Juliet Vescio Spencer

Curriculum Vitae

Department of Biology, Texas Woman's University, Denton, TX, 76204, 940-898-2352, jspencer7@twu.edu

EDUCATION

Ph.D., Microbiology, 1998
University of Virginia, Charlottesville, VA, Advisor: Jay C. Brown, Ph.D.
Dissertation title: Structure and Assembly of the Herpes Simplex Virus Capsid

B.S., Biotechnology, 1993
Worcester Polytechnic Institute, Worcester, MA

PROFESSIONAL EXPERIENCE

2018- **Professor and Chair**, Department of Biology, Texas Woman's University
2017-2018 **Graduate Director,** Department of Biology, University of San Francisco
2015-2018 **Professor**, Department of Biology, University of San Francisco
2014-2015 **Professor and Chair**, Department of Biology, University of San Francisco
2013-2018 **Director, Fletcher Jones Microscopy Center,** University of San Francisco
2012-2014 **Associate Professor and Chair**, Department of Biology, University of San Francisco
2009-2012 **Associate Professor**, Department of Biology, University of San Francisco
2003-2009 **Assistant Professor**, Department of Biology, University of San Francisco
2002-2004 **Instructor**, Applied & Natural Sciences, UC Santa Cruz-Ext, Sunnyvale, CA
2002-2003 **Senior Scientist**, Assay Development, Ceretek, LLC, Alameda, CA
2000-2002 **Scientist**, Assay Development, Ceretek, LLC, Alameda, CA
1999-2000 **Senior Postdoctoral Research Associate**, Virology Division, ChemoCentryx, Inc., San Carlos, CA (PI: Thomas J. Schall, Ph.D.)
1998-1999 **Postdoctoral Fellow**, Carter Immunology Center, University of Virginia, Charlottesville, VA (PI: Thomas J. Braciale, M.D., Ph.D.)
1995-1997 **Adjunct Professor**, Department of Natural Sciences, Piedmont Virginia Community College, Charlottesville, VA

AWARDS & HONORS

Distinguished Research Award, University of San Francisco, 2015
Dean's Scholar Award, University of San Francisco, 2014
Arthur Furst Award for Outstanding Research, University of San Francisco, 2009
Ellen Weaver Award for Mentoring Women in Science, Association of Women in Science, 2009
Parker B. Francis Fellowship in Pulmonary Research, 1999
NIH Training Grant Fellowship in Immunology, 1998
Graduate Student Alumni Dissertation Fellowship, University of Virginia, 1997
The Salisbury Prize, Worcester Polytechnic Institute, 1993
The Two Towers Award for Theory and Practice, Worcester Polytechnic Institute, 1993

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science, 2000-present
American Society for Microbiology, 2003-present
American Society for Virology, 2012-present
Sigma Xi Honor Society, 2018 – present

RESEARCH

Viruses are dependent on their hosts for replication and dispersal in the environment. At the same time, the immune system has evolved to protect the human body from invasion by viruses and bacteria. My research centers on herpesviruses and the way they interact with their human hosts. Herpesviruses are unique in their ability to establish lifelong latent infections. The immune response is usually sufficient to prevent serious disease; however, the immune system is unable to eliminate the virus from the body.

Work in my laboratory is currently focused on two areas: 1) mechanisms that herpesviruses employ to modulate host immune responses and establish lifelong latency, and 2) the contribution of herpesviruses to the development or progression of cancer. This research is conducted by me, with the aid of undergraduates and graduate students that I train and supervise. Students in my lab gain valuable technical skills, present at international conferences, co-author peer-reviewed publications, and go on to advanced training or careers in the sciences. The emphasis in my laboratory is on conducting high quality, basic science research on a medically important pathogen with a strong student training component.

PEER-REVIEWED PUBLICATIONS (*Indicates articles that include students as co-authors)

Hammett, A.J.M. and **J.V. Spencer**. 2019. Who Let the Dogs Out? A Plea for Official Guidelines on Service Animals in the Teaching Laboratory. *Journal of Microbiology & Biology Education*, in press.

*Boeck, J.M., Stowell, G.A., O'Connor, C.M., and **J.V. Spencer**. 2018. The human cytomegalovirus US27 gene product constitutively activates antioxidant response element (ARE)-mediated transcription through $G_{\beta\gamma}$, phosphoinositide 3-kinase (PI3K), and nuclear respiratory factor 1 (NRF-1). *Journal of Virology* 92(23): e00644-18.

*Tu, C.C., K.L. Arnolds, C.M. O'Connor, and **J.V. Spencer**. 2018. Human Cytomegalovirus UL111A and US27 Gene Products Enhance the CXCL12/CXCR4 Signaling Axis via Distinct Mechanisms. *Journal of Virology* 92(5): e01981-17.

*Scarborough, J.A., J.R. Paul, and **J.V. Spencer**. 2017. Evolution of the ability to modulate host chemokine networks via gene duplication in human cytomegalovirus (HCMV). *Infection, Genetics and Evolution* 51:46–53.

*Young, V.P., Mariano, M.C., Allaire, K.M., Tu, Carolyn, C., Avdic, S., Slobedman, B., and **J.V. Spencer**. 2017. Modulation of the Host Environment by Human Cytomegalovirus with Viral Interleukin 10 in Peripheral Blood. *Journal of Infectious Diseases* 216: 874–882.

*Boeck, J.M. and **J.V. Spencer.** 2017. Effect of Human Cytomegalovirus (HCMV) US27 on CXCR4 Receptor Internalization Measured by Fluorogen-activating Protein (FAP) Biosensors. *PLoS One* 12(2):e0172042.

*Valle Oseguera, C.A. and **J.V. Spencer.** 2017. Human cytomegalovirus interleukin-10 enhances matrigel invasion of MDA-MB-231 breast cancer cells. *Cancer Cell International* 17:24.

Christiaansen, A., Varga, S.M., and **J.V. Spencer**. 2015. Viral manipulation of the host immune response. *Current Opinions in Immunology* 36:54–60.

*Bishop, R.K., C.O. Valle Oseguera, and **J.V. Spencer**. 2015. Human Cytomegalovirus interleukin-10 promotes proliferation and migration of MCF-7 breast cancer cells. *Cancer Cell Microenvironment* 2(1): e678.

*Tu, C.C. and **J.V. Spencer.** 2014. The DRY box and C-terminal domain of the human cytomegalovirus US27 gene product play a role in promoting cell growth and survival. *PLoS One* 9(11):e113427.

*Arnolds, K.L. and **J.V. Spencer.** 2014. CXCR4: a virus's best friend? *Infection, Genetics and Evolution* 25:146-56.

*Valle Oseguera, C.A. and **J.V. Spencer**. 2014. cmvIL-10 stimulates the invasive potential of MDA-MB-231 human breast cancer cells. *PLoS One* 9(2):e88708.

*Lares, A.P., C.C. Tu, and **J.V. Spencer**. 2013. The Human Cytomegalovirus US27 gene product enhances cell proliferation and alters cellular gene expression. *Virus Research* 176:312-320.

*Arnolds, K.L., A.P. Lares, and **J.V. Spencer**. 2013. The US27 Gene Product of Human Cytomegalovirus Enhances Signaling of Host Chemokine Receptor CXCR4. *Virology* 439:122-131.

*Shin, H., Whitehead, H., Zhou, X., Banta, K.L., **Spencer, J.V**., Cho, M.K. and S.-K. Kim. 2013. Synthesis and Evaluation of Ornithine Decarboxylase Inhibitors with Oxime Moiety and MCF-7 Breast Cancer Cells. *Biochemical Pharmacology* 2:1.

*Stapleton, L.K., A. P. Lares, K.L. Arnolds, T.M. Devito, and **J.V. Spencer**. 2012. Receptor chimeras demonstrate that the C-terminal domain of the human cytomegalovirus US27 gene product is necessary and sufficient for intracellular receptor localization. *Virology Journal*, 9:42

*Brodeur, N.D. and **J.V. Spencer**. 2010. Antibodies to human IL-10 neutralize ebvIL-10-mediated cytokine suppression but have no effect on cmvIL-10 activity. *Virology Research*, 153:265-268.

Slobedman, B., P.A. Barry, **J.V. Spencer,** S. Avdic, and A. Abendroth. 2009. Virus-encoded homologs of cellular interleukin-10 and their control of host immune function. *Journal of Virology* 83:9618-9629.

*Nachtwey, J.N. and **J.V. Spencer**. 2008. HCMV IL-10 Suppresses Cytokine Expression in Monocytes through Inhibition of NF-κB. *Viral Immunology* 21:477-82.

***Spencer J.V.**, J. Cadaoas, P.R. Castillo, V. Saini, and B. Slobedman. 2008. Stimulation of B lymphocytes by cmvIL-10 but not LAcmvIL-10. *Virology* 374:164-169.

Jenkins C., W. Garcia, M.J. Godwin, **J.V. Spencer**, J.L. Stern, A. Abendroth, and B. Slobedman. 2008. Immunomodulatory Properties of a Viral Homolog of Human Interleukin-10 Expressed by Human Cytomegalovirus during the Latent Phase of Infection. *Journal of Virology* 82:3736-3750.

Lopez-Avila, V. and **J. V. Spencer.** 2008. Methods for Detection of Matrix Metallo-proteinases as Biomarkers in Cardiovascular Disease. *Clinical Medicine: Cardiology* 2:1-14.

Spencer, J.V. 2007. The Cytomegalovirus Homolog of Interleukin-10 Requires Phosphatidylinositol 3-Kinase Activity for Inhibition of Cytokine Synthesis in Monocytes. *Journal of Virology* 81: 2083-2086.

Spencer, J. V., K.M. Lockridge, P.A. Barry, G. Lin, M. Tsang, M.E.T. Penfold, and T.J. Schall. 2002. Potent immunosuppressive activities of cytomegalovirus encoded interleukin-10. *Journal of Virology* 76:1285-1292.

Huang, M-C., M. Graeler, G. Shankar, **J.V. Spencer**, and E.J. Goetzl. 2002. Lysophospholipid mediators of immunity and neoplasia. *Biochimica et Biophysica Acta* 1582:161-7.

Spencer J.V. and T.J. Braciale. 2000. Incomplete CD8+ T Lymphocyte Differentiation as a Mechanism for Subdominant CTL Responses to a Viral Antigen. *Journal of Experimental Medicine* 191:1687-1698.

Spencer, J.V., W.W. Newcomb, D. R. Thomsen, F.L. Homa, and J.C. Brown. 1998. Assembly of the Herpes Simplex Virus Capsid: Preformed Triplexes Bind to the Nascent Capsid. *Journal of Virology* 72:3944-3951.

Spencer, J.V., F.P. Booy, B.L. Trus, A.C. Steven, W.W. Newcomb, and J.C. Brown. 1997. Structure of the Herpes Simplex Virus Capsid: Peptide A862-H880 is Displayed on the Rim of the Capsomer Protrusions. *Virology* 228: 229-235.

Newcomb, W.W., F.L. Homa, D.R. Thomsen, F.P. Booy, B.L. Trus, A.C. Steven, **J.V. Spencer**, and J.C. Brown. 1996. Assembly of the Herpes Simplex Virus Capsid: Characterization of Intermediates Observed During Cell-Free Capsid Formation. *Journal of Molecular Biology* 263:432-446.

Manuscripts In Preparation

Mody, P., Pathak, S., Hanson, L.K., and J.V. Spencer. Herpesviruses: Promises and Pitfalls. Virology Research and Treatment, Submission July 2019.

Tu, C.C. and J.V. Spencer. Identification of a Novel Viral Signalosome Containing Host Chemokine Receptor CXCR4, Interleukin-10 Receptor, and Human Cytomegalovirus US27. Virology, Submission August 2019.

BOOKS AND BOOK CHAPTERS

Boeck, J.M. and **J.V. Spencer.** 2017. Cytomegalovirus Encoded G Protein-Coupled Receptors. In *Cytomegalovirus Infection*. SM Group Open Access eBooks: Dover, DE.

Spencer, J.V. 2012. Trojan Horses and Fake Immunity Idols: Molecular Mimicry of Cellular Immune Mediators by Human Cytomegalovirus. In *Herpesviridae - A Look Into This Unique Family of Viruses*, edited by G.D. Magel and S. Tyring, Intech Publishing: Rijeka, Croatia.

Spencer, J. V. 2007. *Deadly Diseases and Epidemics: Cervical Cancer*. Chelsea House Publishers: New York, NY.

Spencer, J.V. 2005. *Deadly Diseases and Epidemics: Herpes*. Chelsea House Publishers: Philadelphia, PA.

PATENTS & PATENT APPLICATIONS

Spencer, J.V and Y.P. Young. 2016. Detection of Human Cytomegalovirus in Breast Cancer. US Patent Application.

Solow-Cordero, D., G. Shankar, **J.V. Spencer**, and C. Gluchowski. 2007. Methods of treating conditions associated with an Edg-3 receptor. Issued US Patent # 7,208,502

Shankar, G., **J.V. Spencer**, and J. Munning. 2006. The use of chimeric G protein coupled receptors for high throughput screening. Issued Patent # 7,063,966.

Solow-Cordero, D., G. Shankar, **J.V. Spencer**, and C. Gluchowski. 2005. Methods of treating conditions associated with an Edg-4 receptor. US Patent Application.

Schall, T.J., M. Penfold, and **J.V. Spencer**. 2002. Immunologic activities of rhesus cytomegalovirus encoded IL-10 and human cytomegalovirus encoded IL-10. US Patent Application.

CONFERENCE PRESENTATIONS & INVITED TALKS

"Cancer, Cytokines, and Cytomegalovirus: Three's a Crowd"
Invited Keynote Talk, Texas Woman's University Annual Celebration of Science, October 2018

"Breast cancer cells support HCMVs replication *in vitro* regardless of ER/PR/HER2 status"
37th Annual Meeting of the American Society for Virology, College Park, MD, July 2018

"Manipulation of CXCR4 Signaling by Human Cytomegalovirus Interleukin-10"
Immunology 2019, Austin, TX, May 2018

"The HCMV US27 gene product targets transcription factor NRF-1 to upregulate CXCR4"
6th International Congenital CMV Conference & 16th International CMV/Betaherpesvirus Workshop, Noordwijkerhout, The Netherlands, April 2017

"Herpesviruses and Cancer"
Invited Talk, University of Arizona Medical School, March 2017

"Cancer, Cytokines, and Cytomegalovirus: Three's a Crowd"
Invited Talk, Texas A&M University, February 2017

"Cytomegalovirus and Cancer: The Avon Breast Cancer Study at USF"
Invited Talk, San Jose State University, February 2017

"Use of Fluorogen Activating Proteins (FAPs) to Examine the Effect of HCMV US27 on Host Chemokine Receptor CXCR4"
8th Annual Bangalore Microscopy Conference, National Center for the Biological Sciences, Bangalore, India, September 2016

"Manipulation of Host Chemokine Responses by Human Cytomegalovirus"
Invited Talk, Stanford University, August 2016

"Cytomegalovirus, Cytokines, and Cancer: Three's a Crowd"
Invited Symposium Speaker, 41st International Herpesvirus Workshop, Madison, WI, July 2016

"Herpesviruses and Cancer"
Invited Talk, University of Virginia, June 2016

"CMV, Cytokines, and Cancer"
Invited Talk, University at Buffalo, June 2016

"The Avon Breast Cancer Study at USF"
Invited Talk, USF Go Hope: Breast Cancer Awareness Lecture, October 2015

"HCMV has two distinct mechanisms for upregulation of CXCR4 Signaling activity"
39th International Herpesvirus Workshop, Kobe, Japan, July 2014

"HCMV US27 Enhances Signaling of Host CXCR4"
European Light Microscopy Initiative, Oslo, Norway, May 2014

"Human Cytomegalovirus: The Enemy Within"
Invited Talk, 31st Annual Northern California American Society for Microbiology Spring Meeting, March 2014

"Cytomegalovirus, Cancer, and Cytokines: Three's a crowd"
Invited Talk, Avon Consortium on Viruses and Breast Cancer, November 2013

"A Tale of Two Cytokines: How Herpesviruses Contribute to Cancer Progression"
USF Faculty Changing the World Symposium, September 2013

"A Viral Cytokine Stimulates the Invasive Potential of Human Breast Cancer Cells"
38th International Herpesvirus Workshop, Grand Rapids, MI, July 2013

EXTRAMURAL GRANT FUNDING

Immune Modulation by Rhesus Cytomegalovirus US28 Homologs
National Institutes of Health R21 (Co-PIs: Faure & Spencer)

2019-2021, (pending)

- The goal of this project is to characterize the five US28 homologs encoded by RhCMV to identify signaling outcomes and determine roles in virus infection and immune evasion.

Modification of Host Chemokine Responses by Human Cytomegalovirus
National Institutes of Health Grant R15AI111232 (PI: Spencer)
2014-2019, $424,783 (completed)

- The goals of this project are to investigate the specific mechanism for potentiation of CXCR4 signaling by the HCMV US27 gene product and to determine whether enhanced CXCR4 responses occur in virus infected cells.

AVICS: Avon Viral IL-10 in Cancer Study
The Avon Foundation (PI: Spencer)
2014-2017, $300,000 (completed)

- The goals of this project were to develop an assay for detection cmvIL-10 in human blood and to compare cytokine levels between healthy adults and breast cancer patients to evaluate potential as a prognostic marker.

The Fletcher Jones Microscopy Center at USF
Fletcher Jones Foundation (PI: Spencer)
2012-2013, $500,000 (completed)

- The goal of this project was to acquire three new state-of-the-art microscopes and renovate space in the Harney Science Center to establish a specialized center of microscopy for student learning and exploration as well as for the advancement of faculty research. The grand opening was in November 2013 and USF students and faculty are now using the facility.

A Viral Cytokine as a Promoter of Tumor Progression
National Institutes of Health Grant R15CA158767 (PI: Spencer)
2011-2014, $412,652 (completed)

- The goals of this project were to investigate whether a secreted viral cytokine, cmvIL-10, can act in a paracrine manner to promote the invasive potential of breast cancer cells by stimulating increased MMP expression, cell migration, invasion, and growth or inhibition of apoptosis.

Research Supplement to Promote Diversity in Health-Related Research (Supplement to: A Viral Cytokine as a Promoter of Tumor Progression)
National Institutes of Health Grant R15CA158767-01S1 (PI: Spencer)
2012-2014, $79,902 (completed)

- The goal of this supplment was to support the work of graduate student Cendy Valle Oseguera via funding for salary, supplies, and confernece travel.

Mechanisms of Cell Signaling by the Human Cytomegalovirus US27 Gene Product
National Institutes of Health Grant R15AI074029 (PI: Spencer)
2008-2011, $212,321 (completed)

- The goals of this project were to identify ligands that bind US27 and characterize downstream signaling events with the aim of understanding how this receptor exploits cell signaling for the advantage of the virus.

Modulation of Monocyte Function by Cytomegalovirus IL-10
National Institutes of Health Grant R03AI063529 (PI: Spencer)
2005-2007, $132,288 (completed)

- The goal of this project was to characterize cmvIL-10 mediated signaling events and to examine a role for this protein in the establsiment of or reactivation from latency.

TEACHING

COURSES TAUGHT at TWU:
BACT 3111 General Microbiology Lab

COURSES TAUGHT at University of San Francisco
BIOL 105 General Biology
BIOL 134 Microbiology
BIOL 135 Microbiology Lab
BIOL 195 Good Germs, Bad Germs: Microbiology & Infectious Disease in San Francisco
BIOL 195L Good Germs, Bad Germs Lab
BIOL 212 Cell Physiology
BIOL 345 Virology
BIOL 346 General Microbiology
BIOL 347 General Microbiology Lab
BIOL 370 Biology of Cancer (SL – service learning)
BIOL 458 Techniques in Light and Electron Microscopy
BIOL 459 Techniques in Light and Electron Microscopy Lab

CURRICULUM DEVELOPMENT

Professional Science Master's (PSM) Program

- The PSM in Biotechnology is a two year (30 credit hour) interdisciplinary program that integrates scientific and business aspects of biotechnology. The program is designed for students who enjoy science, have an interest in business, and want to apply that knowledge working in industry.
- Scheduled to launch in Fall 2020, the PSM in Biotechnology was proposed in response to a call for Innovative Academic Programs at TWU. It was selected as one of three programs to move forward with approval from the Board of Regents.

CURRICULUM DEVELOPMENT (University of San Francisco)

Good Germs, Bad Germs: Microbiology & Infectious Disease in San Francisco

- Created this popular First Year Seminar/Core B2 course.
- Students learn about the science of microbiology and our daily interactions with microbes.

- The scientific method is a central topic and students design and conduct their own independent project, followed by data analysis and a presentation of results to the class.
- Emphasis on topics that relate to San Francisco, such as the production of sourdough bread and ecology of the bay, combined with local field trips to introduce students to the Bay area.

Biology of Cancer (SL)

- Developed this upper division elective for biology majors to introduce the molecular biology of cancer (oncogenes and tumor suppressors) as well as carcinogenesis, tumor progression, and treatment and detection methods.
- The course emphasizes current literature and features guest speakers conducting cutting edge cancer research.
- The service learning component offers students the opportunity to interact with cancer patients through projects with community partners such as Project Open Hand, the UCSF Comprehensive Cancer Center, the American Cancer Society, Leukemia and Lymphoma Society, and other agencies and support networks.

Techniques in Light and Electron Microscopy

- Updated this course to emphasize fluorescence/confocal microscopy and live cell imaging with the goal of providing students with opportunities to gain marketable skills, develop critical thinking abilities, and pursue independent research projects.

SERVICE

TO THE UNIVERSITY

Texas Woman's University

- Chair, Biology Department, 2018- present
    - Prepare course schedule and oversee workload of 20 full time faculty, 40 adjuncts
    - Plan and review departmental budget and expenditures
    - Complete teaching observations and faculty and staff performance reviews
    - Represent department on university-wide committees
- Director, Graduate Program in Biology, 2019-present

University of San Francisco

- Member, Department Chair Task Force, 2018
- Director, Graduate Program in Biology, 2017-2018
- Member, Distinguished Research Award Committee, 2017-2018
- Member, MS Biology Graduate Program Committee, 2015-2017
- Member, Institutional Review Board for the Protection of Human Subjects, 2015-2018
- Chair, Biology Department, 2012-2015 (Co-Chair with Scott Nunes 2012-2013, 2014-2015)
    - Oversaw Academic Program Review (Prepared Self Study, hosted external review, prepared department Response to Review)
    - Organized department retreat for long term planning
    - Initiated Peer Advising Program in department, creating a new resource for biology students for general advising questions
    - Oversaw department renovation to create study area for students

- Implemented departmental Laboratory Safety training, PPE policies, and documentation system for safety training in class labs
- Oversaw planning and equipment purchases for teaching labs in new LoSchiavo Center for Science and Innovation
- Obtained funding for new Fletcher Jones Microscopy Center, opened Fall 2013
- Appointed department historian to document department events
- Hired 2 faculty, 2 program assistants, 2 lab managers

- Chair, Biology Search Committee – Botanist, 2012-2013 (hired John Paul)
- Biology Search Committee – Developmental Biologist, 2011-2012 (hired James Sikes)
- Co-Chair, Dean's Scholar Committee, 2011-2012
- Chair, University-wide Peer Review Committee, 2012-2013
- University-wide Peer Review Committee, 2011
- Chair, Science Peer Review Committee, 2012-2013
- Science Peer Review Committee, 2011
- Academic Advisor, Biology Majors, 2004-2018
- Young Minds at Work, 2015-2018

TO THE PROFESSION

- Editor in Chief, Virology Research and Treatment, 2016-present
- Academic Editor, PLOS One, 2013-present
- External Thesis Examiner, University of Sidney, 2010-present
- Reviewer, Wellcome Trust, 2007-present
- Reviewer, NIH (ad hoc, special emphasis panels) 2005-present
- Reviewer, J. Virology, J. Gen. Virology, etc. (select manuscripts), 2005-present

TO THE COMMUNITY

- Presenter, Expanding Your Horizons in STEM, TWU, 2019
- ABC Reader, Project Cornerstone, Laurel Elementary School, San Mateo, CA 2016-2017
- Microbiology Classroom Outreach – Mission Dolores School, San Francisco, CA 2014-2016
- Room Parent, 3rd Grade, Grace Lutheran School, San Mateo, CA 2014-2015
- Room Parent, 2nd Grade, Grace Lutheran School, San Mateo, CA, 2013-2014
- Volunteer & eScrip Coordinator, Grace Lutheran School PTL, 2011-2015
- Microbiology Classroom Outreach – St. Timothy School, San Mateo, CA 2012-2014
- Team Parent, San Mateo National Little League Bulls, 2011 and SeaDogs, 2012
- Volunteer, Bridge Point Academy Pre-School, 2010-2011
- Mentor, Team-in-Training, Peninsula Run Team, Leukemia & Lymphoma Society, 2007-2009
- Presenter, Expanding Your Horizons in Math and Science, Skyline College, 2005-2008
- Organizer, USF Day of Discovery, 2004-2006