THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE TUCSON
Infectious Diseases

Mentor/Research Opportunities
Division of Infectious Diseases
Infectious Diseases Fellowship Program

Elizabeth Connick, MD

Chief, Division of Infectious Diseases
Professor, Medicine
Professor, Immunobiology
Professor, BIO5 Institute

University of Arizona College of Medicine
1501 N. Campbell Ave
P.O. Box 245039
Tucson, AZ 85724

(520) 626-6887
connicke@email.arizona.edu

Medical School: Harvard Medical School
Residency: Columbia Presbyterian Medical Center, New York, NY
Fellowship: University of Colorado School of Medicine, Division of Infectious Diseases

My research is focused on HIV infection and ranges from basic laboratory studies of HIV immunopathogenesis to clinical trials. I have had continuous NIH funding for my laboratory for more than 20 years. I have been a member of the AIDS Clinical Trials Group since 1994, and currently serve as the chair of the Women's Health Internetwork Scientific Committee, a member of the HIV Cure Committee, and a member of the Scientific Advisory Subcommittee. My areas of research interest include pathogenesis of HIV in secondary lymphoid tissues, cure studies, cardiovascular disease, sleep, and HIV infection in women.

Patterson F, Connick E, Brewer B, Grandner MA, HIV status and sleep disturbance in college students and relationship with smoking. Sleep Health 2019; 5(4): 395-400 2019 Aug PMID: 31253562

Miller SM, Miles B, Guo K, Folkvord J, Meditz AL, McCarter MD, Levy DN, MaWhinney S, Santiago ML, Connick E. Follicular regulatory T cells are highly permissive to R5-tropic HIV-1. Journal of Virology 2017;91: PMCID: PMC5553166.

Miles B, Miller, SM, Folkvord JM, Kimball A, Chamanian M, Meditz AL, Arends T, McCarter MD, Levy DN, Rakasz EG, Skinnner PJ, Connick E. Follicular Regulatory T Cells Impair Follicular T Helper Cells in HIV and SIV Infection. Nature Communications 2015. PMCID: PMC4616158.

Stephen A. Klotz, MD

University of Arizona – Tucson

Professor, Department of Medicine
Medical Director, Petersen HIV Clinics
Medical Director, UA Telemedicine

As a physician and a research scientist for over 40 years, Stephen Klotz, MD has a wide range of diverse academic interests. He has received research/project funding from multiple entities including the NIH, Veteran Affairs, Department of Defense, Health Resources and Services Administration, Arizona Department of Health Services and more. Areas of focus include Candida albicans, host serum amyloid P compound (SAP), HIV-Related Frailty, HIV-mediated immune cell aging and kissing bugs (triatome bites, bite-associated anaphylaxis, kissing bug ecology in the Southwest United States and the potential of vector-borne transmission of the parasite that causes Chagas Disease, Trypanosoma cruzi).

Behrens-Bradley N, Smith S, Beatty NL, Love M, Ahmad N, Dorn PL, Schmidt JO, Klotz SA (2019) Kissing Bugs Harboring *Trypanosoma cruzi,* Frequently Bite Residents of the US Southwest and Cause Severe Allergic Reactions, But Not Chagas Disease. American Journal of Medicine. 2019 Jul 8. PMID 31295438

Bernaba M, Power E, Campion J, Gotzek D, Schmidt JO, Klotz SA (2019) Unconscious Woman in Shock and Covered with Ants Pulled from an Abandoned Automobile American Journal of Medicine, 2019 Apr 3. PMID 30953629

Mohanad Al Obaidi, MD

University of Arizona – Tucson

Assistant Professor, Department of Medicine

Dr. Al-Obaidi's research interest focuses on the infections in the immunocompromised population, especially within the solid organ and bone marrow transplantation populations. He is currently working on multiple projects studying invasive fungal infections and Cytomegalovirus infection in solid organ transplant patients. His work will help better understand the risk factors and methods to prevent infectious complications in transplant patients. Outside the field of transplant infectious diseases, Dr. Al-Obaidi is interested in studying fungal infections, including Candidiasis, invasive mold infection, and antifungal resistance. Dr. Al-Obaidi is also involved in multiple clinical trials studying investigational drugs against CMV and fungal infections.

Al Obaidi M, Hasbun R, Vigil KJ, Edwards AR, Chavel V, Hall DR, Dar WA, De Golovine A, Ostrosky-Zeichner L, Bynon JS, Nigo M, (2019) Seroprevalence of Strongyloides stercoralis and Evaluation of Universal Screening in Kidney Transplant Candidates: A Single-Center Experience in Houston (2012-2017). Open Form Infectious Diseases. 2019 Jul 1; 6(7).PMID 31363770

Fariba Donovan, MD, PhD

University of Arizona – Tucson

Assistant Professor, Department of Medicine
Assistant Professor, Valley Fever Center for Excellence

As both a practicing physician and a research scientist, Dr. Donovan has long cultivated a particular interest in medical mycology. Her research focuses on the identification of virulence factors and the interaction of several fungi with the human host. She conducted studies in Coccidioides with goals to help in the earlier diagnosis of Valley fever to improve patient outcomes, lower costs and heighten antibiotic stewardship. Additionally, she is developing plans to study the host innate immune response to Coccidioides with a focus on the early events in coccidioidomycosis.

Donovan FM, Zangeneh TT, Malo J, Galgiani JN. (2017) Top Questions in the Diagnosis and Treatment of Coccidioidomycosis. Open Forum Infectious Diseases. 2017 Sep 12;4(4). PMID 29670928

Donovan FM, Wightman P, Zong Y, Gabe L, Majeed A, Ynosencia T, Bedrick EJ, Galgiani JN, (2019) Delays in Coccidioidomycosis Diagnosis and Associated Healthcare Utilization in Tucson, AZ Emerging Infectious Diseases

Lori E. Fantry, MD, MPH

University of Arizona – Tucson

Associate Professor, Department of Medicine
HIV Translational Research Program Director
Refugee Clinic Medical Director
Associate Clinical Director, Infectious Diseases Division
Medical Director, Arizona AIDS Education Training Center

My research interests are HIV prevention, epidemiology, and clinical care. My work has resulted in 27 peer-reviewed publications, multiple book chapters, and abstracts at major conferences. I am currently involved in a study looking at laboratory testing in HIV infected patients and am an investigator in the NIH sponsored study entitled “Evaluating the Use of Pitavastatin to Reduce the Risk of Cardiovascular Disease in HIV-Infected Adults (REPRIEVE)”.

Bagchi S, Burrowes SA, Fantry LE, Hossain MB, Tollera GH, Kottilil S, Pauza CDE, Miller M, Baumgarten M, Redfeild RR (2017) Factors associated with high cardiovascular risk in a primarily African American, urban HIV-infected population SAGE Open Medicine, 2017 Aug 10;5 PMID: 28839941

Fantry LE, DeJonge E, Auwaerter PG, Lederman HM. Immunodeficiency and Elevated CD4+ Cell Counts in Two Patients Co-Infected with HIV and HTLV-1. Clin Infect Dis 1995;21:1466-8.

Dickinson, S., Ried, W., Fantry, L.E. (2012) Use of Dual-Energy Absorptiometry (DEXA) in HIV Infected Patients. J Int Assoc Physicians AIDS Care. 2012 July/August;11:239-244. PMID:22511611

Fantry, L.E., Nowak, R.G., Fisher, L.H., Cullen, N.R., Yimgang, D.P., Stafford, K.A., Riedel, D.J., Kangy, M., Innis, E.K., Riner, A., Wang, E.W., Charurat, M.E. (2016) Colonoscopy findings in HIV-infected men and women from an urban Unites States cohort compared to non-HIV-infected men and women. AIDS Res Hum Retroviruses. 2016;32:860-7. PMID:27329286

Fantry, L.E., Zhan, M., Taylor, G.H., Sill, A.M., Flaws, J.A. Age of Menopause and Menopausal Symptoms in HIV-Infected Women. AIDS Patient Care and STDs. 2005:19:1-9. PMID:16283830.

Fantry LE, Connick E. The Internist’s Role in Ending the HIV Epidemic in the United States. The American Journal of Medicine. 2019 Jun 18. PMID: 31220428.

John Galgiani, MD

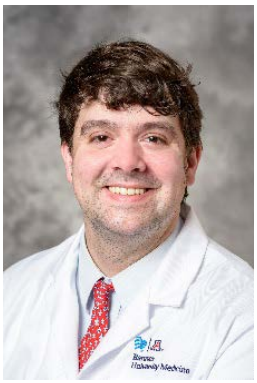
University of Arizona – Tucson

Director, Valley Fever Center for Excellence
Professor, Medicine
Professor, BIO5 Institute
Clinical Professor, Internal Medicine - (Clinical Series Track)

John N. Galgiani, MD, has for the past four decades conducted several diverse programs to better understand coccidioidomycosis (San Joaquin Valley Fever) and its epidemiology. These include studies of the humoral and cellular immunologic responses to infection, discoveries of preventative vaccines, clinical trials of novel antifungal drugs, standardization of diagnostic testing, and analysis of human genetic differences that account for resistance and susceptibility to progressive disease. Dr. Galgiani is the current author of the coccidioidomycosis chapters in the textbooks, Principles and Practice of Infectious Diseases and UpToDate, and the lead author for the Infectious Diseases Society of America's coccidioidomycosis practice guidelines. He has received competitively awarded federal research funding for most of his career and is funded currently by the NIH.

Ginn R, Mohty R, Bollmann K, Goodsell J, Mendez G, Bradley B, Galgiani JN. Delays in Coccidioidomycosis Diagnosis and Relationship to Healthcare Utilization, Arizona, USA1. Emerging Infectious Diseases. 2019 Sep 17;25(9). doi: 10.3201/eid2509.190019. [Epub ahead of print]

Barker BM, Rajan S, Teixeira MM, Sewnarine M, Roe C, Engelthaler DM, Galgiani JN. Coccidioidal Meningitis in New York traced to Texas by Fungal Genomic Analysis. Clinical Infectious Diseases. 2019 Feb 1. doi: 10.1093/cid/ciz052



Justin F. Hayes, MD

University of Arizona – Tucson

Clinical Assistant Professor, Department of Medicine
Co-Director, Antimicrobial Stewardship Program

Dr. Hayes's research and projects primarily focus on optimizing antimicrobial usage and limiting unnecessary diagnostic testing. He is also interested in interventions to optimize the management of bloodstream infections. He represents Banner University Medical Center/University of Arizona College of Medicine as a principal investigator on the Society for Healthcare Epidemiology of America (SHEA) Research Network. This is an international consortium of greater than 100 hospitals collaborating on multi-center research projects to advance the science of antimicrobial stewardship and healthcare epidemiology. In addition, Dr. Hayes participates in research related to the optimization of the diagnosis and management of invasive fungal infections, such as candidemia and endemic mycoses. He is an active member of the Mycoses Study Group Education and Research Consortium and participates in MSG-sponsored clinical trials (currently an investigator for MSG-15: Suba-itraconazole versus conventional itraconazole in the treatment of endemic mycoses: a multi-center, open-label, randomized comparative trial).

Tirdad T. Zangeneh, DO, MA

University of Arizona – Tucson

Associate Professor, Medicine
Associate Program Director, Internal Medicine Residency Program - Tucson Campus
Director, Infectious Disease Transplant Program, Banner UMC - Tucson

Dr. Zangeneh leads our transplant ID service, and his research is focused on infection prevention in of invasive fungal infections including coccidioidomycosis, and CMV in Transplant patients.

His projects since 2016 include:

1. Antigen Detection for Diagnosis of Pulmonary and Disseminated Coccidioidomycosis Among Those with Compromised Immune System.
2. Prevention of Coccidioidomycosis Infection Among Liver Transplant Recipients
3. Coccidioides Antigen Detection for Diagnosis of Pulmonary and Disseminated Coccidioidomycosis among Immunocompromised Patients.
4. Non Interventional Registry Study of Systemic Antifungal Therapy in Adult Subjects with Invasive Mucormycosis or Invasive Aspergillosis Caused by a Non fumigatus Species (Post Marketing Commitment “PMC Registry”, Protocol # 9766-CL-0111), funded by Astellas Pharma Global Development, Inc.
5. An Observational Disease Registry of Patients Treated with Systemic Mold-Active Triazoles (“MAT Registry”, Protocol # 9766-MA-3034), funded by Astellas Pharma Global Development, Inc.
6. Shire SHP620-303 study: A Phase 3, Multicenter, Randomized, Open-label, Active-controlled Study to Assess the Efficacy and Safety of Maribavir Treatment Compared to Investigator-assigned Treatment in Transplant Recipients with Cytomegalovirus (CMV) Infections that are Refractory or Resistant to Treatment with Ganciclovir, Valganciclovir, Foscarnet, or Cidofovir.

Asbury K, Blair JE, Beatty NL, August J, Mi L, Carey EJ, Huskey JL, LeMond LM, Zangeneh TT. De novo coccidioidomycosis among solid organ transplant recipients 1 or more years after transplant. Am J Transplant. 2019 PMID: 30811848

Habib S, El Ramahi RA, Rosen S, Farran S, Shubeilat J, Walker C, Casal M, Zangeneh TT Efficacy of Low Dose Chemoprophylaxis for Cocciodioidomycosis Infection in Liver Transplant Recipients. Gastroenterology Research 2019 Jun; 12(3). PMID 31236156

Heidi E. Brown, PhD, MPH

University of Arizona – Tucson

Epidemiology and Biostatistics, School of Public Health
Associate Professor, Public Health
Associate Professor, Geography/Regional Development
Associate Professor, Entomology / Insect Science - GIDP
Associate Professor, Remote Sensing / Spatial Analysis - GIDP

Dr. Brown has a research focus on the epidemiology and control of vector-borne and zoonotic diseases. Her goal is to identify human disease risk by modeling vector, host and pathogen distributions. The complex nature of the systems she works on diseases requires her to blend field collecting, ecological assessment, laboratory experiments, epidemiological analysis, spatial statistics, remote sensing, geographic information systems, and computer-based modeling in order to develop a more comprehensive view of disease dynamics. Current research areas include: West Nile virus, dengue, canine heartworm, valley fever, spatial epidemiology, and climate change.

Luz PM, Brown HE, Struchiner CJ, Disgust as an emotional driver of vaccine attitudes and uptake ? A mediation analysis *Epidemiology & Infection, Cambridge University Press, 2019, Apr 26*.
PMID 31063117

Isoe, Koch LE, Isoe YE, Rascon AA Jr, Brown HE, Massani BB, Miesfeld RL. Identification and characterization of a mosquito-specific eggshell organizing factor in *Aedes aegypti* mosquitoes. PLoS Biol, 2019 Jan 8 PMID: 30620728

John Ehiri, PhD

University of Arizona – Tucson

Department Chair, Health Promotion Sciences Department, School of Public Health
Professor, Public Health

Dr. Ehiri's research focuses on social and behavioral aspects of disease prevention, and on global maternal, child and adolescent health. Most recently, he has focused on HIV prevention, in keeping with its huge global importance. He has been principal investigator of University-wide grants to facilitate global health education and research, and has facilitated the establishment of primary health care programs in less developed countries. He provides technical assistance on maternal and child health issues to national ministries of health, non-governmental organizations, United Nations and bilateral agencies.

Ehiri JE, Alaofe HS, Yesufu V, Balogun M, Iwelunmor J, Kram NA, Lott BE, Abosede O, (2019). AIDS-related stigmatisation in the healthcare setting: a study of primary healthcare centres that provide services for prevention of mother-to-child transmission of HIV in Lagos, Nigeria. BMJ Open 2019, May PMID: 31110094

Ernst, K. C., Erly, S., Adusei, C., Bell, M. L., Kessie, D. K., Biritwum-Nyarko, A., & Ehiri, J. (2017). Reported bed net ownership and use in social contacts is associated with uptake of bed nets for malaria prevention in pregnant women in Ghana. Malaria Journal, 16(1), 13.

Katherine Ellingson, PhD

University of Arizona – Tucson

Assistant Professor, Public Health
Assistant Professor, Animal and Comparative Biomedical Sciences

Epidemiology and Biostatistics, School of Public Health, U of AZ

Kate Ellingson is an epidemiologist that previously worked for Centers for Disease Control and Prevention (CDC) in the Division of Healthcare Quality Promotion (DHQP). She began her CDC career in 2006 in the Epidemic Intelligence Service, where she spent two years with DHQP investigating the transmission of infectious pathogens in healthcare settings and evaluating prevention initiatives designed to reduce such infections. She has worked on several projects specific to Methicillin-Resistant *Staphylococcus aureus* (MRSA), including an evaluation of an initiative to reduce MRSA transmission in VA hospitals, an assessment of antimicrobial resistance on the US-Mexico border, and a policy analysis of a state mandate for public reporting of hospital-associated MRSA infections. Dr. Ellingson has worked internationally in Kenya and Uganda to build infection control capacity and reduce amplification of outbreaks in East African hospitals. She has also led domestic investigations into quality of care for dialysis patients and for transfusion and transplant recipients. Her current position emphasizes quantitative statistical analysis and the translation of CDC-guidelines into feasible practices.

Ellingson, K., Haas, J., Aiello, A., Kusek, L., Maragakis, L., Olmsted, R., ... Yokoe, D. (2014). Strategies to Prevent Healthcare-Associated Infections through Hand Hygiene. *Infection Control & Hospital Epidemiology, 35*(8), 937-960. doi:10.1086/677145

Yokoe, D. S., Anderson, D. J., Berenholtz, S. M., Calfee, D. P., Dubberke, E. R., Ellingson, K. D., … Maragakis, L. L. (2014). A Compendium of Strategies to Prevent Healthcare-Associated Infections in Acute Care Hospitals: 2014 Updates. *Infection Control and Hospital Epidemiology : The Official Journal of the Society of Hospital Epidemiologists of America*, *35*(8), 967–977. http://doi.org/10.1086/677216

Kacey Ernst, PhD, MPH

University of Arizona – Tucson

Epidemiology and Biostatistics, School of Public Health
Associate Professor, Public Health
Associate Professor, School of Animal and Comparative Biomedical Sciences
Associate Professor, Geography
Associate Professor, Arid Lands Resources Sciences - GIDP
Associate Professor, Entomology / Insect Science - GIDP
Associate Professor, Global Change - GIDP

Dr. Ernst's primary projects examine the environmental determinants of vector-borne disease transmission and control; primarily dengue and malaria. Current research projects include an examination of insecticide treated bednet use in western Kenya. Comparisons between determinants of use and effectiveness in highland and lowland areas are underway. She is also working with investigators in entomology to examine the role of *Aedes aegypti* population dynamics in the potential expansion of dengue from northern Mexico to southern Arizona under climate change scenarios. Locally, Dr. Ernst takes an active role in working with the local health departments to examine questions related to vaccine preventable diseases. Her work seeks to understand the reasons behind increasing vaccination exemption rates in Arizona and the development of programs to increase vaccination uptake.

Monaghan AJ, Schmidt CA, Hayden MH, Smith KA, Reiskind MH, Cabell R, Ernst KC (2019).
A Simple Model to Predict the Potential Abundance of *Aedes aegypti* Mosquitoes One Month in Advance. The American Journal of Tropical Medicine and Hygiene, 2019 Feb; 100(2): 434-437 PMID: 30594264

Santos EM, Coalson JE, Jacobs ET, Kilmentidis YC, Munga S, Agawa M, Anderson E, Stroupe N, Ernst KC (2019). Bed net care practices and associated factors in western Kenya. Malaria Journal, 2019 Aug 14; 18(1): 274 PMID: 31412865

Felicia Goodrum Sterling, PhD

University of Arizona – Tucson

Professor, Immunobiology
Associate Professor, BIO5 Institute
Director, Graduate Program in Immunobiology
Associate Professor, Cellular and Molecular Medicine
Associate Professor, Cancer Biology - GIDP
Associate Professor, Genetics - GIDP
Associate Professor, Molecular and Cellular Biology

Understanding the mechanisms by which viruses persist—in the absence of overt disease—is the major focus of the lab. Human cytomegalovirus (CMV) is a b-herpesviruses that persists in the majority of the world's population by establishing a latent infection. During latency viral genomes are maintained in the absence of virus production. We use CMV as a model for defining and understanding the interactions between viruses and their hosts that allow for the entry into and exit from latent states. Understanding latency and viral persistence is critical to developing novel antiviral therapies to control persistence and its consequences in at-risk individuals, such as stem cell and organ transplant recipients.

Zeltzer S, seltzer CA, Igarashi S, Wilson J, Donaldson JG, Goodrum F. (2018). Virus Control of Trafficking from Sorting Endosomes posing Regulation of the EGF Receptor: A Molecular Switch Controlling Cytomegalovirus Latency and Replication. MBio 2018 Jul 24;9(4), PMID: 30042195.

Rak MA, Buehler J, Zeltzer S, Reitsma J, Molina B, Terhune S, Goodrum F, (2018). Human Cytomegalovirus UL135 Interacts with Host Adaptor Proteins To Regulate Epidermal Growth Factor Receptor and Reactivation from Latency. Journal of Virology, 2018 Sep 26;92(20),
PMID: 30089695.

Anita Koshy, MD

University of Arizona – Tucson

Associate Professor
Associate Professor, Immunobiology
Associate Professor, BIO5 Institute
Associate Professor, Evelyn F Mcknight Brain Institute
Associate Professor, Neuroscience - GIDP

Toxoplasma gondii is an intracellular parasite that is found world-wide and is able to infect most warm blooded animals (from birds to humans). In humans and rodents, Toxoplasma naturally establishes a life-long, asymptomatic infection of the brain. Unfortunately, in those with limited immune response (e.g. fetus, organ transplant patients), this tropism for the brain can lead to devastating effects including seizures, blindness, and death. Thus, our goal is to understand the brain-Toxoplasma interaction at the cellular and molecular level so that we can i) develop curative treatment for symptomatic toxoplasmosis and ii) identify new mechanisms for modulating brain immune responses, which are now thought to play a role in neurologic diseases ranging from Multiple Sclerosis to Alzheimer's disease.

Cabral, C. M., Tuladhar, S., Dietrich, H. K., Nguyen, E., MacDonald, W. R., Trivedi, T., Devineni, A., & Koshy, A. A. (2016). Neurons are the primary target cell for the brain-tropic intracellular parasite Toxoplasma gondii. PLoS Pathogens.

Hidano, S., Randall, L. M., Dawson, L., Dietrich, H. K., Konradt, C., Klover, P. J., John, B., Harris, T. H., Fang, Q., Turek, B., Kobayashi, T., Hennighausen, L., Beiting, D. P., Koshy, A. A., & Hunter, C. A. (2016). STAT1 Signaling in Astrocytes Is Essential for Control of Infection in the Central Nervous System. mBio, 7(6).

Michael S. Kuhns, PhD

University of Arizona – Tucson

Associate Professor, Immunobiology
Associate Professor, BIO5 Institute
Associate Professor, Genetics - GIDP

Protective immune responses to vaccines, microbial infections, and tumors require that coordinated responses emerge from ‘conversations’ that take place between distinct cell types of the immune system. These conversations ensure that an appropriate response occurs at the appropriate place and time without inducing autoimmunity. We are working to understand the inner workings of the molecular machines that mediate the private cell-to-cell conversations that are central to productive immunity, and determine how aging impacts these mechanisms. Our basic research is contributing fundamental insights into the biology of the immune system, which we are using to guide efforts to engineer novel molecular machines that might one day be used in immunotherapies.

Lichauco K, Lee MS, Kuhns MS. (2018). Bonds Yoyage! A Dissociative Model of TCR-CD3 Triggering Is Proposed. Immunity, Vol 49, Issue 5, 786-788.

Deshpande NR, Uhrlaub JL, Way SS, Nikolich-Zugich J, Kuhns, MS. (2018). TA disconnect between precursor frequency, expansion potential, and site-specific CD4+ T cell responses in aged mice. PloS One. 2018 June

Purnima Madhivanan, MBBS, MPH, Ph.D.

University of Arizona – Tucson

Associate Professor, Public Health
Associate Professor, Medicine

Dr. Madhivanan's work focuses on addressing the systemic inequities that put India's tribal women at-risk for poor health and birth outcomes. To address these issues, her work has focused on the establishment and use of mobile clinics along with self-help programs in rural and tribal communities. Researcher in Cancer, Epidemiology, Global Health, Health Disparities, Health of Women, Children & Families, Health Promotion, Infectious Disease, and Rural Health.

Taskin T, Ibanez G, Madhivanan P. (2019) Quality Assessment of a Systematic Review for HIV Infection and Advanced-Stage Cancer. JAMA Oncology 2019 Jul 18. PMID 31318384

Garmendia CA, Madhivanan P. (2019) Correcting Meta-analyses and Reviews Affected by Retracted Research-Reply JAMA INTERNAL MEDICINE, PMID: 31260023

Kristen Pogreba-Brown, PhD, MPH

University of Arizona – Tucson

Epidemiology and Biostatistics, School of Public Health
Assistant Professor, Public Health
Associate Veterinary Specialist, Animal and Comparative Biomedical Sciences
Assistant Professor, BIO5 Institute

Dr. Pogreba-Brown's research projects are focused on foodborne diseases and improving methodology to respond to outbreak investigations. She is currently working on a project to identify the risk factors related to foodborne infection as well as the risk factors related to specific chronic outcomes following acute disease. She has recently initiated a One Health Program at the University to form collaborative research teams from across campus and develop a graduate level certificate program. She is also actively involved in public health preparedness activities, specifically for large events.

Barrett E, Carr D, Bell ML, Pogreba-Brown K (2018). Post-infectious sequelae after Campylobacter enteric infection: a pilot study in Maricopa County, Arizona, USA. Pilot Feasibility Study, 2018 Aug 22;4:142. PMID: 30151236

Benjamin, P., & Pogreba Brown, K. M. (2016). Beware of More than the Yellow Snow: A Norovirus Outbreak at a Ski Resort in Arizona. Epidemiology: Open Access, 6(244). doi:10.4172/2161-1165.1000244

John Purdy, PhD

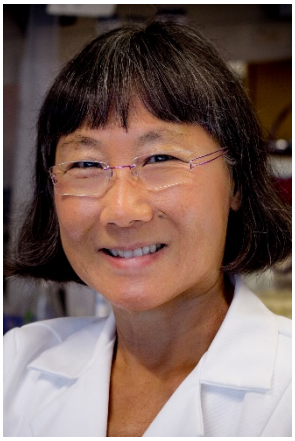
University of Arizona – Tucson

Assistant Professor, Immunobiology
Research Fellow, BIO5 Institute

All viruses hijack host cell machinery to facilitate their replication. Producing infectious viral progeny relies on host cell metabolic pathways to provide energy and building blocks such as nucleotides, amino acids, and lipids. I am interested in investigating the molecular remodeling of cellular metabolic and lipid environments by viruses. The overall goal of my research in dissecting the complex virus-host metabolism interactions is to guide the development of novel antiviral therapies.

Xi Y, Harwood S, Wise L, Purdy JG (2019). Human Cytomegalovirus pUL37x1 is Important to Remodeling of Hose Lipid Metabolism. nucleating retroviral capsid maturation. Journal of Virology. PMID: 31391267

Passalacqua KD, Purdy JG, Wobus CE (2019). The inert meets the living: The expanding view of metabolic alterations during viral pathogenesis. PLOS Pathogens, 15(7): e1007830. PMID: 31344128



Magdalene So, PhD

University of Arizona - Tucson

Director, Microbial Pathogenesis Program
Professor, Immunobiology
Professor, BIO5 Institute
Professor, Biochemistry/Molecular Biophysics
Professor, Animal and Comparative Biomedical Sciences
Professor, Genetics - GIDP
Professor, Molecular and Cellular Biology

The majority of pathogens enter the body via the mucosal surfaces. We are interested in how bacteria overcome defenses at this barrier. In particular, we study two closely related pathogens, Neisseria gonorrhoeae and Neisseria meningitidis. Our goals are to understand how the neisserial type IV pilus (Tfp) functions in infection, and to identify other determinants that promote attachment, invasion, and intracellular survival. We have also developed a research program on commensal species of Neisseria. In particular, we are interested in the role of the ubiquitous type IV pilus in commensal-host interactions. Our studies use a combination of experimental approaches, including genomics, cell signaling and trafficking, biophysics and high-resolution microscopy.

Rhodes K, Mancheong M, So, M. Y. (2019). A Natural Mouse Model for Neisseria Persistent Colonization. Neisseria gonorrhoeae. Methods in Molecular Biology, vol 1997. Humana, New York, NY

Powell DA, Ma M, So M, Frelinger JA. (2018). The commensal Neisseria musculi Modulates Host Innate Immunity to Promote Oral Colonization. Immunohorizons, 2018 Oct 31: 2(9): 305-313.

Gayatri Vedantam, PhD

University of Arizona – Tucson

Professor, Animal and Comparative Biomedical Sciences
Professor, BIO5 Institute
Professor, Immunobiology

The goal of research in the Vedantam lab is to investigate the mechanism(s) of gut colonization by the diarrheic disease pathogen Clostridium difficile. Research is focused on the molecular characterization of non-toxin virulence factors of C. difficile and is aimed at designing interventions to combat as well as prevent C. difficile infection (CDI). A long-term goal of Dr. Vedantam's work is to develop safe and cost-effective non-antibiotic interventions to prevent and treat intestinal infections; one product (jointly protected via a collaborative VA and UA patent process) is currently completing pre-clinical studies.

Maseda D, Zackular JP, Trindade B, Kirk L, Roxas JL, Rogers LM, Washington MK, Du L, Koyama T, Viswanathan VK, Vedantam G, Schloss PD, Crofford LJ, Skaar EP, Aronoff DM. Nonsteroidal Anti-inflammatory Drugs Alter the Microbiota and Exacerbate Clostridium difficile Colitis while Dysregulating the Inflammatory Response. MBio (American Society for Microbiology) 2019 Jan 8;10(1). pii: e02282-18. doi: 10.1128/mBio.02282-18.

Vedantam G, Kochanowsky J, Lindsey J, Mallozzi M, Roxas JL, Adamson C, Anwar F, Clark A, Claus-Walker R, Mansoor A, McQuade R, Monasky RC, Ramamurthy S, Roxas B, Viswanathan VK. An Engineered Synthetic Biologic Protects against Clostridium difficile Infection. Frontiers in Microbiology. 2018 Sep 5; 9:2080. doi: 10.3389/fmicb.2018.02080. eCollection 2018. PMID: 30233548

V.K. Viswanathan, PhD

University of Arizona – Tucson

Associate Professor, Animal and Comparative Biomedical Sciences
Associate Professor, BIO5 Institute

The Viswanathan laboratory is interested in the interactions between pathogenic bacteria and host cells. Specifically, the study of mechanisms by which enterohemorrhagic Escherichia coli and related bacteria cause disease. Recent studies have focused on the mechanisms by which these pathogens manipulate the survival of host cells. On a broader level, Viswanathan is interested in understanding how these pathogens are disseminated in the environment, and to eventually seek methods to control their spread.

Maseda D, Zackular JP, Trindade B, Kirk L, Roxas JL, Rogers LM, Washington MK, Du L, Koyama T, Viswanathan VK, Vedantam G, Schloss PD, Crofford LJ, Skaar EP, Aronoff DM. **Nonsteroidal Anti-inflammatory Drugs Alter the Microbiota and Exacerbate Clostridium difficile Colitis while Dysregulating the Inflammatory Response.** MBio (American Society for Microbiology) 2019 Jan 8;10(1). pii: e02282-18. doi: 10.1128/mBio.02282-18.

Chu, M., Mallozzi, M. J., Roxas, B. P., Bertolo, L., Monteiro, M. A., Agellon, A., Viswanathan, V. K., & Vedantam, G. (2016). A Clostridium difficile Cell Wall Glycopolymer Locus Influences Bacterial Shape, Polysaccharide Production and Virulence. PLoS pathogens, 12(10), e1005946.

Wilbur, J. S., Byrd, W., Ramamurthy, S., Ledvina, H., Khirfan, K., Riggs, M., Boedeker, E., Vedantam, G., & Viswanathan, V. K. (2015). The secreted effector protein EspZ is essential for virulence of rabbit enteropathogenic Escherichia coli. Infection and immunity.

Michael Worobey, PhD

University of Arizona – Tucson

Department Head, Ecology and Evolutionary Biology
Associate Director, Microbiome
Professor, Ecology and Evolutionary Biology
Professor, BIO5 Institute
Professor, Genetics - GIDP

Michael Worobey uses an evolutionary approach to understand the origins, emergence and control of pathogens, in particular RNA viruses and retroviruses such as HIV and influenza virus. He integrates fieldwork; theory and methodology; molecular biology; and (especially) molecular evolutionary analysis of gene sequences in a phylogenetic framework.

Current wet-lab projects in Dr. Worobey's Biosafety Level 3 facility involve recovery of damaged and/or ancient DNA from a variety of sources including paraffin-embedded human tissue specimens, blood smears, and museum specimens. The two main efforts are: 1) reconstructing the emergence of HIV-1 group M in central Africa and North America using fossil HIV-1 sequences, and 2) investigating the evolution of AIDS-related viruses in wild-living African primates using non-invasively-collected samples.

Worobey M, Cox J, Gill D, The origins of the great pandemic. 2019. Evolution, Medicine, and Public Health, Volume 2019, Issue 1, pages 18-25.

Han GZ, Worobey M. Endogenous lentiviral elements in the genomes of the Mustelidae. 2012. Molecular Biology and Evolution 29: 2905-2908.