

Saumya Ramanathan Ph.D.

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Education

University of Arizona Advisor: William R. Montfort Department: Molecular and Cellular Biology	Ph.D.	2012
Louisiana State University Health Sciences Center Advisor: Arthur L. Haas Department: Biochemistry and Molecular Biology (<i>Graduate studies interrupted by Hurricane Katrina</i>)		2005-2007
University of Madras, India Department: Zoology and Immunology	M.Sc.	2004
University of Madras, India Department: Zoology	B.Sc.	2002

Employment history

Assistant Professor Fisk University Biochemistry and Molecular Biology	Present
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Research Objective: Determining mechanisms regulating the expression of Melanoma Antigen Genes.

Melanoma Antigen Genes (MAGEs) are a group of genes belonging to cancer-testis antigen superfamily. Their expression is normally restricted to germline cells but they are aberrantly expressed in many cancers with high penetrance. Their expression correlates with poor patient prognosis. The research in my lab is focused on understanding how the expression of this enigmatic gene family is regulated.

Postdoctoral Research Associate UT Southwestern Medical Center Cell Biology	2015-2017
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Objective: Studying the role of tryptophan metabolism in Myc-driven carcinogenesis.

I discovered that tryptophan metabolism to kynurenine is essential to Myc-driven increase in cell proliferation and viability. Kyn binds to and activates a nuclear receptor, Aryl hydrocarbon receptor (AHR). Activation of AHR results in nuclear translocation and alteration in gene expression profile that mimics Myc-driven changes. Inhibition of this pathway might provide new therapeutic strategies for Myc-driven cancers.

Postdoctoral Research Associate
UT Southwestern Medical Center
Physiology

2012-2015

Objective: Studying the role of MAGEs in tumorigenesis

Using immortalized and non-transformed human colonic epithelial cells as an experimental model system, I found that several MAGE genes act as *single gene drivers of tumor formation* in a xenograft mouse model. I concentrated my efforts on MAGE-A3/A6 and MAGE-B2 and discovered that MAGE-A3/A6 allows for tumor progression by down-regulating AMPK, while MAGE-B2 reprograms the gene expression profile of cells to a “pro-tumorigenic” state by modulating mRNA stability.

Teaching Experience

Adjunct Faculty Member

2015-2017

Dallas County Community College District, El Centro College

Courses taught:

- **Biology 1406: Biology for Science Majors (Lab class)**

I employed activity and evidence based instruction using a flipped classroom. My students were given handouts prior to class via an online platform and were expected to know the details of the lab class both from attending lecture just prior to lab and answering pre-lab questions. Once in lab, they perform lab experiments that complement their lecture class and answer post-lab questions. Discussion with their classmates and their instructor are a big part of the learning paradigm.

Graduate Teaching Assistant

2007-2012

University of Arizona

Department of Biochemistry

Course taught:

- **Biochemistry 460:** Undergraduate Biochemistry course for non-majors
Duties included grading, tutoring and conducting weekly supplementary lectures.
- **Biochemistry 462:** Undergraduate Biochemistry course for majors
Duties included grading, tutoring and leading group discussion
- **Molecular and Cellular Biology 181:** Freshman level Introductory Biology
Duties included grading, leading lab sections and lecturing before lab sections.

Publications

Ramanathan S, Borenstein-Auerbach N, Hao YH, Navarro MCL, Conacci-Sorrell M. Tryptophan metabolism is crucial for oncogenic functions of MYC. *Manuscript submitted for review.*

Ramanathan S, Pineda CT, Lee AK, Fon Tacer K, Pounds ND, Wight-Carter M, Rakejha D, Shay JW, Potts PR. Aberrantly expressed germline proteins drive tumorigenesis by altering mRNA stability. *Manuscript in preparation.*

Pineda CT*, **Ramanathan S***, Fon Tacer K, Weon JL, Potts, MB, Ou YH, White MA, Potts PR. Degradation of AMPK by a cancer-specific ubiquitin ligase. *Cell (2015) Feb 12; 160 (4): 715-28*
(* Co-first authors)

Hao YH, Doyle JM, **Ramanathan S**, Gomez TS, Jia D, Xu M, Chen ZJ, Billadeau DD, Rosen MK, Potts PR. Regulation of WASH-dependent actin polymerization and protein trafficking by ubiquitination. *Cell* (2013) Feb 28; 152(5): 1051-64.

Ramanathan S, Mazzalupo S, Boitano S, Montfort WR. Thrombospondin-1 and Angiotensin II inhibit soluble guanylyl cyclase through an increase in intracellular calcium concentration. *Biochemistry* (2011) Sep 13; 50(36): 7787-99.

Awards and Grants

Postdoctoral award for Excellence in Research	2017
Highest award for postdoctoral researchers at UT Southwestern Medical Center	
Best speaker award at Cell Biology Research retreat	2016
American Cancer Society, Pilot grant	2013
Graduate Research Fellowship	2008
Native American Cancer Prevention Foundation, University of Arizona	
Center for Scientific and Industrial Research (CSIR), India	2004
Research fellowship for graduate studies	

Outreach and Volunteer activities

Coordinator for DNA isolation and Genetics workshop for High School students, UT Southwestern Medical Center, Dallas.

Mentor at Foundation for C.H.O.I.C.E, Dallas

The foundation identifies at risk high school students and helps them write their college essays, prepare for interviews and the SATs.

Professor of English at VMLC (Vickery Meadow Learning Center) Dallas

Teaching English and encouraging adult literacy among immigrant populations.

Mentorship

Kimberly Yang, University of Arizona- Senior thesis

Currently at University of Arizona, COM-Phoenix

Mary-Helen Wanat, University of Arizona- MARC and UBRP sponsored senior thesis

Currently at Teaching clinic, University of Arizona

Sarah Young, University of Arizona-Senior thesis

Currently graduate student at University of Arizona

Marhiah Montoya, Research Technician, UT Southwestern Medical Center

Currently graduate student at University of Rochester

Carlos T. Pineda, Ph.D., Graduate student, UT Southwestern Medical Center

Currently Post-doctoral scientist at Ventana Medical Systems (Roche)

Juan Gabriel Garcia, Research Technician, UT Southwestern Medical Center

Currently in medical school at UT San Antonio

Natalie Pounds M.D., Clinical fellow, UT Southwestern Medical Center

Currently in private practice

Anna Brown, SURF fellow, UT Southwestern Medical Center

Currently in graduate school at UT Southwestern Medical Center