **Bearer, E.L.** (1999) Xrel-1 as a potential target of LiCl-induced dorsalization in *Xenopus*. Society for Developmental Biology, NE regional annual meeting, Woods Hole, MA.
115. **Bearer, E.L., Morrow, J.** and Bodner, R.A. (1993). Xrel-1 Nuclear translocation precedes expression of cytoskeletal proteins in the animal cap and mesoderm of the gastrulating frog embryo. *Molec. Biol. Cell* **4**: 32a.

116. **Bearer, E.L.** and L. Orci (1985). Peroxisomal membrane crystalline array revealed by quick freeze-deep etch. *J. Cell Biol.* **101**: 310a.
117. **Bearer, E.L.** and L. Orci (1984). Endothelial fenestral diaphragms. *J. Cell Biol.* **99**: 303a
118. Duzgunes, N., **E.L. Bearer**, and D. Papahadjopoulos (1982). Phospholipid vesicle fusion monitored by rapid freezing and by mixing of aqueous contents. *Biophys. J.* **37**: 25a.
119. **Bearer, E.L.**, and D.S. Friend. (1981). Lipid domains in sperm membranes. Gordon Conference presentation, "Lipid Metabolism", Kimberley Union
120. **Bearer, E.L.**, and D.S. Friend. (1980). Heterogeneous distribution of anionic phospholipids in a mammalian cell membrane: a freeze-fracture study. *Proc. 2nd Int. Cong. Cell Biol.* (Berlin).

SCHOLARLY AND CREATIVE WORKS PUBLISHED IN OTHER MEDIA

PEER-REVIEWED

Recordings:

- Bearer, E.L. *The Magdalene Passion*, Compact disk, Dennis, MA: Sound Dynamics Assoc. 2002.
- Bearer, E.L. *Bearer of Music, Music by E.L. Bearer*. Compact Disc: Albany Records, Albany, NY (1996).
- Bearer, E.L. *Wood Wind Quintet*, LP: Contemporary Recording Studios CRS 8948 1990
- Bearer, E.L. *Three Sonatinas for Piano Four-hands*. LP: Contemporary Recording Studios CRS 8729, 1988
- Bearer, E.L. "I will wade out" from *Three Songs*: Film score, Milos Forman: ***Taking Off***, 1974

Musical Scores

- Bearer, E.L., *The Nicholls Trio*, musical score for piano trio, Hildegard Publishing Co., 1996.

Website with Music

- Bearer, E.L. *Three Women at the Tomb*, from *The Magdalene Passion*, posted on the website: Breaking Ground: Pioneering Women Archeologists http://www.brown.edu/Research/Breaking_Ground/ University of Michigan Press, 2004

Dictionary Contributions

- Bearer, E.L. *The Cascarda*. *The New Grove Dictionary of Music and Musicians*, 1st edition, Editor: Stanley Sadie, (ISBN 0-333-23111-2), Oxford University Press, England, 1980 and 2nd edition, Editor: John Tyrrell, (ISBN 1-56159-239-0) Oxford University Press, Oxford, England, 2001; 2012.

INVITED PRESENTATIONS (since 2001)

Divided into three sections: 1) Session Chair and Symposium Organizer, 2) Talks at meetings and workshops, 3) Seminars at other institutions.

1. Session Chair for at Annual Meetings of National and International Scientific Societies (since 2001), and Symposium Organizer:

1. Chair, "Workshop: Advances in Laser-capture, Genomics, and Proteomics" Symposium at American Society for Investigative Pathology annual meeting, in conjunction with Experimental Biology (FASEB), 2001

2. Chair, "Intellectual Property and Conflict of Interest" Panel Discussion to be held at American Society for Investigative Pathology, held in conjunction with Experimental Biology (FASEB), 2002
3. Chair, Trends in Pathology, "Microbial Pathogenesis" Major Symposium of American Society for Investigative Pathology, in conjunction with Experimental Biology (FASEB) 2002
4. Chair, Special Interest Subgroup Session, "Systems Biology of the Cell: Are there simple rules?" annual meeting of American Society for Cell Biology, 2002
5. Chair, "Pathology for Basic Scientists" Opening Session for American Society for Investigative Pathology, Meeting held in conjunction with Experimental Biology (FASEB) 2003
6. Chair, "Pathology for Basic Scientists" Opening Session for American Society for Investigative Pathology, Meeting held in conjunction with Experimental Biology (FASEB) 2003
7. Chair, "Inflammation and Infectious Disease" Minisymposium, American Society for Investigative Pathology, Meeting held in conjunction with Experimental Biology (FASEB) 2003
8. Chair, Graduate Student Platform Session, American Society of Investigative Pathology, annual meeting, Washington, D.C., April 17-21, 2004.
9. Chair, Symposium "Molecular Imaging", International Brain Mapping and Intraoperative Surgical Planning Society, Nov. 19, 2005.
10. Chair, MiniSymposium: "Targeting tumor growth", FASEB San Diego, CA, April 5-9, 2008
11. Chair, Symposium "Emerging concepts on viral effects on the nervous system" International Society for Neurovirology, annual meeting, San Diego, CA Oct 29-Nov. 2, 2007
12. Chair, Symposium " *Animal Modeling and In vivo experimentation in Image Guided Therapy*", International Brain Mapping and Intraoperative Surgical Planning Society, annual world meeting, Washington DC Sept 6-7, 2007
13. Chair, Panel: "*Using Transport to map the brain: Live imaging of neuronal connections by MRI*" Winter Conference on Brain Research, Snowbird, Utah, Jan 28, 2008.
14. Chair, Session: "*Innovations for Looking into Brains*" Spring Brain Conference annual meeting, Palm Springs, CA March 19, 2009
15. Chair: "*Different Approaches to Integrated Curriculum: An Interactive Session*" Association of Pathology Chairs annual national meeting, Seattle, WA July 16, 2009.
16. Co-chair, "*Glia and Immune Responses in Alzheimer's Disease*", Society for Neuroscience, Annual meeting, Nanosymposium session 109, San Diego, CA Nov 12, 2016.
17. Organizer and Chair, "***Symposium: Childhood Well Being***". University of New Mexico Health Sciences Center, Albuquerque, NM. Feb 7, 2017.
18. Organizer and Chair, "***Focus on Child Well Being in New Mexico: Child Adversity: How to recognize it, what to do about it,***" University of New Mexico Health Sciences Center, Albuquerque, NM. April 19, 2018.
19. Chair, Nanosymposium Session Number 549: "***Computation, Modeling, and Simulation: Network Models: Theory and Experimentation***" Session Time: 1:00:PM-3:15:00 PM. Annual meeting, Society for Neuroscience, San Diego CA. Nov. 6, 2018.

20. Organizer and Chair, "*Third annual Childhood Well BeinSymposium*". University of New Mexico Health Sciences Center, Albuquerque, NM. Marc 30, 2019.
21. Chair, **Symposium**, "*Frontiers and Challenges in Rodent Brain Imaging*", Session time: 16:00-18:00, Annual meeting, International Society for Magnetic Resonance in Medicine, Montreal, Quebec, Canada, **May 13, 2019**.

2. Invited Talks at Meetings and Workshops (since 2002, chronological order):

1. "Arp2 is required for platelet shape change" Gordon conference on Thrombosis and Hemostasis, July 12, 2002, Colby College, ME.
2. "Herpes pathogenesis: Mechanisms of intracellular transport" The Science Talk for the Board of Trustees of the Marine Biology Laboratory, Yale University Club, NYC, Feb 1, 2003
3. "Axoplasmic transport: Evidence for actin-based transport and new insights from Herpesvirus" Distinguished Marine Neuroscience Lectureship, Rosenstiel BioMedical Center, University of Miami Medical School and NIEHS Marine Center, March 18, 2003
4. "Challenges to Conceptualizing Biological Systems: Wobble, redundancy and the unpredictable" First annual national meeting of "New Kind of Science", Newton, Mass, 6/27/03.
5. "Context and Genetic Expression" Third Biannual Meeting, Society for the Study of Human Development, Harvard University, Nov. 1-2, 2003
6. "HSV and APP: Implications for viral effects on dementia" 29th Annual International Herpesvirus Workshop, Reno NV 7/25/04
7. "Using Transport to Map the Brain" International Brain Mapping Symposium, Keck School of Medicine, University of Southern California, Los Angeles, CA, Nov. 15, 2004
8. "Music and mind", Symposium: Chemist Composers, American Chemical Society Annual Meeting, Atlanta, GA, March 28, 2006.
9. "Hitchhiking in the axon: Herpesvirus and peptide-nanobeads identify APP and JIP1/2 as cargo receptors for transport" Symposium at International Brain Research Organization, 2007 World Congress, Melbourne Australia, July 16, 2007.
10. "Live Imaging of Association between HSV and APP" International Herpesvirus Workshop annual meeting, North Carolina, July 11, 2007
11. "Emerging Concepts in Neuroimaging: Animal models for Circuitry" International Brain Mapping and Intra-operative Surgical Planning Society, Washington DC, Sept 7, 2007
12. "A Novel Role for APP in HSV1 Trafficking: A Time-Lapse Live Imaging Study" International Society for Neurovirology, Symposium talk, San Diego, CA, Oct. 31, 2007
13. "Cargo-Motor receptors revisited: Amyloid precursor protein and JIP1a are independently sufficient to mediate anterograde transport of nanobeads in axons" Society for Neuroscience, San Diego, CA, Nov, 5, 2007
14. "Using Transport to Map the Brain" Winter Conference on Brain Research, Snowbird, Utah, Jan 28, 2008.
15. "Emerging Concepts in Neuroimaging: Animal models for Circuitry. International Brain Mapping and Intraoperative Surgical Planning Society, 5th World Congress. Los Angeles, CA August 27, 2008.
16. "Computational Modelling Identifies Morphologic Predictors of Tumor Invasion" American Society for Investigative Pathology annual meeting, Minisymposium, San Diego, CA, April 6, 2008.

17. "HSV-1 has a vested interest in cellular levels of amyloid precursor protein" Symposium, International Herpesvirus Workshop, Estoril, Portugal, July 29, 2008.
18. "Functional analysis of axonal transport machinery: How the motor meets its cargo" Platform Session, Society for Neuroscience annual meeting, Washington DC Nov. 16, 2008.
19. "Imaging biophysics of axonal transport with MEMRI: Optic track transport is altered in mouse models of Alzheimer's disease". Symposium, International Society for Magnetic Resonance Imaging in Medicine. Honolulu, HI, April 22, 2009.
20. "A Novel Application of Computational Fluid Mechanics in the Field of Cancer" Fifth World Conference on Computational Fluid Mechanics, Massachusetts Institute of Technology, June 17, 2009.
21. "Three different models of integrated medical education: Yale, University of New Mexico, and Brown University" Association of Pathology Chairs annual national meeting, Seattle WA, July 18, 2009
22. * "The Art and Science of Systems Biology". All Centers meeting for NIGMS SysBio Centers, Institute for Systems Biology, Seattle WA July 13-14, 2010.
23. "Systems Biology panel: Spatiotemporal modeling of cell signaling: In and beyond the cellular perspective" 8th annual Structural Birth Defects Meeting, National Institute of Child Health and Human Development, August 9-12, 2011
24. "Decreased axonal transport from hippocampus to forebrain in a mouse model of Alzheimer's disease detected by manganese-enhanced MRI" Society for Neuroscience, Washington DC, Nov. 12-16, 2011
25. "Redistribution of amyloid precursor protein in virus-infected cells" Society for Neuroscience, Washington DC, Nov. 12-16, 2011.
26. "Imaging function anatomy in the brain of mouse models of human disease" Experimental Biology, American Society for Investigative Pathology (ASIP), San Diego, CA, April 24, 2012.
27. "Herpes simplex virus encephalitis and Abeta plaque in human patients: Case reports" Nanosymposium, Society for Neurosciences, New Orleans, LA Oct. 15, 2012.
28. "Subacute herpes simplex virus encephalitis and Abeta plaque formation: A report from two cases", 37th International Herpesvirus Workshop, Calgary, Ontario, Canada, Aug 7, 2012.
29. "Mathematical modeling and correlation of histopathology with perfusion-contrast CT for prediction of vascular permeability and chemotherapeutic diffusion parameters." A cancer modeling and pathology project. Experimental Biology, American Society for Investigative Pathology, San Diego, CA, April 29, 2014.
30. "Peer-based teaching of pathology in a digital laboratory: A new curriculum at University of New Mexico" Plenary Talk, Undergraduate Medical Education Section, Association of Pathology Chairs, Rancho Bernardo, San Diego, July 12-15, 2016.
31. "Decoupling the effects of the amyloid precursor protein and plaque on neuronal transport in the mouse brain". Medina CS, Chaves, FL, **Jacobs RE**, **Bearer EL**. 2017 2017-S-15785-SfN Society for Neuroscience annual meeting, Washington, D.C. Nov. 11-15, 2017. ** **Selected for Nanosymposium platform presentation.**
32. "Replication Machine" Bruce Alberts' 80th Birthday Symposium, Metropolitan Club, San Francisco, CA April 14, 2018

33. " Insights about the limbic system by MR imaging: Unbiased comprehensive whole brain imaging in 3D--live, deep, non-invasive and informative" World Congress, Society for Brain Mapping and Therapeutics, Los Angeles, CA April 15, 2018.
34. "Individual Development Plan for Experimental Pathologists in Training" American Society for Investigative Pathology (ASIP), Experimental Biology '18, San Diego, CA April 22, 2018.

3. Invited Lectures at Other Institutions (2000-2016):

1. "Role of actin in the inner ear: Identification of deafness loci as actin-regulatory proteins". National Institutes of Health, National Institute of Deafness and Communicable Diseases, Institute seminar speaker, Sept. 7, 2000
2. "Actin dynamics and pathologic processes: Tails of Listeria and Herpes virus", Harvard Medical School, Brigham and Women's Hospital, Vascular Biology Research Seminar 1/24/01
3. "Actin dynamics and pathologic processes: Tails of Listeria and Herpes Virus". Yale University Medical School, Department of Molecular Medicine, Div. of Microbilia Pathogenesis, Feb 8, 2001.
4. "Platelet activation and shape change: Proteomics of the actin cytoskeleton." Cor Therapeutics (now Millenium), Friday morning seminar series, Oct. 5, 2001
5. "Actin dynamics and the pathogenic mechanism of intracellular infection" Albert Einstein Medical College, Department of Pathology (1/6/01).
6. "Actin-based axoplasmic Transport" Harvard Medical School, Department of Neuroscience, April 6, 2000.
7. "Molecular mechanisms of platelet activation and its role in aging" Buck Institute for Aging, Novato, CA, Seminar, Feb 1, 2002.
8. "Cytoskeletal dynamics: Roles in herpes pathogenesis and cardiovascular disease." University of Vermont Medical School, Department of Biochemistry, Faculty Seminar Series. April 7, 2002.
9. "Proteomics, Genomics and Cell Structure: Insights in the pathogenesis of metastasis, thrombosis, and the life cycle of intracellular microbes." University of California, San Francisco, Department of Pathology, "Grand Rounds" April 16, 2002
10. "Cytoskeletal dynamics: Roles in Herpes virus pathogenesis & cardiovascular disease" Genentech, South San Francisco, Pathology group, Discovery Research Seminar Series, April 18, 2002.
11. "Towards a "general system" understanding of cell shape change: Human platelets as substrates for combinatorial analysis." The Molecular Sciences Institute, Berkeley, California, April 16, 2002.
12. "Proteomics of cell shape: Applications to cancer genomics" Comprehensive Cancer Center, University of California, San Francisco, Breast Oncology seminar series, June 12, 2002
13. "Herpes transport" Department of Neurology, Stanford University Medical School, Nov. 15, 2002.

14. "Actin polymerization depends on Arp2 and is required for blood coagulation" University of Miami Medical School, Department of Cell Biology, Seminar Series, March 19, 2003.
15. "Cytoskeletal dynamics in human disease" University of Tokyo, Medical School, Tokyo, Japan, June 15, 2003 (invited by the Dean of Medicine, Nobutaka Hirokawa).
16. "Cytoskeletal dynamics: Role in neurological disease and blood coagulation" Department of Pathology, University of Hokkaido, Medical School, Saporro, Japan, June 18, 2003.
17. "Social Issues in Reproductive Health among the Maya of Guatemala" Keio University, Department of Anthropology, Tokyo, Japan, June 23, 2003.
18. "Coagulation and Infection: Insights gained from a cytoskeletal perspective." San Francisco General Hospital, an affiliate of UCSF, Department of Surgery, Research Rounds, Aug. 19, 2003.
19. "Coagulation and infection: insights gained from a cytoskeletal perspective" Moorehouse University, Department of Biology, Nov. 18, 2003.
20. "Cytoskeletal dynamics: Thrombosis, axoplasmic transport, and the intracellular life of microbial pathogens" NIH-NHLB, Bethesda, MD, hosted by Ed Korn, former Institute Director, 2/4/04.
21. "Actin dynamics: role in thrombosis and microbial pathogenesis" COBRE seminar series, Roger Williams Medical Center, Providence, RI 1/28/04.
22. "Music and Mind" Munro Memorial Lecture, Division of Humanities, California Institute of Technology, Pasadena, CA, 5/12/04
23. "Zipcode for the synapse: Herpesvirus, Alzheimer's disease, and the molecular mechanisms of transport" Biology Seminar, California Institute of Technology, 11/1/04
24. "Cytoskeletal dynamics: Mechanical biomolecules provide clues for engineering?" BioEngineering Seminar, California Institute of Technology, 11/18/04
25. "Hijacker to the synapse: What herpes virus tells us about axonal transport: Department of Microbiology, Columbia University Medical School, 2/2/05
26. "Transport imaged by μ MRI in living brain" Stanford University, Neurosciences Institute, March 5-6, 2005.
27. "Wanted: Dead and Alive: using transport to map the brain" Caltech Brain Imaging Center Retreat; Focus on MRI, April 24, 2005
28. "Herpes virus and the biophysics of intracellular transport" UCLA-Caltech Virus Workgroup, May 31, 2005
29. "A Hitchhiker's guide to the brain: Herpes virus, transport and amyloid precursor protein" Max-Planck Institute, Unit for Structural Molecular Biology, Hamburg, Germany, July 28, 2005
30. "Hitchhiker to the brain: Herpes virus, vesicular transport and circuits" -Star Institutes, Singapore, Sept 2, 2005
31. "Hijacking the transport machinery" Pathology Department seminar, Genentech, Dec.18, 2005
32. "Hijacking the transport machinery" Jan 18, 2006 Keynote lecture, Caltech BioEngineering and Computational Neuroscience Retreat,

33. "Imaging Molecular Mechanisms of Cellular Dynamics: Tools and Translations". Center for Molecular and Functional Imaging, University of California. San Francisco. CA April 3, 2006
34. "Nanobeads as probes for intracellular motility and other tales of technology development to image function" Instituto de Biotechnology, Universidad Autonomia de Mexico, Cuernavaca Mexico, June 5, 2006.
35. " Making and Breaking Brains: Imaging Thinking in Action." Boston BioMedical Research Institute, Sept 6. 2006
36. "A Hitchhiker's Guide to the Cell: Transport, Herpesvirus and a Pathologic Basis of Degeneration", University of Southern California, Los Angeles Dec 21, 2006
37. "A Hitchhiker's Guide to the Cell: Transport, Herpesvirus and a Pathologic Basis of Degeneration", University of California, San Diego, CA Jan 24, 2007
38. "A Hitchhiker's Guide to the Brain: Using transport to map circuitry" Laboratory of NeuroImaging, University of California, Los Angeles, May 16, 2007
39. "A Hitchhiker's Guide to the Cell: Intracellular transport, Herpes virus and neurodegeneration" Dept of Pathology, University of California Los Angeles, June 12, 2007
40. "Transport of human herpes virus in the giant axon of the squid: Evolutionary conservation of host-pathogen interactions" University of California, Riverside, Biology Seminar, Jan 17, 2008.
41. "Cytoskeletal dynamics in disease: Targets for diagnosis and therapies: Department of Pathology, University of Arizona Health Sciences Center, February, 2008.
42. "Design meets discovery: Imaging, modeling and the mechanics of cellular behavior" Inaugural lecture, Dept of Engineering, University of New Mexico, Oct. 8, 2008
43. "Cell Biology of Disease: The inner machinery of cells as targets for diagnostics and therapies" Plenary Speaker, Department of Pathology, Research Day, University of Iowa, Oct. 21, 2008.
44. "HSV intracellular transport: Molecules and Mechanisms" Harvard University, Dept of Microbiology, March 9, 2009
45. "A Novel Application of Computational Fluid Mechanics in the Field of Cancer" MIT World Conference on Computational Microfluidics, June 17 2009.
46. "Using Transport to Map the Brain: From cargo-motor receptors to manganese-enhanced magnetic resonance imaging (MRI)" Neurosciences Seminar series, University of New Mexico, Sept 17, 2009
47. "Intracellular dynamics" Spatiotemporal modeling center, UNM, Dec. 4, 2009
48. "Computational modeling of tumor progression" Q-Bio seminar series Los Alamos National Labs, Dec 15, 2009.
49. "Fast axonal transport: Associations with mental health and neuropathology" Neurology Grand Rounds, University of New Mexico, Dec 4, 2009.
50. "Cell Dynamics, Inside and Outside" q-Bio Summer School, Los Alamos National Laboratories, Aug. 9 2010.
51. "Hitchhiking in the brain: from molecules to neurons to circuits, how does it work? Program in Biology and Biological Sciences, University of New Mexico, January 26, 2011.
52. "News from the bench: Brain imaging data in search of statistics" Division of Epidemiology, Biostatistics and Preventive Medicine seminar series, University of New Mexico-Health Sciences Center, January 24, 2011

53. "Studies on Intracellular Transport" Biological imaging Center, Beckman Institute, California Institute of Technology, Feb 9, 2011
54. "MR imaging of transport in the central nervous system: How the molecular biology informs us about MEMRI and disease process" MR Group talk, California Institute of Technology, Feb 10, 2011.
55. *"Music and the Mind-Brain Continuum," Keynote speaker for the 2011 STMC Art of Systems Biology and Nanoscience Exposition, Santa Fe New Mexico, April 2, 2011.
56. "Cell Biology of Disease: The inner machinery of cells as targets for diagnostics and therapies," Dept. of Pathology, University of California, Irvine, May 23, 2011.
57. "SERT, Beauty and the Brain" MR Group talk, California Institute of Technology, June 30, 2011.
58. "Dancing with Death: Herpes simplex virus interactions with cellular proteins" Keynote talk, Institute for Infectious Disease, Colorado State University, Sept 22, 2011.
59. "Music and Mind: The quest for a biological basis of musical experience," City of Hope, Duarte CA June 10, 2012.
60. *"Mentoring Innovation" The experience of a composer-scientist," 2012 Mentoring Conference, The Mentoring Institute, **University of New Mexico**, Oct 24, 2012.
61. "Early Life Events that Impact Health and Wellness over the Lifespan," Saban Research Institute, Children's Hospital Los Angeles, Jan 16, 2013.
62. "SERT, fear, and PTSD: an MR-histopathology and genetics exploration," Caltech Conte Center, Exploring how we make decisions, California Institute of Technology, Pasadena, CA, Feb. 1, 2013.
63. "Thoughts on Pathology for the 21st Century," Medical University of South Carolina, Charleston S.C, June 26, 2013.
64. "Impact of early events on the developing mind: Towards objective evidence of epigenetic events," University of Southern California, Los Angeles, CA, Aug. 28, 2013.
65. "The many faces of axonal transport" University of Buffalo (SUNY), April 10, 2014.
66. "Update on Glioblastoma multiforme molecular pathology," Tumor Board for TriCore Reference Laboratories, Albuquerque New Mexico, June 20, 2014
67. "Lessons from the squid giant axon: From molecular mechanisms of axonal transport to circuitry mapping in the living brain," Cellular Dynamics Program, Marine Biological Laboratory, Woods Hole MA, July 7, 2014.
68. "Live imaging of functional circuitry in mouse models of adverse childhood experience and post-traumatic stress," Picower Institute, Massachusetts Institute of Technology, Boston, MA, July 21, 2014
69. "Using Transport to map the brain," Stanford University School of Medicine, Department of Radiology, September 12, 2014.
70. "Epigenetics, Glioblastoma and beyond," City of Hope, Beckman Research Institute, Duarte CA, Oct 3, 2014.
71. "Impact of Early Life Events on the Developing Mind," University of California School of Social Work, Los Angeles, CA, October 7, 2014.
72. "Live imaging of functional circuitry: Alzheimer's disease to PTSD with a molecular neuroscientist's eye," Zilkha Neurogenetics Institute, Keck School of Medicine of the University of Southern California, Los Angeles, CA Feb 25, 2015.
73. "Impact of early life experience on the developing mind: Towards objective evidence and biological mechanism," Loma Linda University, Loma Linda, CA, April 12, 2015.

74. "Cambrian Explosion" Marine Biological Laboratory, Woods Hole, MA, Special presentation for the Thomas S. Reese Symposium, July 18, 2015.
75. "Biophysics of Axonal Transport and Implications for the Brain," Department of Physics Colloquium, University of New Mexico (main campus), Aug 28, 2015.
76. "Pathologic Basis of Central Nervous System Disorders," Pathology Department Grand Rounds, University of New Mexico Health Sciences Center, Sept 24, 2015.
77. "From behavior to health" Giannini Symposium, Stanford University, January 27, 2016
78. "Using axonal transport to map the brain in living awake mouse models of human disorders: The case of Alzheimer's disease and Post-traumatic Stress Disorder" University of California, Riverside, CA March 2016.
79. NeuroImaging, Epigenomics, and psychosocial correlates" International School for Advanced Studies (SISSA) Trieste, Italy June 7, 2016.\
80. "Visions for Hispanic Health" Foundation Board, White Memorial Medical Center, Ritz Carlton Hotel, Laguna Niguel, CA, July 31, 2016.
81. "Neurocircuitry, Epigenomics and Neuro-inflammation: Links from childhood experience to healthy aging" School of Gerontology, University of Southern California, Los Angeles, CA, Sept 8, 2016.
82. "Mouse models of neuropsychiatric disorders: Peering into the brain and watching what happens" NeuroLunch, California Institute of Technology, Pasadena, CA, Nov. 7, 2016.
83. "Biomarkers of early childhood trauma and changes with interventions" Children's Institute, Inc, Los Angeles, CA. Nov. 8, 2016
84. "A framework for family wellness" Board of Governors, White Memorial Medical Center, Los Angeles, CA, Nov. 11, 2016.
85. "Kinesin-1 defects lead to altered axonal transport in the important memory circuit from hippocampus to basal forebrain in living intact mouse brains. STMC Retreat, July 10, 2017.
86. Introductions and women's Medical Scientists break-out session for the MSTP Symposium, University of California San Francisco, Sept 8, 2017.
87. "MRI imaging of brain circuitry: Connections with epigenetic dynamics in children and post-traumatic stress". The General Biology Seminar, California Institute of Technology, Oct 3, 2017.

GRANT AWARDS:

ACTIVE

- 1R01MH096093 (Bearer) 7/1/12-2/28/2023

Live imaging of brain circuitry in mouse models of PTSD

This proposal received a 1 percentile (perfect) score.

The goal of this project is to map brain activity in response to fear in transgenic mice and its evolution to anxiety. We use transgenic mice in the monoaminergic systems to provoke anxiety after predator stress Monoamine transporters, SERT, NET and DAT, are the major target of serotonin reuptake inhibitors known to be effective in treating PTSD and other forms of anxiety/depression. Since early life experience affects human vulnerability to anxiety/depression, we are using a mouse model to explore the brain-state and its response to threat in young adulthood.

Role on Project: Principal Investigator

- 1P50GM085273 (Wilson) 8/1/09-7/31/20
New Mexico Center for the Spatiotemporal Modeling of Cell Signaling (STMC).

This grant supports the STMC as one of 13 National Centers for Systems Biology, integrating biology, technology and computation for a better understanding of immunoreceptor signaling. The Center is run through the UNM Cancer Center as one of its significant areas of excellence. Recently renewed for the second of the 5 year cycles.

Role on Project: Director of Core for Training and Outreach and Co-PI on Aim 3.

• PCORI #: AD-1511-32910 Page-Reeves, PI; Regino, Co-PI 12/1/16-6/30/20

A Patient-Centered Framework to Identify Culturally and Contextually Appropriate Options for Latinos with Diabetes from Low-Income Households.

The clinical research project compares two diabetes management programs. Bearer's role is to determine stress in participants using biomarkers for cortisol and meDNA, and to provide quantification for the data analysis team.

Role on project: Co-investigator

• NIH Office of the Director S10 OD021598 (Selwyn) Sept. 22, 2016

PURCHASE OF A HIGH GRADIENT STRENGTH 7T 30 CM BORE MAGNETIC RESONANCE IMAGING SCANNER

Role on Project: Co-Investigator

NCRR/NCATS

UNM CTSC pilot project program

4/1/2018-3/31/2019

Understanding the Relationship Between A1c and Hair Cortisol in a Special Population

This proposal has been approved by the CTSC with funding to begin April 1, 2018

Role on Project: Co-Principal Investigator

PENDING:

R21 HD096418

"Pediatric Trauma: Biomarkers for Prediction of Outcome

This project continues our study of hair cortisol changes and DNA methylation sites for diagnosis of risk of prolonged chronic stress reactions.

Role on Project: Principal Investigator

RO1

"TERTULIAS: Addressing social isolation to reduce depression among female Mexican immigrants."

Role on Project: Co-Principal Investigator

RO1: R01NS114706

"Live imaging of brain activity in response to music, from mouse to human"

Role on Project: Principal Investigator

RO1: R01MH122194

"Evolution of Brian States"

Role on Project: Principal Investigator

COMPLETED awarded grants

NCRR/NCATS

Southern California Clinical Translational Sciences Institute
SC CTSI Pilot Funding Program (Mennen)

7/1/14-5/31/16

Bio Markers of Early Childhood Trauma and Changes through Intervention

This is a companion pilot award to the UNM CTSC pilot and will collect hair and saliva samples from children at Children's Institute Inc in Los Angeles for molecular and biochemical testing at UNM.

Role on project: **Principal Investigator of subaward to UNM.**

NCRR/NCATS

UNM CTSC pilot project program

4/1/2014-3/31/2015

DNA methylation as a biomarker in translational studies of early life stress: a feasibility study

The goal of this companion pilot is to develop rapid accurate inexpensive tests for methylation using NexGen sequencing in the UNM CTSC KUGR core.

Role on Project: Principal Investigator

1R25CA153825 (Oliver/Datye) 7/1/10-6/30/15

NIH/NCI \$400,000 annual direct costs

Integrative Cancer Nanoscience and Microsystems (IC-NSMS) Training Center

Training grant to support graduate and post-doctoral students in Nanotechnology.

Role on project: Mentor and instructor

RO1NS062184 (Bearer)

9/30/09-8/31/13

NIH/NINDS Total grant award: \$1,478,291.

Using Transport to Map the brain

The goal of this project is to apply manganese-enhanced magnetic resonance imaging to study the physiology of axonal transport dynamics in transgenic mice lacking the kinesin light chain or with altered expression of amyloid precursor protein. The optic tract and the hippocampal circuits are targeted. We expect to uncover transport defects associated with neuronal degeneration typical of Alzheimer's disease.

Role on project: Principal Investigator

1P30GM092317 (T.M. Williams)

10/1/09-9/30/12

NIH/NIGMS \$250,000 direct costs per year

The purpose of the award is to provide start-up funds for new faculty to be recruited in immunology and imaging.

Role on project: Mentor and member of search committees

RO1DA018184 (Jacobs)

10/1/06-5/30/12

NIH/NIDA \$250,000 annual direct costs

In Vivo Neuronal Activity

The goal of this project is to use Mn⁺⁺ to trace neuronal circuits in the living mouse brain using micro-MRI and to correlate the tracing with traditional track tracers. Circuitry in the hippocampal and limbic systems will be studied in mouse mutants for synaptic transmission that interact with substances of abuse.

Role on project: Principal Investigator of subaward to UNM.

RO1 NS046810 (Bearer)

4/1/04-1/31/10

NIH/NINDS

Molecular Mechanisms of Anterograde Transport

The goal of this project is to identify the molecular mechanisms mediating cargo-motor interactions that regulate axoplasmic transport of intracellular particles. We are using the human herpes virus, HSV1, and fluorescent nanospheres conjugated to peptides as tools.

Role on project: Principal Investigator

RO1 GM47368 (Bearer)

7/1/94-6/30/10

NIH/NIGMS

Molecular Mechanisms of Actin Dynamics in Platelets

The goal of this project was to identify the molecular interactions to drive actin polymerization during platelet activation and thrombus formation with the idea that these processes will be universal.

Role on project: Principal Investigator

NCRR Shared Instrumentation Award (Bearer)

3/12/08

Agency: NCRR

Title: ***Shared Instrumentation: Zeiss Confocal 710 with META***

Project description: Funds awarded to purchase a newer updated Zeiss confocal microscope for investigators in the new Laboratories of Molecular Medicine, a new building located at some distance from the main campus of Brown University.

Role on project: Principal Investigator

NIH- RO1 -GM47368 (Bearer)

7/1/00- 6/30/09

Title: ***Molecular Mechanisms of Actin Dynamics in Platelets***

Agency: National Institutes of Health

Project Description: This project has been continuously funded since 1994. Here we analyze the molecules that regulate cell shape change via actin polymerization in response to environmental signals, using the human blood platelet as a model system. The molecules found in the first 10 years of this project (Arp2, kaptin, VASP) are now recognized as universally important in many virtually all cells, including neurons and leukocytes for migration and formation of specialized surface structures.

Role on project: Principal Investigator

Department of Health and Human Services (Phipps)

9/30/03-9/29/08

Title: Brown University/Women and Infants Hospital National Center of Excellence in Women's Health

Project Director: Maureen Phipps, MD, MPH

Project Description: This is a Women's Health Initiative to promote mentoring of health care providers to improve access, diagnosis and treatment of women.

Role on project: Mentor

Robert Woods Johnson, ***Aging biology for undergraduate medical education***

2003-2006

The award supported the development of a preclinical block on Aging in the Brown University Medical School Curriculum. (PI: Richard Besdine).

Role on Project: Educator, leading Aging education in pathology courses

NCCR: Center for Biological Research Excellence (COBRE) (Quesenberry) 9/30/03-9/29/08

Title: ***The New Stem Cell Biology***

Agency: National Center for Research Resources

Project Description: Using bone marrow-derived hematopoietic stem cells genetically tagged for fluorescent proteins for transplantation to non-tagged host mice, we analyzed the location and expression pattern of stem cells in injured and normal bone marrow, muscle, brain, skin and lung. The subcontract to Brown that I directed supported development of imaging technology with high-resolution fluorescence microscopy of chromatin remodeling during differentiation. We also explored MR imaging of donor hematopoietic stem cells trafficking within the host using combined MR-PET.

Roles on Project: Principal Investigator of Brown Subaward for Phenotyping Core and for Mentoring

NSF: INT-9909020 (Bearer) 2/15/00- - 7/1/06

Title: ***Identification and Characterization of Myosin-like Proteins***

Agency: National Science Foundation

Project Description: This award supports travel to advise and collaborate with Dr. Marcos Villanueva at the Biotechnology Institute of University Autonoma of Mexico to explore myosin genes and proteins in germination in the important plant food sources, soy bean and black bean.

Role on project: Principal Investigator

NSF: 05-515 BCS Major Research Instrumentation (Sanes) 09/01/05

Title: ***Acquisition of a 3T MR Scanner System***

Project Description: This award supported the purchase of the first MRI machine for research at Brown that has been installed and is now operational in the new Life Sciences Building, Sidney Frank Hall.

Role on project: Key Personnel; Major User

NIH- 1S10RR017942-01 (Wessel) 5/1/03-4/30/04

Title: Confocal Equipment Grant

Agency: NIH

Role on grant: Key Personnel (Major User Group)

Project Description: Funds requested to purchase a second confocal microscope for research in Division of BioMed at Brown.

Role on project: Key Personnel; Major User

CTR 3192 and CTR2192A (Bearer) 1/1/92 - 12/31/98

Title: ***Role of rel-dorsal homologues in cell migration during gastrulation***

Agency: Council for Tobacco Research:

Role on grant: Principal Investigator

EDUCATION/TEACHING

BROWN UNIVERSITY: GRADUATE AND MEDICAL SCHOOL COURSES

** indicates award of Dean's Excellence in Teaching Award

Graduate school:

2001-2009 Created and served as Course Director for a new course **Cancer Biology** (BIOM129) at Brown University
Course Leader, **Pathologic Mechanisms of Disease** (BIOM 286)
Course Director, **Elective Clinical Clerkship for Medical Students in Community Health, Guatemala**
Lecturer, **Cell Biology** (BIOM 105)
Lecturer, **Virology** (BIOM 139)
Lecturer, **Molecular, Cellular Biology and Biochemistry** research seminars (BIOM 201)
Lecturer, **Introduction to Pathology Research** seminars
Lecturer, **Topics in Pathobiology** (BIOM 284)
Course Director: Biological Basis of Human Behavior (BIOM 195)

Medical School:

2001-2009 Course Director, **Systemic Pathology (Fundamentals), 30 weeks** (BIOM 279-280, MD3010, MD3660)
Directed Blocks on Cardiovascular, Immunology, Lung, Kidney, Reproductive tract, Endocrine System, Systemic disease (including diabetes and autoimmune diseases)
Course Director for General Pathology (for both medical students and graduate students) (**15 weeks**) (BIOM 184, 279 and 280; MD3010, MD3660),
Including lectures in **Injury, repair and regeneration, cellular pathology, Immunopathology, and Cancers of all organ systems**
Developed a block on **Aging** (funded by Robert Woods Johnson award, Richard Besdine, PI)

****Received 5 Dean's Awards for Excellence in Medical Student Teaching**

Clinical Teaching at BROWN UNIVERSITY

Lecturer for Continuing Medical Education at Brown Medical School:

Pulmonary Research Rounds (Continuing Medical Education, April 2007)

Cancer COBRE Seminar Series (May 2006)

Infectious Disease Research Rounds (Continuing Medical Education)

Leader, Pathology Research and Teaching Rounds (Grand Rounds) 1992-2004

1995-2010 Director, Medical Student Elective Clerkship (3rd and 4th year) in community Health for Brown University, outreach to Guatemala. Clerkship is sponsored by Department of Community Health. Faculty includes 53 physicians from across the US. Medical students come from Brown, other US medical students, as well as from around the world to participate (3-5 students per year from Brown Medical School. Students from other medical schools also participate). 2-4 week full-time commitment.

UNIVERSITY OF NEW MEXICO: GRADUATE AND MEDICAL SCHOOL COURSES

2009-2017

Created and served as Course Director for **Special Topics in Computational Biology**
Lecturer, **Fundamentals of Medical Science**, includes lectures on stem cells, microRNA,
cancer stem cells, and epigenetics. Regeneration and repair.
Sub-course organizer and lecturer, **Neuropathology in the Neurosciences** Block,
Including lectures on neurodegenerative disorders, stroke, brain tumors, new e-Lab case-
based participatory session in 2015, 2017 and 2018.
Lecturer for **q-bio**, an intensive summer course for BMSGP-STMC graduate students,
Including mathematical modeling of tumor progression with histopathology validation
BIOM 555 Responsible Conduct of Research. Co-course director, 16hr every semester.
BIOM 551 **Special Topics in Cancer Biology**. Lecturer on Glioblastoma immunotherapies.

Seminar Series in biomedical sciences

- Director of the Pathology Department Research Seminar/Grand Rounds from 2009-2015,
Organizer, Chair of the Seminar Committee.
- Pathology Department Research Seminars, for clinicians and for graduate programs
(2009—2012),
- Neurosciences Seminar (Sept 17, 2009)*
- Neurology Departmental Seminar/Grand Rounds (Dec. 4, 2009; Jan. 9, 2012)
- Grand Rounds, Pathology Department, Sept 25, 2015.
- "Neurovirology, Neuroinflammation and Alzheimer's disease related dementias" CIDI
seminar series, UNM-HSC, Oct 5, 2016.
- "Neurovirology, Neuroinflammation and Alzheimer's disease related dementias"
Orientation to Research, BSGP at UNM-HSC, Oct 10, 2016
- "Towards biomarkers to diagnose children impacted by adversity". CTSC, ATG
Genomics lab seminar series, UNM-HSC, Dec 9, 2016

Graduate student research training

Joseph A. DeGiorgis: Received PhD (2002) from Molecular Biology, Cell Biology and
Biochemistry Graduate Program for discovering the role of myosin II in axoplasmic transport.
Title of his thesis "Role of myosin 11 in fast axonal transport of organelles." After a post-
doctoral fellowship with Tom Reese at the NIH, he is now an assistant professor, tenure track
at Providence College.

Zhi Li: Received PhD (2001) from Physiology Graduate Program for analysis of the role of Arp2 in
platelet activation and clot formation. Title of his thesis "Arp2 is required for platelet shape
change". After graduating with his PhD from Brown, he became a post-doctoral fellowship at
Albert Einstein Medical School in the laboratory of Bernice Morrow.

Melanie Zitek, A Pathobiology graduate student received her M.A. (1998) for work analyzing actin
binding proteins in platelets. Master of Arts from Brown

Prasanna Satpute-Krishnan, PhD 2007, a graduate student in the Molecular Biology, Cell Biology
and Biochemistry Graduate Program who performed the first four years of her thesis work
under my supervision in my lab on herpes virus motility and the role of amyloid precursor
protein. She is co-author on two full-length publications, and expects to complete one more
from her time in my lab. She was instrumental in the discovery of a relationship between
human herpes virus and the amyloid precursor protein of Alzheimer's disease. After

graduating with her PhD from Brown, she is now a post-doctoral fellow at NINDS with Jennifer Lippencott-Schwartz.

Thomas Ng, MD-PhD, project at Caltech with Russ Jacobs and Scott Fraser on MR-PET imaging of tumors. Received PhD from Caltech June 2012, completing MD at USC, accepted to the Brigham and Women's residency program in Radiology.

Terence Sio, MD-MMSc, Brown University, 2010, Radiotherapy for brain tumors: Gamma knife versus Cyber Knife computational modeling of efficacy.

Pamela Langner (Seamster), rotated in my lab at UNM in December 2009, joined my lab for her thesis Jan. 1, 2010 at UNM. Project on molecular basis of cargo-motor attachment with focus on jun-interacting protein kinase, graduated with a Master of Science fall 2011 (withdrew from the PhD program for health and family reasons).

Science teacher, APS

Octavian Biris, ECE, computational image analysis using (PhD 2015), Private computer science industry

Adam DeLora, MS in Computer Science 2015 (medical Student at UNM)

Aaron Gonzales, MS in Computer Science 2015 (Working for Twitter in Colorado)

Abdul Faheen Mohed, Automation of imaging analysis MS in Computer science 2015, Private industry in computer science

Gowthami Sai Bojja, MS in Computer Science 2017, private industry Bay Area computer science.

Prashant Dogra, PhD (2018) Nanoparticle design and distribution modeling, post-doc MD

Anderson Cancer Center with Vittorio Cristini

Brianna Mulligan, MS in Computer Science expected 2019

Taylor Usulman, Biomedical sciences graduate program, PhD expected 2023

Professional Intern

Amber Zimmerman, Epigenetic analysis of childhood disorders: Autism and PTSD 2016-17

Graduate Rotation students at UNM:

Alex Alanis, UNM BSGP. Project on Trk retrograde transport, first year rotation student, fall 2011. Langner-Seamster, Pamela, UNM BSGP

Ravi Shankar Vaidyanathan applied to join my lab at UNM as a graduate student transfer from UT Southwestern and began rotations in my lab in March 2010.

Barham Abu-Dayyeh, An MD-PhD student, rotated in my lab analyzing expression patterns of cytoskeleton proteins in cancer cells.

Michael Primiano, M.S., A Pathobiology rotation student who cloned myosins from the squid central nervous system. Received his MS from Brown.

Rachel Gagne, an MCB graduate student who rotated in my lab, learning quantitative protein biochemistry.

Tony Doree, a master's degree candidate from NYU who came for a laboratory rotation in my laboratory, 1998.

Drew Love, an MCB graduate student who rotated in my laboratory to learn protein biochemistry.

Yan Huang, an MCB graduate student who rotated in my laboratory to learn digital imaging.

Abdul Faheem Mohed, UNM Computer Sciences

Gowthami Sai, UNM Computer Sciences

Zach Zia, UNM-BSGP

Graduate Student Thesis Committee Member:

Rick Clark (P.I.: Gary Wessel) (M.S., 1995)
Michael Laidlaw (P.I.: Gary Wessel; PhD: 1996)
Kathy Rowader (P.I.: Ken Zaret) (M.S., 1996)
JengWu Lee (P.I.: Kim Boekleheide, PhD: 1997)
Cheng Chang (P.I.: Ray Frackleton: PhD: 1996)
Chung Soon Im (P.I.: Ray Frackleton)
Rajul Seth (P.I.: Kim Boekleheide, M.S., 1995)
Nicky Hawk (P.I.: Ray Frackleton, PhD: 2004)
Nikia Lurie (P.I.: Doug Hixson, PhD: 2005)
Greg Salinas (P.I.: John Marshal, PhD: 2006)
April Mae Davis (P.I.: Russell Deiffenbach, University of Australia in Sydney, 2012)
Prashant Dogra (P.I., Vittorio Cristinit, 2015-2018)

Post-doctoral Trainees:

Nina Tatavian, MD, post-doctoral associate 1993-95. Current position: Associate Professor, Baylor School of Medicine, Houston, Tx
David Demers, PhD, post-doctoral fellow from 1995-96 supported by an NIH Minorities Supplement. Current position: University of Connecticut, Computer Sciences.
Roger Knowles, PhD, post-doctoral fellow 1996-1997, after a PhD in Ken Kosk's lab at Harvard, Current position: Associate Professor, Drew University.
Leslie Hunter, PhD, post-doctoral fellow 1997-98.
Current position: Assistant Professor, Bryn Mawr College.
Ted Famiglietti, MD-PhD,
Dr. Famiglietti is a Board certified Neuropathologist practicing in Rhode Island.
Sigalit Zchut, PhD, 2004-2005, HDAC and expression patterning in adult stem cells.
Current (2012) Manager, R&D, Enzymotec, Israel
Andrew Peter Malon, PhD, 2006-2007, Cargo Motor Interactions
Current (2012): Management team, Ardane Theurapeutics, Providence, Rhode Island
Shi-Bin Cheng, PhD, Oct. 1 2006 - 2011. HSV-APP associations, live imaging and immunocytochemistry. Moved with me from Brown to UNM in 2009.
Currently (2012) Assistant Professor (Research) Dept of Medicine, Brown University Medical School, Providence, RI
Promoted to Associate Professor in Pediatrics at Alpert Medical School of Brown University.
Nallini Adikesavan Vijayarangan, PhD. 2010-2011. Post-doctoral associate joined Bearer lab in Feb 2010. At UNM--Feb 1 2010-2011.
After completion returned to India for faculty position.
Joe Gallagher, PhD, 2009-2012. Post-doctoral associate on MEMRI of brain circuits.
Left the lab for a Research Associate position, Stanford University, Palo Alto, CA
Currently Biotech entrepreneur, Bay Area
Jennifer Pascal, 2011-2013 ASERT fellow, currently Assist. Professor, UConn
Juanita Martinez, PhD, 2014-2015. DNA methylation analysis feasibility studies.
Left for position as Research Associate at ABQ VA with George Uhl.
Brett Mannifold-Wheeler, 2016-2017. Neuroinflammation in Alzheimer's disease and PTSD,
Science teacher APS 2018-current
Dan Barto, 2017-current, Early life experiences and mental health (ASER fellow)

Undergraduate Trainees:

Senior honor's projects (BIOM 195-196)

1. Manoj Abraham "Over-expression, Sub-Cloning, Sequencing and Analysis of a Cytoskeletal Regulator" 1994
2. Ruth Bodner "Distribution of gelsolin mRNA in developing Xenopus embryos" 1994
3. Becky Blumenthal "Isolation of a profilin binding complex from activated human platelets" 1995
4. Nelson Medieros "Partial purification of an organelle motor myosin" 1995
5. Jeanette Liu "Cytoskeletal filaments in the squid giant axon: Tracks for organelle transport" 1996
6. Heather Davidson "Antibody screening for the actin-based organelle motor" 1996
7. Kirthi Reddy "Investigation of Xrel1 DNA recognition sequences" 1997
8. Laurel Glaser "Xrel-1 DNA binding interactions" 1998
9. Timna Onigman "A squid myosin IIB that co-purifies with organelles" 1998
10. Daniel Lesser "Clinical and Biological aspects of hearing" 1998
11. Kathleen Matsutani "2E4 and Arp2 in platelets and megakaryocytes" 1999
12. Maureen Kim "Xrel-1 as a potential target of LiCl-induced dorsalization in Xenopus" 1999
13. Kendrick Jones "Myosin 1 identification in the nervous system of the squid" 2001
14. Paul George "Evidence for neuron-specific alternative splicing of myosins in brain" 2001
15. Eric Sung-Yung Kim "The role of the Arp2/3 complex in platelet actin polymerization and its association with Cdc42 and rac1" 2002
16. Eric W. Schneider "Mining the Microarray Database: utilizing existing gene expression data to search for genes involved in metastasis and invasion." 2002
17. Sohil Sud "Women's reproductive behavior and risk of HIV among Maya in Guatemala" 2003
18. Aleksey Novikov "Mass spectrometry identifies HSV-host cell protein interactions" 2007
19. Arkady Rasin "Cellular membrane proteins and their role in HSV transport" 2009
20. Anna Vestling, UNM, Analysis of mouse brain MRI, spring 2010.
21. Maria Reyes, UNM MARC program scholar, "Human SERT alleles" 2011-2012
22. Greg Ziomek, UNM, "Digital image analysis of MEMRI to detect patterns in brain activity" 2009-2012, accepted to UNM Medical School 2014.
23. Lucie Jelinkova, UNM, 2012-2014. Graduated with B.S. 2014
24. Frances Chaves, UNM, 2012-2014, graduated with Honor's in Biochemistry, 2014.
25. Adam DeLora, UNM, 2013-2014, Automation of skull stripping for mouse brain analysis
26. Dakarai Quincey McCoy, MARCC program, ICA of mouse brain circuitry by MRI
27. Adam Mitchell, ECE, spring semester 2015.
28. Christopher Steven Medina, UNM, 2012-present, BA-MD, Bachelor's Thesis 20115 "Processing techniques for manganese-enhanced magnetic resonance images."

Undergraduate Student Research Assistants (summer and semester)

Manoj Abraham, cloning of human genes for cytoskeletal proteins
Peter Han, purification of transcription factor regulating cytoskeletal expression
Saman Kanangara, characterization of cytoskeletal antibodies
John Morrow, sequencing cytoskeletal genes

Stephanie Ho, Xrel-1 DNA interactions by non-denaturing gels
Stefan Schick, actin binding proteins in platelets
Kyung Yu, sequencing human cytoskeletal proteins
Nelson Medeiros, myosins in axoplasmic transport: protein biochemistry
Jeanette Liu, electronmicroscopy of the axon
Aimee Kao, Western blotting and enzymatic assays of myosins
Ben Greenfield, cloning and characterization of myosin light chains
Alex Yang, sequencing of human actin-binding protein, 2E4
Kirthi Reddi, Xrel-1 DNA interactions
Axel Hsu, Quick freeze deep etch analysis of squid axons
Heather Davidson, spectrin cloning and antibody characterization
Nikomo Peartree, sizing micropore filters for protein separation
Timna Onigman, myosin II in squid antibody testing
Kendrick Jones, cloning and characterization of squid neuronal myosins
Kate Matsutani, pyrene actin assays of platelet extracts
Paul George, PCR analysis of platelet mRNA
Eric Schneider, myosin cloning and sequencing
Eric Kim, Arp2/3 analysis by pyrene actin assay
Zach Ginsberg, ploidy of *Loligo pelieii*
Jon Greer, squid axon injections and analysis of bead transport
Sohil Sud, Women's health issues among the Maya in Guatemala
Julie Stein, HIV transmission and sex education of the Maya
Kristen Starbuck, Reproductive Health among the Maya
Marcus Jang, APP transport
Isis Burgos, retrograde transport of brain organelles in squid axons
Julie Saunders, axoplasmic transport
Jonathan Au, axonal transport of negative charge beads
Caitlyn Thompson, digital data collection
Sandra Wong, Strategies for Laboratory Financial Record Keeping
Christopher Follett (from MIT), diffusion gradients in soil using nanospheres
Eleanor Danaher (from Providence College), immunohistochemistry of APP in cells
Kat (Ellen) Finney, MRI of perception and contemplation
Octavian Biris, computational analysis of digital images
Arkady Rasin, Biochemistry of virus-cell interactions
Will Cioffi, computational analysis of particle rate movements from video images
Eric Bent, Western blotting detection of viral-cell interactions
Kristen Sylvester, statistical analysis of HSV-APP co-localization
Paul Monnes, HSV and transport
Anda Chirila (from Jacobs University, Bremen, Germany), Quantitative imaging
Vivek Prinja Fall 2009, UNM Summer 2010, Fall 2010
Greg Ness UNM, Fall 2009
Anna Vestling, UNM, Spring 2010
Erin Adair, Oberlin College, summer student research assistant, 2011 and 2012
Jacob Rendon, Univ of Colorado, summer student research assistant, 2011, 2014
Greg Ziomek, UNM, post-bac, 2010-2012
Aubrey Bush, UNM, undergraduate, 2013-2014

Fran Chaves, UNM, **Biochemistry Honor's project**, 2013-2014
Lucie Jelinkova, UNM, post-bac, 2013-2014
Adam DeLora, UNM, PREPP student, 2013-2014
Andrew Christopher Sanchez, Undergraduate Pipeline Network student, 2014-2015
Adam Mitchell, Undergraduate, 2015.
Christopher Medina, UNM BA-MD program 2013-present
Dakarai Quincey McCoy, MARCC program, 2014-2016.
Amber Zimmerman, , Undergraduate student research assistant 2015-2016
Brianna Mulligan, Honors in Biochemistry, 2016
Alden Riviere, post-bac in Biology, 2017.

Student awards at UNM 2014-2018:

Fran Chaves, Minority Travel Award, American Society for Cell Biology, 2014
Crina Floruta, Travel Award, American Society for Cell Biology, 2014
Andrew C. Sanchez, Undergraduate Pipeline Network first place, poster contest, 2014
Andrew C. Sanchez, Travel Award, Society for Advancement of Chicanos and Native Americans in Science, 2014
Dakarai Quincey McCoy, Travel Award, Society for Advancement of Chicanos and Native Americans in Science travel award, 2014
Christopher Steven Medina, Travel Awards from BA/MD program at UNM 2014.
Christopher Steven Medina, Travel Award from American Society for Cell Biology, 2015
Jacob Mayfield, Dean's Award, UNM 2017.
Christopher Steven Medina, Travel Award, Society for Neuroscience 2018

Medical Student projects performed under my supervision:

Dierdre Fearon, Water quality in the Guatemala highlands (1995)
Jennifer Frost, Tap water in homes in San Lucas Toliman Guatemala (1996)
Elaine Sapiro, Anemia among Maya women of child-bearing age (1997)
Pearl Huang, natural contraception, practices and education for the Highland Maya (1998)
Rachel Salguero, Education about water for Maya school children (1999)
Mathew O'Brien, Primary care clinics in the highlands (2000)
Patricia Ramaley, Impediments to HIV testing among the Maya in Guatemala (2002)
Sohil Sud, HIV knowledge in the highlands (2003)
Kristen Starbuck, HIV knowledge among women in the Catholic outreach clinics (2004)
Carmen Barnes, Indigenous healers (2005)
Elizabeth Schoenfeld, Health outreach around Lake Atitlan (2005)
Amy Lo, Herbal medicine in the Guatemala highlands (2005)
Anna Vestling, from UNM, Midwifery in San Lucas (2010)
Jacob Mayfield, UNM, cortisol levels and stress (2013-2014)
Kimberly Kreitinger, UNM, Alzheimer's disease (2013-2014)
Crina Floruta, MD-PhD, analysis of Alzheimer's disease mutant mouse images (2013-2014)
Christopher Steven Medina, Analysis of kinesin-based transport and its role in dementia (2014-current)

Medical School Master's of Science Thesis committee:

Terrence Sio, MD '10, MS '10

"Comparison of Gamma-knife and Cyber-knife for treatment of metastatic brain tumors"
Dept of Radiation Oncology, April 8, 2010

Trainer Graduate Programs at UNM

Biomedical Sciences Graduate Program (member of the steering committee)
Spatiotemporal Modeling of Cell Signaling (Director of the Training and Outreach)
MD/PhD program (member of the steering committee)
Trainer, UNM Cancer Nanoscience and Microsystems Center, member of Leadership Team 2009-2014
Trainer UNM Center for Infectious Disease and Immunity (NIH-funded graduate program)
Trainer, ASERT postdoctoral fellowship program

Faculty mentoring at UNM:

- Heather Ward, recent promotion from post-doc to tenure-track faculty at UNM
 - Tione Burunda, research faculty promoted to tenure-track position UNM
 - Jen Gillette, recent recruit from NINDS to tenure-track assistant professor at UNM
 - Aaron Neuman, recent recruit from UNC to tenure-track assistant professor at UNM
 - Vittorio Cristini, recent recruit from MD Anderson Cancer Center to tenure-track professor at UNM
- Others include: Greg Ebel, Diane Lidke, Lesley Lomo, Arnaud Chauviere, Cosette Wheeler

Service to the Community (selected):

San Lucas Health Project, Guatemala (1993-present)

Founding member of this health project that provides primary health care services to ~40,000 people in San Lucas Toliman and surrounding small communities on Lake Atitlan in the Western Highlands of Guatemala. Founded during the civil war by three physicians, myself, Steve McCloy and Mike Brabeck, the project now extends to include over 53 physicians from the USA who volunteer their time to serve 60+ communities. We have identified and trained 17 local Mayan health promoters, and assisted the community in the construction and staffing of an urgent care hospital. I initiated an elective clerkship for medical students with 3-6 students enrolled per year from around the world, including University of Oxford and Barcelona as well as Brown, Yale, U. Penn and Stanford. These students perform needs assessments on topics such as; water usage and quality, pesticide exposure, asthma incidence, gastrointestinal diseases, and women's reproductive health. They interview and examine patients and participate in treatment decisions based on environmental and social constraints of people living in Third World poverty. As a pathologist and licensed general practitioner, I have initiated and continue to participate to build a diagnostic laboratory using technologies suitable for the Third World. We incorporated this project with US non-profit status in 2005.

Charter member, National Museum of the American Indian, Smithsonian Institution

Elected to the Honor Wall, Smithsonian National Museum of the American Indian

Organizer for *Art and Science of Systems Biology*, a public outreach exposition at the Santa Fe Complex, an art gallery supported by the City of Santa Fe (2009-2011); at Montezuma Art Gallery (2012-14) and in the Gerald Peters Gallery, Santa Fe, NM (2015-2016). I arranged for *Science Magazine* and National Science Foundation to send winning art from the 2009 International Science Visualization Contest to Santa Fe for this event, organized other aspects

of the exhibit, and prepared an announcement that appeared in *Science Magazine* on Feb 19, 2010. In 2012 we were featured on the cover of the Santa Fe Reporter Art and Culture section.