Mentor/Research Opportunities
Division of Infectious Diseases
Infectious Diseases Fellowship Program
My research is focused on understanding the immunopathogenesis of HIV infection. I have been involved in clinical trials of a variety of immune therapies for HIV infection since 1994. I have also pursued laboratory-based investigations of HIV immunopathogenesis for the past 20 years particularly studies of acute HIV infection, virus tropism, immune reconstitution, cardiovascular disease, and HIV infection in women. I have specific expertise in studies of HIV pathogenesis in lymphoid tissues, where the majority of HIV replication and CD4+ T cell destruction occurs. I currently have R01 bridge funding to investigate the mechanisms underlying HIV’s evasion of cytotoxic T cell responses in lymphoid tissues, and am co-PI of a R01 investigating the impact of exercise on endothelial dysfunction in HIV-infected individuals.

PMID: 28082992

PMID: 27716848
Anita Kohli, MD, MS  
*St. Joseph’s Hospital and Medical Center, Phoenix*

Clinical and laboratory based studies of hepatitis B and C.

Dr. Kohli is an infectious disease specialist in the Center for Liver and Hepatobiliary Disease at St. Joseph’s Hospital and Medical Center. Dr. Kohli is board certified in internal medicine and infectious disease.

Dr. Kohli's expertise includes clinical and translational research in hepatitis C and B, liver diseases and HIV. She has been the lead/Principal Investigator of numerous studies involving treatments and therapies in HCV and HBV infected patients. She has published over twenty articles and multiple abstracts in peer-reviewed journals. Dr. Kohli has won several awards including the European Association for the Study of the Liver (EASL) Young Investigators Travel Award, the UVa Clinical Investigator Tract Award and the Pfizer-CGH Scholar Awards in Infectious Disease, among others.


Michael Worobey, PhD
Chair, Department Chair, Ecology and Evolutionary Biology, U of AZ

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.


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).


V.K. Viswanathan, PhD
College of Agriculture and Life Sciences, School of Animal and Biomedical Comparative Sciences, U of AZ

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.


Heidi E. Brown, PhD, MPH
Epidemiology and Biostatistics, School of Public Health, U of AZ

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.


John Ehiri, PhD
Chair, Health Promotion Sciences Department, School of Public Health, U of AZ

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.


Kacey Ernst  
*Epidemiology and Biostatistics, School of Public Health, U of AZ*

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.


Eyal Oren, PhD  
Epidemiology and Biostatistics, School of Public Health, U of AZ

Dr. Oren is an epidemiologist interested in infectious disease, with an emphasis on respiratory health. He is interested in multidisciplinary, community-engaged approaches to addressing population health disparities and collaborative work that is innovative and emphasizes new tools and technologies. Methodologically, his focus is on the intersection between social, environmental, and spatial epidemiologic methods, and their application to both health differences and disparities.


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.


Norovirus Outbreak at a Ski Resort in Arizona. Epidemiology: Open Access, 6(244).
doi:10.4172/2161-1165.1000244
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.


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.


Michael Kuhns  
*Department of Immunobiology, U of AZ*

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.


Toxoplasma gondii is an intracellular parasite that is found worldwide 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.


Magdalene So, PhD
Department of Immunobiology, U of AZ

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.


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.


John Galgiani, MD
Director, Valley Fever Center for Excellence

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 currently funded by the NIH.
