

CURRICULUM VITAE

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Education:

2004-2010

Ph.D. - Microbiology, Immunology, & Molecular Genetics

University of California-Los Angeles

1999-2004

B.S. Cell & Molecular Biology, Minor in Chemistry

San Francisco State University

Teaching Experience:

2013-Present

Professor of Microbiology & Biology

Edison State College; Fort Myers, Florida

Description: I am currently instructing general biology and microbiology at Edison State College. In general biology I teach the basics of cell biology, biochemistry, genetics, and bioinformatics. The microbiology course focuses on the basics of virology, bacteriology, mycology, and parasitology.

2013-2014

American Society for Microbiology Science Teaching Fellow

Description: Fellows in the program take part in a highly focused training experience that combines in-depth webinars, pre- and post-webinar assignments, structured mentoring, and a community of practice. The experience is designed to help fellows deepen their understanding and strengthen their skills for science teaching positions at community colleges, minority-serving institutions, regional or state colleges, and primary undergraduate institutes. The experience is fast-paced, intense, interactive, and presents practical examples in microbiology education.

2012-2013

Adjunct Professor of Microbiology & Biology

Edison State College; Fort Myers, Florida

Description: I am currently instructing general biology and microbiology at Edison State College. In general biology I teach the basics of cell biology, biochemistry, genetics, and bioinformatics. The microbiology course focuses on the basics of virology, bacteriology, mycology, and parasitology.

2012-Present

Instructor & Facilitator for HIV Key Populations & Research Orientation

United Nations Population Fund-Middle East & North Africa Region (UNFPA-MENA)

Description: I am currently contracted with the UN to facilitate several orientations on HIV biology and the face of the epidemic in the Middle East and North Africa region. These HIV orientations are targeted toward UNFPA staff, local government officials, and key stakeholders in Djibouti, Egypt, Sudan, & Tunisia. Primary goals of this position are to educate the staff about HIV/AIDS so they can implement programs pertaining to the UN Millennium Development Goal #6.

2012-Present

Science Tutor

A Quantum Leap Tutoring, February; Fort Myers, Florida

Description: I tutor high school and college level science courses including biology, physics, chemistry, biochemistry, and organic chemistry.

2002-Present

Science Tutor

Private tutoring; California & Florida

Description: I tutor high school and college level science courses including biology, physics, chemistry, biochemistry, and organic chemistry.

2011-2012

MCAT Prep Instructor

Examcrackers, Inc.; Miami, Florida

Description: I have instructed pre-med students in courses reviewing material for the Biological Sciences, Verbal, & Physical Sciences sections the Medical College Admission Test.

2007

Graduate Teaching Assistant-Virology

University of California-Los Angeles; Los Angeles, California

Description: In this position, I instructed undergraduates in several large discussion groups in Virology. I reviewed materials for the main lecture, ran labs, led discussions on scientific articles, and prepared & grading exams.

2005

Graduate Teaching Assistant-Immunology

University of California-Los Angeles; Los Angeles, California

Description: In this position, I instructed undergraduates in several large discussion groups in Immunology. I reviewed materials for the main lecture, ran labs, led discussions on scientific articles, and prepared & grading exams.

2004

Instructor-Organic Chemistry II Prep.

San Francisco State University; San Francisco, California

Description: In this position, I instructed undergraduates in several discussion groups in Organic Chemistry II. I reviewed materials for the main lecture.

2004

Instructor-Biochemistry Prep.

San Francisco State University; San Francisco, California

Description: In this position, I instructed undergraduates in several discussion groups in Biochemistry. I reviewed materials for the main lecture.

Research Experience:

August 2013-Present

Principal Investigator

Edison State College

Research Project: The focus of my lab is to understand how HIV-1 replication alters the human immune system. One of my projects is to investigate the mechanisms of elite control in patients that do not develop disease following HIV infection. My other main project focuses on the role of the extracellular matrix in regulation of inflammation and its resolution.

May 2012-August 2013

Staff Research Associate II

UCLA AIDS Institute

Research Project: I am working on two projects dealing with HIV-1 infection in the human thymus. In the first project, I am characterizing a primary HIV-1 isolate containing mutations in Nef gene. Although the mutated Nef protein downregulates CD4 from the plasma membrane, it has no effect on MHC-I expression. My second project focuses on the role of HIV-1 host restriction factor BST-2 (Tetherin/CD317) in human thymocyte development. We are characterizing the physiological purpose of normal BST-2 expression in the thymic medulla. Although BST-2 expression prevents HIV-1 Δ Vpu viral replication, we are studying its role in Type-I IFN regulation by thymic plasmacytoid dendritic cells.

February 2011- February 2012

Post-doctoral Fellow

University of Miami Center for AIDS Research

Laboratory of Dr. Mario Stevenson

Research Project: While training in Dr. Stevenson's lab, I worked on two main projects: characterizing HIV-1 latency in human macrophages and identification Type-I IFN-induced host restriction factors. HIV-1 infection in macrophages and dendritic cells is sometimes overshadowed by viral replication in CD4+ T cells. The effects of replication on T cells versus myeloid cells vary drastically. During my training, I used confocal microscopy to characterize macrophage morphology and viability following HIV-1 infection. Some of these videos can be seen on my YouTube Channel (link shown under 'Social Media' heading).

August 2010- February 2011

Post-doctoral Scholar

University of California-Los Angeles AIDS Institute

Laboratory of Dr. Christel Uittenbogaart

Research Project: During this position, I continued my work in CD4+ T cell differentiation. Our lab also worked with thymic plasmacytoid dendritic cells and their role in thymocyte development during HIV-1 infection.

2004-2010

Graduate Student Researcher

UCLA, Dr. Christel Uittenbogaart's Laboratory

Research Project: My main focus in graduate school was to understand how HIV-1 replication alters human CD4+ T-cell signaling pathways to affect cellular differentiation. Additionally, I studied the regulation of anti-inflammatory cytokines by the GLI transcription factors.

2003-2004

Laboratory Technician

California Pacific Medical Center, Dr. Robert Debs' Laboratory

Research Project: As an undergraduate, I worked alongside Dr. Sylvia Fong. Our goal was to characterize the activation marker CD69 and investigate its possible role in cellular apoptosis. Laboratory interests included cell signaling, apoptosis, and breast cancer.

2001-2003

Undergraduate Laboratory Work

San Francisco State University, Dr. Bruce Macher's Laboratory

Research Project: My first laboratory position focused on inhibiting the enzymatic activity of porcine α 1-3-galactosyltransferase. This pig enzyme places a sugar moiety onto extracellular proteins which is detected by the human immune system. The aim of the project was to eradicate these glycosidic antigens to improve xenotransplantation.

Publications:

Furler RL and Uittenbogaart CH "TGF- β 1 Regulation by GLI2 in Human CD4⁺ T cells: Implications in Cancer and HIV Pathogenesis." PLoS ONE 2012 Jul 31.

Furler RL and Uittenbogaart CH "Signaling through the P38 and ERK Pathways: A Common Link Between HIV Replication and the Immune Response." Immunologic Research 2010 Aug 20.

Ayub A, **Furler RL**, Pedroza-Martins L, Yang OO, and Uittenbogaart "Mutation in the HIV-1 Nef of a Pediatric Viral Isolate Leads to Functional Impairment" (Article in review)

Epeldegui M, **Furler RL**, Uittenbogaart CH "Tetherin/BST2 in the Human Thymus and its Role During HIV Infection" (Article in review)

Abstracts:

- 2013 Towards an HIV Cure Symposium/International AIDS Society Conference 2013:
"NEF-mediated down-regulation of MHC I expression in thymocytes may affect the pathogenicity of a pediatric isolate of X4 HIV-1."
- 2009 Conference on Retroviruses and Opportunistic Infections:
"GLI Transcription Factors Induce TGF- β 1 in Human CD4⁺ T-cells Following Activation."
- 2009 Midwinter Conference of Immunologists:
"Glioma Transcription Factors Regulate CD4⁺ T-cell Differentiation."
- 2008 Midwinter Conference of Immunologists:
"Glioma Transcription Factors are the Master Regulators of CD4⁺ T-Cell Proliferation and Differentiation"

Awards and Honors:

- 2013 Scholarship to attend the Towards an HIV Cure Symposium and the 7th IAS Conference on HIV Pathogenesis, Treatment and Prevention in Kuala Lumpur, Malaysia
- 2012 Scholarship to attend the XIX International AIDS Conference in Washington D.C.
- 2010 Scholarship for XVIII Intl. AIDS Conference and Reservoirs Workshop in Vienna, Austria
- 2009 Scholarship to attend the XVII International AIDS Conference in Cape Town, South Africa

- 2009 UCLA AIDS Institute Fellowship Award
- 2009 Conference on Retroviruses and Opportunistic Infections (CROI) Young Investigator Award
- 2008 Stein Oppenheimer Endowment Award
- 2007 Johnson Comprehensive Cancer Center Seed Grant
- 2006 Scholarship to attend the XVI International AIDS Conference in Toronto

Professional Memberships:

- International AIDS Society (2006-Present)
- American Society for Microbiology (2013-Present)

Technical Skills:

Through my research, I have learned several tools and gained experience in molecular virology and immunology. I have worked in BSL2/2+ laboratory settings at UCLA and the University of Miami, where I performed experiments using cell culture, virus preparation/titering, radioactivity assays, and various other techniques. I have also received extensive training in molecular biology (recombinant DNA techniques, western blotting, PCR, qPCR, RT-PCR, luciferase assays, ELISAs). Additionally I have several years of experience in multicolor flow cytometry acquisition and analysis, immunofluorescence, ELISPOT, and confocal microscopy.

I have experience in scientific writing. In addition to the publications listed above, I have been successful in winning several research grants. As a graduate student I was awarded several local research grants, a Johnson Comprehensive Cancer Center Seed Grant, a Stein Oppenheimer Endowment Awards, and an R21 research grant from the NIH.