GUSTAVO A. ARRIZABALAGA, Ph.D.

Indiana University School of Medicine
Department of Pharmacology and Toxicology
Office of Faculty Affairs, Professional Development, and Diversity
635 Barnhill Drive, A418
Indianapolis, IN 46202
garrizab@iu.edu
317 278-6355

CURRENT POSITION

Professor, Departments of Pharmacology and Toxicology and Microbiology and Immunology, Indiana University School of Medicine (IUSM)

Assistant Dean for Professional Development and Diversity, Faculty Affairs | Professional Development | Diversity, IU School of Medicine

EDUCATION AND TRAINING

Post-doctoral fellow, Stanford University School of Medicine, Stanford, CA 1999-2004
- Advisor: Dr. John Boothroyd
- Research topic: Molecular and genetic studies of egress in Toxoplasma gondii

Ph.D., Massachusetts Institute of Technology; Cambridge, MA 1992-1999
- Advisor: Dr. Ruth Lehmann
- Thesis: Molecular and genetic analysis of the Drosophila protein Nanos

B.S., Chemistry with Biology concentration, Haverford College, Haverford, PA 1988-1992
- Advisor: Dr. Julio de Paula
- Thesis: Biochemical and biophysical studies of electron transfer in plant photosynthesis

RESEARCH AND ACADEMIC RELATED EMPLOYMENT

Assistant Dean for Professional Development and Diversity Affairs, Office of Faculty Affairs, Faculty Development and Diversity, Indiana University School of Medicine 2020-now

Director of Trainee Recruitment, Development and Diversity, Department of Pharmacology and Toxicology. 2019-2020

Professor, Departments of Pharmacology and Toxicology and Microbiology and Immunology, Indiana University School of Medicine 2017-now

Associate Professor, Departments of Pharmacology and Toxicology and Microbiology and Immunology, Indiana University School of Medicine 2012-2017

Director, Microbiology, Molecular Biology and Biochemistry Graduate Studies Program, University of Idaho, Moscow, ID 2011-2012

Associate Professor with tenure, Department of Microbiology, Molecular Biology and Biochemistry (merged with Department of Biological Sciences in 2011), University of Idaho, Moscow, ID	2009-2012
Assistant Professor, Department of Microbiology, Molecular Biology and Biochemistry, University of Idaho, Moscow, ID	2004-2009
Faculty, WWAMI Medical Education Program, University of Idaho, Washington State University and University of Washington	2004-2012
Post-doctoral fellow, Stanford University School of Medicine, Stanford, CA	1999-2004
Doctoral Student, Massachusetts Institute of Technology, Cambridge, MA	1993-1999
Research Lab Technician, Dupont Pharmaceuticals, Willmington, DE	1992
Research associate, Haverford College, Haverford, PA	1990-1992
Assistant Professor, Department of Microbiology, Molecular Biology and Biochemistry, University of Idaho, Moscow, ID	2004-2009
Faculty, WWAMI Medical Education Program, University of Idaho, Washington State University and University of Washington	2004-2012
Research Lab Technician, Dupont Pharmaceuticals, Willmington, DE	1992
Research associate, Haverford College, Haverford, PA	1990-1992
Assistant Professor, Department of Microbiology, Molecular Biology and Biochemistry, University of Idaho, Moscow, ID	2004-2009
Faculty, WWAMI Medical Education Program, University of Idaho, Washington State University and University of Washington	2004-2012

CURRENT AFFILIATIONS AND MEMBERSHIPS

Affiliate Faculty, Department of Biochemistry and Molecular Biology, IUSM

Member, American Society of Microbiology (ASM)

Member, American Society for Cell Biology (ASB)

Member, American Society for Biochemistry and Molecular Biology (ASBMB)

Member, American Society of Tropical Medicine and Hygiene (ASTMH)

Member, Society for the Advancement of Chicanos/Hispanics and Native Americans in Science

HONORS AND AWARDS

Trustees Teaching Award, IUSM	2022
Spotlighted in November issue of Diversity in Action	2021
Trustees Teaching Award, IUSM	2017
Excellence in Teaching Award, WWAMI medical program, University of Idaho	2012

Spotlighted in October issue of The Minority Microbiology Mentor Newsletter of the American Microbiology Society	2011
Commitment to Diversity Faculty Award, WWAMI medical program, University of Idaho	2011
Excellence in Teaching Award, WWAMI medical program, University of Idaho	2011
R.M. Wade Teaching Excellence Award, College of Agriculture and Life	2010
R.M. Wade Teaching Excellence Award Nominee, College of Agriculture and Life Sciences, University of Idaho	2008 and 2009
Carl Storm Fellowship, Gordon Research Conferences	2006
Post-doctoral Fellow, NIH NRSA	2000-2002
Pre-doctoral Fellow, NIH-NIGMS	1994-1998
Howard Hughes Scholar, Haverford College	1990-1992
Honors, Chemistry Department Haverford College	1992
Scholarship Improvement Prize, Haverford College	1992
Jose Padín Scholar, Haverford College	1988-1992

PUBLICATIONS

Journal articles

Severo V, Souza R, F Vitorino F, Cunha J, Ávila A, **Arrizabalaga G**, and Nardelli S. 2022 The missed histone H1 is involved in cell division and ribosome biosynthesis in Toxoplasma gondii" mSphere

Dominicus C, Nofal SD, Broncel M, Katris NJ, Flynn HR, **Arrizabalaga G**, Botté CY, Brandon Invergo M, Treeck M. 2022 A positive feedback loop mediates crosstalk between calcium, cyclic nucleotide and lipid signalling in *Toxoplasma gondii*. PLOS Pathogens 2022 Oct 20;18(10):e1010901. doi: 10.1371/journal.ppat.1010901.

Souza, R.O.O, Jacobs, K., Back, PS, Bradley, PJ **Arrizabalaga G.** 2022 IMC10 and LMF1 mediate membrane contact between the mitochondrion and the inner membrane complex in Toxoplasma gondii. Journal of Cell Sciences Oct 31:jcs.260083. doi: 10.1242/jcs.260083.

Yang C, Blakely WJ, **Arrizabalaga G.** 2022 The tyrosine phosphatase PRL regulates attachment of *Toxoplasma gondii* to host cells and is essential for virulence. mSphere 7(3):e0005222

Dave N, **Arrizabalaga G.** 2022 An EF hand protein in Toxoplasma gondii localizes to the endolysosomal complex and regulates egress. Cells 11(10): 1709

Blakely WJ, Holmes MJ, **Arrizabalaga G.** 2020. The secreted acid phosphatase domain-containing GRA44 from *Toxoplasma gondii* is required for C-myc induction in infected cells mSphere. 2020 Feb 19;5(1):e00877-19. doi: 10.1128/mSphere.00877-19.

Jacobs K, Charvat R, **Arrizabalaga G.** 2019. Identification of Fis1 interactors in *Toxoplasma gondii* reveals a novel protein required for peripheral distribution of the mitochondrion. mBio. 2020 Feb 11;11(1):e02732-19. doi: 10.1128/mBio.02732-19.

Yang C., Broncel, M, Dominicus C, Sampson E, Blakely WJ, Treeck M., **Arrizabalaga G.**, 2019 A plasma membrane localized protein phosphatase in *Toxoplasma gondii*, PPM5C, regulates attachment to host cells. Sci Rep 9:5924.

Heredero-Bermejo I, Varberg JM, Charvat R, Jacobs K, Garbuz T, Sullivan WJ Jr, **Arrizabalaga G.**, 2018 TgDrpC, an atypical dynamin-related protein in Toxoplasma gondii, is associated with vesicular transport factors and parasite division., Molecular microbiology. 2019; 111(1):46-64.

Varberg, J, Coppens, I, **Arrizabalaga, G** and Gaji, RY. 2018. TgTKL1 is a unique plant like nuclear kinase that plays an essential role in acute toxoplasmosis. mBio 20;9(2).

Panozzo-Zénere EA, Porta EO, **Arrizabalaga G**, Fargnoli L, Khan SI, Tekwani BL, and Labadie, GR. 2018 A minimalistic approach to develop new anti-apicomplexa polyamines analogs, European Journal of Medicinal Chemistry

Varberg, JM, LaFavers, KA, [1]Sullivan, WJ, [1]**Arrizabalaga, G**. 2018 Characterization of Plasmodium Atg3-Atg8 interaction inhibitors identifies novel alternative mechanisms of action in *Toxoplasma gondii*, Antimicrob Agents Chemother., PMID:29158278 [1]Senior authors contributed equally

Garbuz, T and **Arrizabalaga, G.** 2017 Lack of mitochondrial MutS homolog 1 in *Toxoplasma gondii* disrupts maintenance and fidelity of mitochondrial DNA and reveals metabolic plasticity, Plos One, PMID:29141004

Roiko, MS, LaFavers, K, **Arrizabalaga, G**. 2018 *Toxoplasma gondii*-positive human sera recognize intracellular tachyzoites and bradyzoites with diverse patterns of immunoreactivity, Int J. for Parasitology.

LaFavers, K.A, Márquez-Nogueras, K.M., Coppens, I., Moreno, SNJ, **Arrizabalaga, G.** 2017 A novel dense granule protein, GRA41, regulates timing of egress and calcium sensitivity in *Toxoplasma gondii*. Cell Microb, PMID: 28430089

Colinot, DL, Garbuz, T, Bosland, M, Rice, S, Wang, L, Sullivan, WJ, [1]Jerde, T, **[1]Arrizabalaga, G.** 2017 *Toxoplasma gondii*: a novel inducer of chronic prostatic inflammation and proliferative inflammatory microglandular hyperplasia in a mouse model of prostatic inflammation. Prostate, PMID: 28497488. [1]Senior authors contributed equally

Padgett, L., [1]Sullivan, W.J., **[1]Arrizabalaga, G.** 2016, Targeting of tail-anchored membrane proteins to subcellular organelles in *Toxoplasma gondii.* Traffic. 2017 Mar;18(3):149-158. PMID:27991712 [1] Senior authors contributed equally

Varberg, JM, Padgett, LR, **Arrizabalaga, G**, Sullivan, WJ. 2016. TgATAT-mediated α-tubulin acetylation is required for division of the protozoan parasite *Toxoplasma gondii*. mSphere, Jan 20;1(1) 26. PMID: 27303695

Charvat, R and **Arrizabalaga, G.** 2016. Oxidative stress generated during monensin treatment contributes to altered *Toxoplasma gondii* mitochondrial function. Nature Scientific Reports, Mar 15;6. PMID: 26976749

Gaji, R, Johnson, D, Wang, M, Hudmon, A, and **Arrizabalaga, G.** 2015. Phosphorylation of a Myosin motor by TgCDPK3 facilitates rapid initiation of motility during *Toxoplasma gondii* egress. PLoS Pathog. 1(11):e1005268. PMID: 26544049

Benmerzouga, I, Checkley, L, Ferdig, M, **Arrizabalaga, G.** Wek, R., and Sullivan, W., 2015. Guanabenz repurposed as an anti-parasitic with activity against acute and latent toxoplasmosis, Antimicrob Agents Chemother, 59(11):6939-45. PMID: 26303803

Campodonico J, Kochhar K, **Arrizabalaga G**, and Sevilla-Martir J, 2015. Assessing knowledge and perceptions related to preventive methods and treatment of malaria in the local endemic area of Trujillo, Honduras. Hispanic HealthCare International Journal, 13(2):97-108

Treeck, M, Sanders, J, Gaji, R, LaFavers, K, Child, M, **Arrizabalaga, G**, Elias, J, Boothroyd, J. 2014. A novel role of Calcium-dependent Kinase 3 in regulating metabolism in *Toxoplasma gondii* in addition to ionophore induced egress. PLoS Pathogen, 10(6):e1004197. PMID: 24945436

Gaji, R, Checkley, L, Reese, M, Ferdig, MT, and **Arrizabalaga, G.**, 2014. Expression of the essential kinase PfCDPK1 from *Plasmodium falciparum* in *Toxoplasma gondii* facilitates the discovery of novel antimalarial drugs. Antimicrob Agents Chemother, 58(5):2598-607. PMID: 24550330

Garrison, E, Treeck, M, Ehret, M, Garbuz, T, Oswald, BP, Settles, M, Boothroyd, J, **Arrizabalaga, G.** 2012. A forward genetic screen reveals calcium-dependent kinase 3 is critical for calcium-induced egress in *Toxoplasma*. Plos Pathogen, 8(11). PMDI: 23209419

Lavine, MD and **Arrizabalaga, G.** 2012, Analysis of Monensin Sensitivity in *Toxoplasma gondii* reveals autophagy as a mechanism for drug induced death. Plos One, 7(7):e42107. PMID: 22848721

Hass, J, Garrison, E, Wicher, S, Knapp, B, Bridges N, McIlroy, D and **Arrizabalaga, G.** 2012. Synthetic osteogenic extracellular matrix formed by coated silicon dioxide nanosprings. Journal of Bionanotechnology, 10 (6). PMDI: 22284364

Kamau E, Meehan T, Lavine MD, **Arrizabalaga, G**, Mustata, G and Boyle, J 2011. A novel benzodioxole-containing inhibitors of *Toxoplasma gondii* growth alters the parasite cell cycle. Antimicrob Agents Chemother, 55(2): 745-55. PMID: 21947387

Francia, ME, Wicher S, Pace DA, Sullivan, J, Moreno, SNJ, and **Arrizabalaga, G.** 2011. A *Toxoplasma* protein with homology to intracellular type Sodium Hydrogen Exchangers is required for osmotolerance and protein processing. Experimental Cell Research. 317(10):1384-96. PMID: 21501607

Lavine, MD and **Arrizabalaga, G.** 2011. The antibiotic monensin causes cell cycle disruption of *Toxoplasma gondii*, mediated through the DNA repair enzyme TgMSH-1. Antimicrob Agents Chemother, 55(2): 745-55. PMID: 21098240

Garrison, E and **Arrizabalaga, G.** 2009. Disruption of a mitochondrial homolog of a MutS DNA Repair Enzyme confers drug resistance in the pathogenic parasite *Toxoplasma gondii*. Molecular Microbiology, 72(2):425-41. PMID 19291232

Lavine, MD and **Arrizabalaga, G.**, 2009. Induction of mitotic S-phase of host and neighboring cells by *Toxoplasma gondii* enhances parasite invasion. Molecular and Biochemical Parasitology, 164(1):95-9. PMID: 19111577

Saeij, J, **Arrizabalaga, G.** and Boothroyd J.C. 2008. A cluster of four surface antigen genes specifically expressed in bradyzoites, *SAG2CDXY*, plays an important role in *Toxoplasma gondii* persistence. 2008 Immunity and infection, 76(6):2402-10. PMID: 18347037

Lavine, M and **Arrizabalaga, G.** 2008 Exit from host cells by the pathogenic parasite *Toxoplasma gondii* does not require motility. Eukaryotic Cell, 7(1): 131-140. PMID: 17993573

Fruth, I.A. and **Arrizabalaga G.**, 2007. *Toxoplasma gondii*: Induction of egress by the potassium ionophore nigericin. International Journal of Parasitology, International Journal of Parasitology, 37(14): 1559-67. PMID: 17643508

Lavine, MD, Knoll, LJ, Rooney, PJ and **Arrizabalaga, G.**, 2007. A *Toxoplasma gondii* mutant defective in responding to calcium fluxes shows reduced in vivo pathogenicity. Molecular and Biochemical Parasitology,155(2): 113-122. PMID: 17643508

Saeij, JPJ, Boyle, JP, Grigg, ME, **Arrizabalaga G**, and Boothroyd JC 2005. Bioluminescence imaging of *Toxoplasma* infection in living mice reveals dramatic differences between strains. Infect Immun 73(2); 695-702. PMID: 15664907

Karasov, A, Boothroyd JC and **Arrizabalaga, G.** 2005. Identification and disruption of a rhoptry localized Sodium Hydrogen Exchanger in *Toxoplasma gondii*. International Journal of Parasitology, 35 (3); 285-291. PMID: 15722080

Arrizabalaga, G, Ruiz, F., Moreno, S and Boothroyd JC, 2004. Ionophore-resistant mutant of *Toxoplasma gondii* reveals involvement of a sodium/hydrogen exchanger in calcium regulation. Journal of Cell Biology: 165(5):653-62,. PMID: 15173192

Camps, M, **Arrizabalaga, G** and Boothroyd JC, 2002. An rRNA mutation identifies the apiclopast as the target for clindamycin in *Toxoplasma gondii*. Molecular Microbiology 43(5):1309-18. PMID: 11918815

Black, MW, **Arrizabalaga, G** and Boothroyd JC, 2000. Ionophore-resistant mutants of *Toxoplasma gondii* reveal host-cell permeabilization as an early event in egress. Mol. Cell Bio. 20; 9399-9408.

Arrizabalaga, G and Lehmann, R., 1999. A selective screen reveals discrete functional domains in Drosophila Nanos. Genetics 153; 1825-1838. PMID: 10581288

Book Chapters, Reviews and Perspectives (all peer reviewed)

Ovciarikova, J, Souza, R, **Arrizabalaga, G**, Sheiner, L. 2022. Protein control of membrane and organelle dynamics - insights from the divergent eukaryote *Toxoplasma gondii*, Current Opinion in Cell Biology 76:102085

Yang, C and **Arrizabalaga, G**. 2017. The serine/threonine phosphatases of apicomplexan parasites. Molecular Microbiology

Blader IJ, **Arrizabalaga, G**, and Sullivan, WJ. The Role of Host- And Parasite-Encoded Kinases in *Toxoplasma*-Host Interactions." Invited Chapter Review for "Protein

Phosphorylation in Eukaryotic Parasites: Potential for Chemotherapy". Edited by Christian Doerig, Gerald Spaeth, Martin Wiese, and Paul Selzer. 2013.

Arrizabalaga G., 2011. A fine balance between life and death: modulation of BCL-2 family members by *Toxoplasma gondii*. Frontier in Cellular and Infection Microbiology. 2:39

Lavine, MD, and **Arrizabalaga, G.** 2007. Invasion and egress by the obligate intracellular parasite *Toxoplasma gondii*: potential targets for the development of new antiparasitic drugs. Current Pharmaceutical Design. 13, 641-651. PMID: 17346179

Arrizabalaga, G, Boothroyd J.C. 2004. Role of calcium during invasion and egress in *Toxoplasma gondii*. International Journal of Parasitology 34; 361-368. PMID: 15003496

Articles (not peer reviewed)

Arrizabalaga G. and Sullivan W.J. Played by a parasite, Scientific American Mind, March 2015 pp 62-67; Reposted in Salon.com; Reprinted in Scientific American, September 2015, translated to Spanish and published in Investigación y Ciencia December 2015; translated to German and published December 2015

FUNDING

Currently Active Support

Interleukin-1 and steroid signaling drive Toxoplasma-induced prostatic hyperplasia
11R01DK124067 4/1/2020-3/31/2025
NIH/NIDDK Role: Principal investigator (MPI with Dr. Travis Jerde)

Regulation of mitochondrial morphodynamics in Toxoplasma gondii.
R01AI149766 3/1/2020-2/28/2025
NIH/NIAID Role: Principal investigator

Homologs of brassinosteroid signaling proteins in Toxoplasma gondii regulate parasite division
R21AI124067 7/01/2021-6/30/2023
NIH/NIAID Role: Principal investigator

IMSD at IUSM Inclusive Biomedical Research Training Program
T32 GM144891 2/01/2023-1/31/2028
NIH/NIGMS Role: Principal investigator (MPI with Dr. Tom Hurley)

Completed grants

Dissecting the calcium dependent phosphorylation network of Toxoplasma gondii
1R01AI123457 4/1/2016-3/30/2021 $2,507,766
NIH/NIAID Role: Principal investigator (MPI with Dr. Moritz Treeck)

Prostate pathogenesis during Toxoplasma gondii infection
1R21AI138255 5/8/2018-4/30/2020

NIH/NIAID Role: Principal investigator (MPI with Dr. Travis Jerde)

Elucidating new and old roles for autophagy-like genes in *Toxoplasma gondii*
1R21AI125822 7/1/2016-6/30/2018 $275,000
NIH Role: Principal investigator (MPI with Dr. William Sullivan)

Enhancing Scientific Careers: Research Mentor Training
Mentoring Academy Grant 3/1/2017-2/30/2018 $20,000
IUPUI Role: Principal investigator (Tara Hobson Co-PI)

Dissecting the role of Toxoplasma CDPK3 in parasite propagation and virulence
R21AI108393-01A1 2/2/2015-1/31/2017 $275,000
NIH Role: Principal investigator

Calcium signaling in the parasitophorous vacuole of Toxoplasma gondii

1R21AI119516-01 5/1/2015-4/3/2017 $275,000
NIH Role: Principal investigator

Dissecting a novel mechanism of drug-induced death in Toxoplasma gondii
R01 AI 89808-01 7/1/2010-6/30/2014 $900,000
NIH Role: Principal investigator

Characterization of calcium signaling proteins in Toxoplasma gondii
R03 AI 101624 7/1/2012-6/30/2014 $100,000
NIH Role: Principal investigator

Dissecting the role of a unique kinase in the propagation and virulence of the cardiac pathogen *Toxoplasma gondii*
13GRNT1604000 7/1/2013-6/30/2015 $100,000
American Heart Association Role: Principal investigator

Initiation of motility in the opportunistic pathogen Toxoplasma gondii
RSG-08-19-01-MBC 7/01/2008-6/30/2012 $750,000
American Cancer Society Role: Principal investigator

Toxoplasma gondii egress
K22 AI061293 9/1/2004-8/30/2007 $250,000
NIH Role: Principal investigator

INVITED LECTURES AND TALKS

Latin American Biology of Parasites Course, Montevideo, Uruguay	December 2022
University of Texas Health, Houston, TX	November 2022
University of Connecticut, Storrs, CT	October 2022
Glasgow Research in Parasitology Seminar Series, Glasgow, Scotland	September 2021

BIPOC in Parasitology Seminar Series	June 2021
Cellular Biology Seminar Series, University of Georgia Athens	April 2021
XXXV Annual Meeting of the Brazilian Society of Protozoology, Caxambu Brazil	November 2019
University of Sao Paulo Brazil	November, 2019
University of California, Irvine	March 2019
North Eastern Illinois University Chicago, IL	February 2019
Clemson University	December 2018
Francis Crick Institute, London UK	May 2016
Clark Atlanta University, Atlanta GA	April 2016
Annual meeting of the American Society of Tropical Medicine and Hygiene, Philadelphia	October 2015
Midwest Microbial Pathogenesis Conference, Indianapolis IN	August 2015
North Eastern Illinois University, Chicago IL	February 2015
University of California Irvine, Irvine CA	December 2014
Congress of the Argentinean Society of Protozoology Annual Meeting, Mar del Plata	November 2014
Molecular Parasitology Meeting Woods Hole, Massachusetts	September 2014
University of South Florida, Tampa FL	October 2013
Midwest Neglected Infectious Diseases Meeting, Notre Dame, IN	September 2013
International Congress on Toxoplasmosis, Oxford UK	June 2013
University of Indiana, Indianapolis IN	September 2011
International Congress on Toxoplasmosis, Ottawa Canada	June 2011
University of Oklahoma Health Sciences Center, Oklahoma City OK	January 2011
NIMBioS Investigative Workshop on Modeling Toxoplasma gondii, Knoxville, TN	March 2010
Montana State University, Bozeman, MT	February 2010
University of Texas Medical Center Houston, TX	2008
Temple University, Philadelphia, PA	2008
Albany Medical College, Albany, NY	2008
Johns Hopkins University Medical Institutions, Baltimore, MD	December 2008
Argentinian Society of Protozoology, Rosario, Argentina	November 2008
College of Southern Idaho, Twin Falls, ID	September 2007
North West Reproductive Society, Moscow, ID	March 2007
CRB seminar series Washington State University, Pullman, WA	March 2007

TEACHING

Highlights:

- Experience designing, directing, and teaching a broad range of courses for undergraduate, graduate, medical and physician assistant students.
- Topics taught include molecular and medical parasitology, microbiology, cardiac physiology and pharmacology, cytoskeletal regulation, and cell biology.
- Currently directing and teaching Experimental Design and Grant Writing aimed at doctoral students
- Designed and teach Entering Biomedical Research, required of all first year IUSM graduate students. The class uses components from the National Research Mentoring Network (NRMN), the NIH Resilient Scientist program, and our Office of Diversity Affairs. Topics covered include aligning expectations, receiving feedback, fostering self-efficacy, addressing difficult situations, and building inclusive lab communities.
- Have received various teaching awards at IU School of Medicine, University of Idaho, and the WWAMI Medical Education Program.

Undergraduate courses taught

MMBB 463 Molecular Parasitology (University of Idaho) Role: Course developer and lecturer	Spring 2007-2010 45 hrs
MMBB 487 Eukaryotic molecular genetics (University of Idaho) Role: Lecturer	Fall 2004 3 contact hrs

Graduate courses taught

G702 Entering Biomedical Research Role: Co-director, co-developer and facilitator	Fall since 2017 12 hrs
F850 Experimental Design and Grant Writing Role: Lecturer 2017-2020, Director and main instructor since 2020	Summer since 2017 30 hours
G717 Cellular Basis of System Biology (IUSM) Role: Lecturer	Fall since 2014 4 hrs/class
G728 Fundamental Concepts of Infection and Pathogenesis Role: Lecturer	2017-19 2 hrs/class
G745 Intracellular Signal Transduction (IUSM) Role: Lecturer	Spring 2014-18 8 hrs/class
J829 Current Topics in Microorganisms (IUSM) Role: Lecturer	Fall 2012, 2014 3 hrs/class
MMBB 589 Adv. Top. Microbiology, Mol. Biology, Biochemistry Role: Lecturer	Spring 2005-12 6 hrs/class
MMBB 541 Biochemistry Role: Lecturer	Fall 2004 2 hrs/class

Professional courses taught

F818 Principals in Medical Pharmacology I Cardiac Block Role: Lecturer	Fall 2015-2019 6 hrs/class
MED-X650 Host Defense I Parasitology Block (IUSM) Role: Lecturer	Spring 2013-2019 6 hrs/class
J604 Medical Pharmacology I Cardiac Block Role: Lecturer	Spring 2016 6 hrs/class
Med 534 Medical Microbiology (UI WWAMI) Role: Lecturer	Spring 2011, 2012 12 hrs/class
Medical Cell Physiology (U. Alaska WWAMI Role: Lecturer	Spring 2008, 2009 8 hrs/class
Med 512 Medical Cell Physiology (UI WWAMI) Lecturer, Course chair	Fall 2004-2011 20 hrs/class

MENTORING

Highlights:

- Have trained and mentored postdoctoral fellows, PhD and master students, medical students, and undergraduate students in laboratory research
- Currently lab members include a Research Professor, a Post-doctoral Fellow, 6 PhD students, a visiting graduate student, and 2 undergraduate students.
- NRMN Certified Mentor Training Facilitator
- Have organized and co-facilitated 8 mentoring workshop series
- Co-director of Program to Launch Underrepresented in Medicine Success (PLUS) for early career faculty
- Mentor for IU School of Medicine Independent Investigator Incubator (I3)
- Grant writing coach for National Research Mentoring Network and University of Utah Grant Writing Coaching Groups Study (U01 GM132366)

Program to Launch Underrepresented in Medicine Success (PLUS) 2021-now

- Co-Director
- Two-year cohort mentoring and professional development for early-stage faculty from underrepresented groups at Indiana University School of Medicine

IU School of Medicine Independent Investigator Incubator (I3) 2019-now

- Mentor
- Program that pairs established faculty with early-stage faculty for long-term mentoring experiences

National Research Mentoring Network (NRMN) Grant writing coach 2017-now

- Led 5 separate cohorts of early career faculty and post-doctoral fellows from various institutions in three-month grant coaching groups
- Official coach for the NIH funded University of Utah Grant Writing Coaching Groups Study (U01 GM132366)

Mentor Training Facilitator 2017-now

- Certified NRMN Mentor training facilitator, attended 2-day training at University of Wisconsin March 2017

- Established and co-facilitate the Enhancing Your Scientific Career: Unlocking your Inner Mentor Series (4 session series offered 2-3 times a year)

SACNAS at IU School of Medicine Faculty Advisor	2014-now
Grant Writing Coach, Leadership Alliance Brown University	2019-2020
ABRCMS Invited Speaker, Organized, led and participated in panel focused on the graduate admissions process	2016, 17 and 18
ABRCMS Abstract Reviewer and Poster Session judge • Cell Biology Session Ambassador since 2018	2016-now
Spelman College Research Day poster judge	2016

SERVICE AND OUTREACH

Highlights:

- Member of NIH Study Session Pathogenic Eukaryotes (PTHE)
- Chair of Graduate Studies Admission Committee, IUSM
- Co-chair Diversity Council

National Institute of Health, Permanent member PTHE Study session	2017-2022
Co-Chair, Faculty, Staff, and Learner Training Task Force for Diversity, Equity, and Inclusion	2020-2021
Director of IBMG Summer Research Experience Program	2017-now
IBMG Admissions Committee Pharmacology Representative Chair of committee since 2019	2014-now
IUSM Diversity Council Member	2015-now
IBMG recruitment and outreach travel to ABRCMS	Since 2016
IBMG recruitment and outreach travel to SACNAS Meeting	since 2016
IBMG recruitment and outreach travel to Puerto Rico UPR Humacao, UPR Mayaguez, Universidad del Noreste, Universidad Interamericana Ponce	2017, 2018, 2019
IUSM Faculty Steering Committee Department Rep	2016-2017
IBMG recruitment and outreach travel to Clark Atlanta University and Spelman College	2016
IUSM Pharmacology and Toxicology Faculty Search Committee, Chair	2015, 2016, 2017, 2018
Scientific Reports, Editor	2014-2016
Pharmacology and Toxicology Seminar Series Director (IUSM)	2013-17

University of Idaho Juntura (Diversity) Committee Chair and Member (UI)	2007-2009
American Heart Association permanent grant reviewer	2008-2012
MMBB Graduate Admission Committee Member (UI)	2006-2008
Departmental Curriculum Committee Member (UI)	2007-2010
University of Idaho, McNair Program Advisory Committee Member	2005-2012

DIVERSITY, EQUITY, INCLUSION AND JUSTICE EFFORTS

Assistant Dean for Diversity Affairs, Office of Faculty Affairs, Faculty Development and Diversity, Indiana University School of Medicine

- Designed and facilitated sessions on Microaggression and Microresistance, Inclusive teaching, Addressing DEI in Promotion and Tenure, and Best Practices for Faculty Recruitment.
- Co-organizer and facilitator for yearly Cross-cultural retreat for Medical Students, Graduate Students and Master Students
- Co-director of PLUS Faculty Development and Mentoring Program for early-stage faculty from groups underrepresented in medicine and biomedical sciences

Co-chair of Task Force for Faculty, Staff, and Learner Training for Diversity Equity, and Inclusion

Co-chair, Indiana University School of Medicine Diversity Council

Faculty Advisor, SACNAS at IUSM Chapter

Annual Biomedical Research Conference for Minority Students (ABRCMS), Abstract reviewer, poster judge, Mentor, Cell Biology Session Ambassador, Panel organizer and lead