Emerging Infectious Diseases Fellowship Program

Wadsworth Center
New York State Department of Health
Albany, New York
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Overview

Training is provided within the Division of Infectious Disease.

- A broad range of scientific expertise is offered to the Fellows. Fellows can learn state-of-the-art diagnostic microbiology; participate in protocol development and research in bacteriology, virology, parasitology, mycology and immunology. The Fellow will gain experience in a given laboratory to learn how to perform specific diagnostic tests within the framework of the laboratory day-to-day operation and within the framework of special programs managed by the laboratory.

- The Fellow will interact with scientists from the Division of Epidemiology and may participate in field epidemiologic studies of outbreaks as they arise and may gain experience in the integration of laboratory test results with epidemiologic surveillance data.

Training Schedule
The Fellow will go through the following steps:

- **Orientation**: The Fellow initially visits many DID laboratories and visits with staff of the Division of Epidemiology.

- **Rotation**: He/she will then rotate among two to four laboratories for a period of three to four months. Subsequently, an individualized program will be designed to accommodate the needs of the Fellow.

- **Individualized Program**: The Fellow may opt to focus on a single project with one mentor in a basic or applied research project in the mentor’s field. The extent and level of the research will be determined between the mentor and the Fellow. Alternatively, he/she may opt to rotate through 2 to 4 laboratories for an in-depth rotation for the remainder of the Fellowship.

Fellowship Term
The Fellowship is 1 year for post baccalaureates and 2 years for postdoctoral fellows.

Information on the APHL/CDC Program can be obtained at the APHL Website:

http://www.aphl.org/training_and_fellowships/fellowships/
The Wadsworth Center of the New York State Department of Health (NYSDOH) offers an Emerging Infectious Disease (EID) Fellowship Program in public health related laboratory training at the post-baccalaureate (BS, MS, MPH) and postdoctoral (PhD, MD, DVM) levels. In addition, the Wadsworth Center is a host laboratory for the EID Fellowship Program sponsored by the Association of Public Health Laboratories (APHL) and the Centers for Disease Control and Prevention (CDC).

**AIM:** The aim of the EID Fellowship training Program at the Wadsworth Center is to prepare laboratory scientists for diagnostic, investigative, and leadership careers in public health.

**Expected Outcome:** Upon completing the program it is expected that the Post-doctoral Training Fellow will have:

- A general understanding of new areas of biomedical and public health sciences.
- Experience in state-of-the-art laboratory techniques.
- Greater ability to improve existing techniques and develop new algorithms.
- The ability to interpret fundamental epidemiologic measures and assess levels of disease exposure.
- The ability to apply the rigor of the biomedical sciences to current problems of public health and issues of biological, biochemical and genetic importance.
- Independent capabilities appropriate to a leadership role in academic and public health arenas.
- Ability to establish an independent research program to further our understanding of clinical and basic sciences, and the ability to obtain funding to support future research.

**Expected Outcome:** Upon completing the program it is expected that the Post-baccalaureate Training Fellow will have developed:

- Significant expertise in new test modalities.
- An understanding of diagnostic laboratory management.
- The ability to evaluate newly introduced commercial tests.
- A working knowledge of quality assurance/quality control principles.
- Broad-based multidisciplinary biomedical expertise in diagnostics and basic sciences.
- The ability to use the training in further post-baccalaureate education in either clinical or basic research settings and implement molecular techniques in these settings.
- A comprehensive understanding of his/her area of specialty and the background and experience required for carrying out independent research.
Areas of Training in the Division of Infectious Disease

Diagnostics/Surveillance
- Bacterial Diseases
- Sexually Transmitted Infections
- Parasitic Diseases
- Fungal Diseases
- Zoonotic Vectors
- Virus Isolation and Genetic Fingerprinting
- HIV
- Bioterrorism
- Molecular-Based Diagnostics
- Emerging Infections Program
- Surveillance and Epidemiology of Infectious Diseases
- Immunoserology of Human Infections
- Tuberculosis
- Diagnostic Rabies
- Hepatitis
- Genotyping
- QA/QC

Research & Development
- Bacterial Genetics/Bioterrorism
- Molecular-Based Diagnostics
- Immunologic-Based Diagnostics

Therapeutics
- Antiparasitic Drug
- Drug Resistance in TB
- Drug Resistance in HIV

Basic Research
- Human Cytomegalovirus
- Molecular Biology of Mobile DNA Elements
- Molecular Genetics of Pathogenic Fungi
- Molecular Biology of Coronaviruses
- Flavivirus Replication
Areas of Training in the Division of Infectious Disease

**Immunopathogenesis**
- Viral Pathogenesis/Arbovirus Infection
- HIV Research
- Fungal Pathogenesis
- Molecular Basis of Arbovirus Pathogenesis
- Viral Infection/Tissue Injury and Disease
- Murine Model for Human Monocytic Ehrlichiosis
- TB infection

**Immunology & Vector-host Interactions**
- Molecular Neuroimmunology and Immunotoxicology
- Lymphocyte Activation and Immunologic Memory
- Virus-Vector-Vertebrate Host Interactions
Campuses and Facilities

Training is undertaken within three major entities of the New York State Department of Health (NYSDOH) located in Albany, New York:

Wadsworth Center, Division of Infectious Diseases
Center for Community Health, Division of Epidemiology
University at Albany, School of Public Health

The Wadsworth Center is the most comprehensive state public health laboratory in the nation. The Wadsworth Center consists of 1100 positions and it receives $27 million in extramural grants and contracts from Federal Agencies and from private foundations. Its public health mission encompasses basic and applied research in the biomedical and environmental fields, clinical and environmental testing, and quality assurance. The Center responds to public health threats, and develops and applies the most up-to-date technologies and methods to ensure rapid, accurate detection of disease with a minimum turnaround time.

In addition, education is an important mission of the Wadsworth Center; which supports two academic departments of the University at Albany School of Public Health—Departments of Biomedical Sciences and of Environmental Health and Toxicology. A rich mix of intramural presentations in clinical and basic science provide Fellows with opportunities to gain up-to-date information and concepts. Fellows are encouraged to participate in these seminars, especially the monthly seminar presented jointly by the Division of Infectious Diseases and the Division of Epidemiology. Additional seminar programs host external speakers to the Center each week throughout the year.

Wadsworth Center, Division of Infectious Diseases encompasses the David Axelrod Institute, the Griffin Laboratory, and The Center for Medical Sciences.

http://www.wadsworth.org
**Center for Community Health, The Division of Epidemiology** is comprised of a Statistical Unit and four bureaus: Bureaus of Sexually Transmitted Disease Control, Tuberculosis Control, HIV/AIDS Epidemiology, and Communicable Disease Control. The Bureau of Communicable Disease Control consists of a variety of large, high-profile programs including Immunization, Arthropod-borne Disease Control, Zoonoses, Regional Epidemiology, Infection Control, Emerging Infections and the Emerging Response Unit. The Division includes 300 staff positions and it receives $39 million in extramural grants and contracts from Federal Agencies for communicable disease surveillance and control. The mission of the Division of Epidemiology is to protect the health of all New Yorkers by providing leadership in the development and application of scientifically sound principles of epidemiology and disease prevention and control.  
[http://www.health.state.ny.us](http://www.health.state.ny.us)

**University at Albany, School of Public Health**, established in 1985, was created as a joint venture between the New York State Department of Health and the University at Albany, State University of New York. Formally accredited by the Council on Education for Public Health, the School of Public Health offers four academic departments, with M.P.H., M.S., Dr.P.H., and Ph.D. degrees, in the basic disciplines that constitute public health: Biomedical Sciences, Environmental Health Sciences, Epidemiology and Biostatistics, and Health Policy, Management and Behavior.  
[http://www.albany.edu/sph](http://www.albany.edu/sph)

![Uptown Campus, Albany, NY](image1)

![East Campus, Health Sciences and Cancer Research, Rensselaer, NY](image2)

![The Biggs Laboratory and the Division of Epidemiology, at Empire State Plaza Albany, NY](image3)
## Wadsworth Center Research Faculty and Staff

### Wadsworth Center Director’s Office

<table>
<thead>
<tr>
<th>Position</th>
<th>Interests</th>
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<tbody>
<tr>
<td>Lawrence S. Sturman, MD, PhD</td>
<td>Director</td>
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<tr>
<td>Jill Taylor, PhD</td>
<td>Deputy Director</td>
</tr>
<tr>
<td>Victoria Derbyshire, PhD</td>
<td>Assistant Director</td>
</tr>
<tr>
<td>April Burch, PhD</td>
<td>Virus Assembly and Host Pathogen Interface Laboratory</td>
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<tr>
<td></td>
<td>Herpes Simplex Virus type-1 and viral processes dependent on stress activated chaperones</td>
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<tr>
<td>Keith Derbyshire, PhD</td>
<td>Chief, Mycobacterial Disease Laboratory</td>
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<td>DNA rearrangements and recombination in mycobacteria</td>
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<tr>
<td>Christina Egan, PhD</td>
<td>Director, Biodefense Laboratory</td>
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<td>Molecular diagnostics for agents of bioterrorism</td>
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<tr>
<td>Vincent Escuyer, PhD</td>
<td>Mycobacteriology Laboratory</td>
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<tr>
<td></td>
<td>Testing for the rapid identification and characterization of <em>M. tuberculosis</em>.</td>
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<tr>
<td>Cassandra Kelly-Cirino, PhD</td>
<td>Deputy Director, Biodefense Laboratory</td>
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<td></td>
<td>Defining the correlates of immunity for the anthrax toxins using B-cell linear peptide arrays.</td>
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<tr>
<td>Jeff Kennedy, M.D.</td>
<td>Human Immunity Laboratory</td>
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<td>Memory T Cells role in response to viral infections and vaccines</td>
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<tr>
<td>Laura Kramer, PhD</td>
<td>Director, Arbovirus Laboratory</td>
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<tr>
<td></td>
<td>Epidemiology, ecology, biology of vector-borne diseases; viral evolution</td>
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## Wadsworth Center Research Faculty and Staff

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<thead>
<tr>
<th>Name</th>
<th>Title and Laboratory/Position</th>
<th>Focus Area</th>
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<tbody>
<tr>
<td>William Lee, PhD</td>
<td>Research Scientist, Clinical and Experimental Endocrinology and Immunology Laboratory</td>
<td>Immunologic memory and impact self-tolerance/autoimmunity and aging</td>
</tr>
<tr>
<td>Ron Limberger, PhD</td>
<td>Director, Division of Infectious Disease</td>
<td>Basic molecular research on spirochete bacteria</td>
</tr>
<tr>
<td>Susan Madison-Antenucci, PhD</td>
<td>Parasitology Laboratory</td>
<td>Pathogenisis of Trypanosoma brucei and how post-transcriptional RNA editing underlies its success</td>
</tr>
<tr>
<td>Nick Mantis, PhD</td>
<td>Mucosal Immunity Laboratory</td>
<td>Secretory IgA class of antibody in mucosal secretions; protection of the gastrointestinal epithelium from toxins and pathogens</td>
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<tr>
<td>Kathleen McDonough, PhD</td>
<td>Research Scientist, Bacterial Pathogenesis Laboratory</td>
<td>Pathogenesis of tuberculosis and plague</td>
</tr>
<tr>
<td>Kimberlee Musser, PhD</td>
<td>Director, Bacteriology Laboratory</td>
<td>Molecular diagnostics for bacterial organisms of clinical significance</td>
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<tr>
<td>Monica Parker, PhD</td>
<td>Chief, Blood Borne Diseases</td>
<td>Prevalence and analysis of drug resistance in HIV and HCV</td>
</tr>
<tr>
<td>Name</td>
<td>Position</td>
<td>Research Focus</td>
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<tr>
<td>Robert Rudd, MS</td>
<td>Director, Rabies Diagnostic and Research Laboratory</td>
<td>Diagnostics, epidemiology and pathogenesis of bat rabies</td>
</tr>
<tr>
<td>Kirsten St. George, PhD</td>
<td>Director, Viral Diseases</td>
<td>Virology cell culture and molecular based testing for a range of viral pathogens like influenza</td>
</tr>
<tr>
<td>Joseph Wade, PhD</td>
<td>Research Scientist, Microbial Gene Expression Laboratory</td>
<td>Regulation of bacterial gene expression</td>
</tr>
<tr>
<td>Barbara Weiser, MD</td>
<td>Co-Director, HIV Research Laboratory</td>
<td>Viral and molecular determinants of HIV pathogenesis</td>
</tr>
<tr>
<td>David Wentworth, PhD</td>
<td>Research Scientist, Influenza Virus Laboratory</td>
<td>Molecular biology of influenza and coronavirus</td>
</tr>
<tr>
<td>Gary Winslow, PhD</td>
<td>Research Scientist, Clinical and Experimental Endocrinology and Immunology Laboratory</td>
<td>Host defense during intracellular bacterial infections</td>
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<tr>
<td>Bill Wolfgang, PhD</td>
<td>Research Scientist, Bacteriology Laboratory</td>
<td>Characterization and naming of new bacterial species</td>
</tr>
<tr>
<td>Susan Wong, PhD</td>
<td>Director, Diagnostic Immunology Laboratory</td>
<td>Development of diagnostic tests for tick-borne diseases</td>
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# Division of Epidemiology

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<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Specialization</th>
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<tbody>
<tr>
<td>Dale Morse, MD, MS</td>
<td>Assistant Commissioner, Office of Science, NYSDOH</td>
<td>Epidemiology of TB, AIDS, STD and foodborne diseases Divison of Infectious Disease</td>
</tr>
<tr>
<td>Gus Birkhead, MD, PhD</td>
<td>Deputy Commissioner, Office of Public Health</td>
<td>HIV/AIDS emerging infections and AIDS institute</td>
</tr>
<tr>
<td>Bruce Coles, DO</td>
<td>Director, Bureau of STD Control</td>
<td>Congenital syphilis, HIV seroprevalence and Chlamydia infection</td>
</tr>
<tr>
<td>Millicent Eidson, DVM</td>
<td>Director, Applied Epidemiology Partnership</td>
<td>Epidemiology of the Zoonotic Diseases</td>
</tr>
<tr>
<td>Margaret Oxtoby, MD</td>
<td>Director, Bureau of TB Control</td>
<td>TB epidemiology and control activities</td>
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<tr>
<td>Perry Smith, MD</td>
<td>Director, Division of Epidemiology</td>
<td>NYSDOH infectious disease control activities</td>
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<tr>
<td>Kimberly Noyes, MD,</td>
<td>Director, Bureau of Communicable Disease Control</td>
<td>General infectious disease activities</td>
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Brian Saunders

CDC/APHL EID Training Fellow 1995-1997

Brian spent his rotation time studying methodologies for isolating and identification of foodborne pathogens, concentrating on enrichment and culturing. The bacteriology laboratory techniques Brian studied and helped develop are currently used by the in the investigation of foodborne outbreaks. Brian concentrated on *Yersinia enterocolitica*, *Campylobacter*, *Salmonella*, *E. coli* 0157:H7, and *Clostridium perfringens*. Following his fellowship, Brian accepted a position in the Bacteriology Laboratory as part of the EIP Program. Following this he was accepted into the Microbiology Program at Cornell University where he completed his PhD thesis project focused on *Listeria monocytogenes*. Brian is currently a Senior Food Bacteriologist at the New York State Department of Agriculture and Markets.

Catherine Corey Monserrat

CDC/APHL EID Training Fellow 1996-1998

Catherine started her rotations addressing the question of how best to ascertain antimicrobial susceptibility of organisms that require special conditions for susceptibility testing. During her second rotation, Catherine concentrated on studying the pathogenesis of *Mycobacterium tuberculosis* infection by non-specific mutagenesis to identify virulence genes and the use of electron microscopy to study tubercle-host adhesion. In her final rotation, Catherine studied in the diagnostic immunology lab for tick-borne diseases. Catherine focused additional time after her rotations on a project detecting active transposition of the repeated sequence IS100 in *Yersinia pestis*. Following her fellowship, Catherine accepted a position in the Viral Pathogenesis Laboratory at the University of New Mexico.

Cynthia Carlyn, MD

CDC/APHL EID Research Fellow 1997-1999

Dr. Carlyn worked on a wide diversity of projects. She helped to analyze an antimicrobial susceptibility survey of New York State laboratories and she investigated a *Serratia marcescens* outbreak in a newborn nursery. Dr. Carlyn also worked in the Fast Track Tuberculosis program to determine the frequency of false positive acid-fast bacilli (AFB) smears in actual TB cases in New York State. In addition, Dr. Carlyn examined and reported the number of cases caused by *Mycobacterium bovis/BCG* in New York State in order to emphasize the importance of full speciation of organisms reported as, “TB Complex” and she also contributed to the diagnostic testing and sampling in a large outbreak of *Mycoplasma* in NYS. Dr. Carlyn is currently an Infectious Diseases physician working in the Albany Veterans Affairs Hospital system.
Molly K. Kelly, MS  
CDC/APHL EID Training Fellow 1998-2000

Molly gained advanced laboratory training through rotations in Clinical Bacteriology, Virology, Mycology and Mycobacteriology Laboratories. During her time as a fellow, Molly had the opportunity to participate in food-related and nosocomial outbreaks in both the field and in the laboratory. She also participated in various projects in Bacteriology, including a project to compare methods for the rapid detection of toxigenic strains of *Corynebacterium diphtheriae*. In addition, Molly received Biosafety Level 3 (BSL3) training and participated in testing specimens for *Bacillus anthracis* in the fall of 2001. Upon completion of her fellowship, Molly accepted a position as a permanent member of the Biodefense Laboratory at Wadsworth Center and the supervisor of the BSL3 facility. In 2004 Molly left the Wadsworth Center to pursue further educational goals in microbiology.

Kimberlee A. Musser, PhD  
CDC/APHL EID Research Fellow 1998-2000

Kim rotated through the Laboratories of Molecular Bacteriology, Clinical Virology, and Viral Encephalitis before completing the remainder of her fellowship in Molecular Bacteriology. During these rotations, Kim participated in the development new PCR-based assays for vancomycin-resistance genes in *Enterococcus*, *Legionella*, and *Bacillus anthracis*. She additionally was trained in biosafety-level 3 practices and bioterrorism preparedness. At the completion of her fellowship she accepted a position as part of the Bioterrorism Response Team at the Wadsworth Center and then in 2002 she accepted a position as the Associate Director of the Molecular Bacteriology Laboratory and in 2007 she became the Director of the Bacteriology Laboratory. She is also an Assistant Professor at the School of Public Health, SUNY Albany.

April Davis, MS  
CDC/APHL EID Training Fellow 1999-2001

April concentrated her rotations in labs studying viruses. She helped to develop PCR and other molecular assays to detect St. Louis Encephalitis, Eastern Equine Encephalitis, and West Nile Virus. April also spent a rotation in epidemiology studying the prevention of zoonotic diseases by vector control. April concentrated much of her fellowship in the Rabies Laboratory where she determined antigenic variants of bat Rabies virus using monoclonal antibodies. Additionally, she implemented PCR technology to analyze variation in sequences of the Silver Hair Bat Variant (SHBV) of Rabies. April attended the University of Colorado Health Sciences University and completed a combined DVM/PhD. She is continuing her Rabies work in her doctoral studies and she continues to collaborate with the Wadsworth Center Rabies Laboratory.
Christina Egan, PhD

WC/NYSDOH EID Research Fellow, 1999-2001

Christina chose to focus her fellowship training in the Laboratory of Clinical Bacteriology. In this laboratory she worked on many projects including the detection of drug-resistant *Salmonella typhimurium* in New York State, the molecular examination of drug-resistant *Acinetobacter baumannii* for mutations linked to quinolone resistance, the development of broad range target PCR assays for the identification of bacterial organisms and the development of novel methods for the identification of genes involved drug resistance. At the completion of her fellowship, Christina accepted a position as part of the Bioterrorism Response Team at the Wadsworth Center during which time she received training in BSL 3 practices and testing of select agents. She is presently the Director of the Biodefense Laboratory where she is focusing on rapid detection methodologies for the identification of select agents.

Hanna Bin, MD

CDC/APHL EID International Fellow 2000-2001

Dr. Bin began her rotation in the clinical virology laboratory where she initially concentrated on her efforts on studying methods of virus isolation from a multitude of specimen preparations. She continued her work in clinical virology by learning various immunological and chemically based assay for typing of clinical viral isolates. Her research projects included the development of a molecular identification assays. Dr. Bin then went onto to do rotations in the Arbovirus and Encephalitis Laboratories where she collaborated with colleagues in Israel to develop RT-PCR protocols for flavivirus (West Nile Virus) in mosquito pools and bird specimens collected in Israel. Finally, she learned RT-PCR sequencing for alphavirus. Dr. Bin is now the Chief of the Arbovirus Laboratory at the Chaim Sheba Medical Center in Israel.

Stefani A. Sesler

CDC/APHL EID Training Fellow 2000-2001

Stefani used her time as a fellow to receive exposure to a wide area of infectious disease research. Stefani rotated through Epidemiology and the Arbovirus, Molecular Development and Clinical Bacteriology Laboratories. Stefani initially worked with epidemiologists conducting West Nile Virus serosurvey for New York City residents during the 2001 outbreak. She then had the opportunity to work on the development a PCR assay for *Staphylococcus aureus* enterotoxin B as well as a procedure to extract *E. coli* non-O157 Shiga toxin from samples with bacterial contamination. She additionally worked on a protocol for the extraction of *Legionella* from water samples. After her fellowship, Stefani was accepted to Johns Hopkins University to study for her MPH in Infectious Diseases. She also spent time in Sierra Leone, West Africa as part of an international team focusing on malaria control. She is now employed as a County Epidemiologist in Ohio.
Jodie Bayerl
WC/NYSDOH EID Training Fellow, 2001-2002

Jodie spent her fellowship primarily in the Rabies Laboratory, with a concurrent rotation in the Arbovirus Laboratory, and a month in Epidemiology-zoonoses. During these rotations she learned direct fluorescent antibody testing, cell culture, necropsy, cryostat sectioning of tissues, serum neutralization test, virus isolation, and MapInfo software. Her main projects were working on eliminating non-specific staining problems in the Rabies DFA and a study of natural West Nile infection in bats. At the completion of her fellowship, Jodie accepted a position in the Biodefense Laboratory at the Wadsworth Center.

Patricia Blevins, MPH
CDC/APHL EID Training Fellow 2001-2002

Tricia spent part of her fellowship rotating through several laboratories including Pediatric HIV, Clinical Bacteriology, Molecular Bacteriology, Bioterrorism Response, and Epidemiology-zoonoses. During these rotations she learned bacterial culture, gram stain, biochemical analysis, enteric bacteriology, pulsed-field gel electrophoresis, and real-time PCR. She also became trained in biosafety-level 3 practices including the processing of environmental specimens. Her main projects included improving protocols for the processing of anthrax samples by direct fluorescent antibody (DFA) detection and the development of a real-time PCR assay for Francisella tularensis. At the completion of her fellowship, Tricia accepted a position as part of the Biodefense Laboratory at the Wadsworth Center and then in February of 2004 she accepted a position at APHL as the EID Program Manager.

David Kleiner, MS
WC/NYSDOH EID Training Fellow, 2001-2003

David opted to spend his fellowship in an intense project examining Hepatitis C Virus (HCV). To begin, David helped to develop a sequencing assay that is used to genotype HCV based on sequencing a portion of the HCV genome and then he used a bioinformatics approach to compare the sequence to known genotype sequencing. In addition, David helped to write a grant that was funded by NIH. The purpose of this grant is to investigate mutations in specific areas of the gene and to determine if these mutations correlate with disease progression, perhaps someday to be used as a clinical prognostic tool. David attended the PhD program at SUNY-Albany’s School of Public Health in the Department of Biomedical Sciences.
Michael Lo

**WC/NYSDOH EID Training Fellow, 2001-2003**

Michael rotated through the Viral Encephalitis Laboratory and the West Nile Virus Replication Laboratory during his fellowship experience. He chose to spend the majority of his fellowship time in the latter focusing on basic science research projects. His accomplishments included the construction and characterization of subgenomic replicons of West Nile Virus and the development of an infectious cDNA clone of the West Nile Virus. Michael is currently at Emory University in their Immunology/molecular pathogenesis program working on his PhD. He hopes to be able to do both molecular virology as well as pathogenesis work for his thesis on an RNA virus.

Katherine Eisenberg

**WC/NYSDOH EID Training Fellow, 2002-2003**

During her fellowship, Kate chose to rotate through the Rabies Laboratory, the arthropod-borne disease Epidemiology Program, and the Vector Biology and Population Genetics Laboratory where she chose to finish her fellowship. Kate learned many laboratory techniques including gene sequencing, PCR primer design, Rabies testing, tissue culture inoculation as well many techniques to analyze genetic data including Nested Clade Analysis and phylogenetic tree-building methods. She focused her work on the genetics of an African malaria vector mosquito. Kate is currently enrolled in the MD/PhD Program at the University of Rochester where she plans to do her thesis research on epidemiology with a focus on infectious diseases.

Lavin Joseph

**WC/NYSDOH EID Training Fellow, 2002-2003**

Lavin coordinated and executed the Retail Food Study for New York State in Collaboration with the CDC and the Food and Drug Administration/Center for Veterinary Medicine. The purpose of this project was to isolate and identify *Salmonella* serovars and *Campylobacter* species from commercially available food products (i.e. off the shelf). In addition to the Food Retain Study, Lavin assisted in with the validation and fine tuning of protocols for the detection of Listeria monocytogenes using Taqman Real-Time PCR. This project tied into Lavin’s Retain Food Study because the protocol was then used to develop a DNA extraction protocol in food and clinical sample for *L. monocytogenes*. 
Alumni

Michael LaGier, PhD  CDC/APHL EID Research Fellow 2002-2003

Mike’s research and training experiences have been primarily focused upon the development of molecular based assays designed for the detection of infectious agents and their cellular products (e.g., biotoxins) from clinical and environmental samples using real-time PCR technologies and microsphere-based immunoassay platforms. In addition, Mike had the opportunity to conduct applied research on an important emerging infectious virus (West Nile Virus); as well as receive training in clinical microbiology diagnostic methods and in the handling and manipulation of select biological agents.

Kimberly O’Neil  WC/NYSDOH EID Training Fellow, 2002-2004

Kim spent the first three months of her fellowship rotating through the Mycology and Molecular Bacteriology laboratories before completing her long-range project in the Arbovirus Laboratory. During her fellowship, she learned fungal identification, standard PCR, real-time PCR, pulsed-field gel electrophoresis, cell culture, molecular biology, and viral isolation. She also became trained in animal facility bio-safety level 3 practices as part of her final rotation. Her main project was to detect viral shedding from West Nile virus infected mice to see if this would lead to mouse-to-mouse transmission. She had the opportunity to present this research at two conferences and prepared the manuscript for submission when her fellowship ended in March 2004.

Wendy Radlich  CDC/APHL EID Training Fellow 2002-2003

Wendy spent the early part of her fellowship rotating through the Bureau of Sexually Transmitted Disease Control, the Rabies Laboratory, and the Biodefense Laboratory before deciding to spend the rest of her fellowship in the Rabies Laboratory. During her fellowship she worked on projects including categorizing the Epidemiology Bioterrorism Call Center data, PCR and 16S sequencing of environmental samples from the anthrax events of 2001, and analysis of the brain stem and cerebellum from rabies-positive large animals to determine proper sampling methodology. Following her fellowship experience, Wendy was accepted at the State University of New York at Buffalo where she completed an MPH degree in Epidemiology. She now works at the NYS DOH in Albany.
Jessica Thomas, MPH  
**WC/NYSDOH EID Training Fellow, 2002-2003**
Jessica’s fellowship included rotations through the Clinical Mycobacteriology Laboratory, the Influenza Laboratory, and the West Nile Virus Replication Laboratory. She learned such laboratory techniques as RFLP design and analysis, real-time PCR, primer and probe design, BSL 3 practice, and general viral isolation and detection including procedures for influenza. Her main projects focused on influenza virus detection. Jessica is currently enrolled in the MD/PhD program at Louisiana State University Health Sciences Center in New Orleans, LA where she hopes to do her thesis work in the field of virology.

Gina Conenello  
**WC/NYSDOH EID Training Fellow, 2003-2004**
Gina spent the first part of her fellowship in the Bacteriology Laboratory learning how to conduct the Retail Food Study in conjunction with the CDC and the FDA. This first rotation in Bacteriology additionally allowed her to rotate through several labs including, Enterics, General Bacteriology and Pulse-Field Gel Electrophoresis. She then moved on to work on a small project studying the H5 influenza protein in Influenza Laboratory. The next rotation was in Parasitology where she helped established a malaria culture system for the NYS Department of Health to be used in malaria drug testing. Gina chose to spend her last six months in Influenza Laboratory continuing and expanding on the previous H5 influenza protein project. Gina is now working toward a PhD degree in the department of Microbiology at Mount Sinai School of Medicine in the laboratory of Dr. Peter Palese.

Michelle Crum, PhD  
**CDC/APHL EID Research Fellow 2003-2005**
Since Michelle's interest and background is in virology, she has chosen to spend most of the fellowship in the Arbovirology laboratory at Griffin lab. Her current project is to determine cell tropism of WNV in a mouse model. This project has provided exposure to new techniques as well as BSL3 and animal training. In addition, she has also had the opportunity to attend seminars and teleconferences on an ongoing basis that discuss many aspects of infectious disease. At the culmination of the fellowship, Michelle hopes to continue her work in public health at an administrative level.
Laura Gillim Ross, PhD  
CDC/APHL EID Research Fellow 2003-2005

Laura is currently working in the Division of Infectious Diseases. She is involved in studying the recently emerged virus, SARS-Coronavirus, as well as influenza. She has been involved in conference calls between local, state and federal offices concerning the SARS-CoV outbreak and has been trained in bio-safety level 3 practices. Her main projects involve development of a multiplex RT-PCR assay for detection of SARS-CoV replication, adaptation of the multiplex assay to real-time RT-PCR, identification of human and animal cells permissive to SARS-CoV, evaluation of the tissue tropism and species-specificity of SARS-CoV, and generation of a recombinant influenza virus.

Sara Griesemer  
CDC/APHL EID Training Fellow 2003-2004

Sara spent most of her training fellowship with the Clinical Virology Laboratories working on the newly discovered human metapneumovirus (hMPV). There she developed a molecular real-time assay to detect hMPV in clinical samples while subsequently learning conventional virology techniques associated with viral isolation and identification. During her fellowship, Sara learned real-time PCR, molecular primer and probe design, assay validation and virus amplification methods in a clinical virology laboratory in the process of shifting from its classic diagnostic approach to a faster and more sensitive molecular system for identification. She was also involved in SARS preparedness within the Clinical Virology Laboratory as well as the testing of possible SARS and avian influenza samples, overall receiving general knowledge and awareness of public health policy and infrastructure. She is now a research scientist in the Clinical Virology Laboratory at the Wadsworth Center.

Travis Henry  
CDC/APHL EID Training Fellow 2003-2004

Travis completed the EID fellowship as part of his PhD thesis work in the Pathology and Microbiology Department at the University of Nebraska Medical Center. Travis began and completed his training fellowship in the laboratory of William Lee, PhD. Travis worked with microarrays to investigate changes in CD4 memory T cell gene expression after stimulation with superantigen. Understanding the molecular events leading to development of memory may lead to advances in vaccine administration and development. Travis applied for and accepted a post-doctoral position at the Mayo Clinic in Scottsdale, Arizona.
Stacy Matthews  
WC/NYSDOH EID Training Fellow, 2003-2004

Stacy began her fellowship with rotations through Arbovirology, Clinical Parasitology, Bacteriology and Molecular Development, and Epidemiology of Zoonotic Diseases. She worked on several projects while rotating, including West Nile Virus surveillance, a comparison of methods for extracting bacterial DNA from blood, and a report of cases of rabies in rabbits and guinea pigs in New York. Stacy spent the remainder of her fellowship in Vector Biology, investigating population expansion of malaria-transmitting Anopheles mosquitoes in Brazil and Nigeria. Stacy completed an MPH degree at the SUNY School of Public Health in Albany, NY.

Christopher Patton  
WC/NYSDOH EID Training Fellow, 2003-2004

Chris began his fellowship by rotating through the Parasitology and Bacteriology labs, as well as the Vaccine Preventable Diseases branch of Epidemiology, before ultimately settling in the Biodefense lab for the remainder of his fellowship. He coordinated the resources in both Bacteriology and Epi to investigate an ongoing statewide Bordetella pertussis outbreak, mapping the outbreak via molecular epidemiology through PFGE characterization of isolates. Additionally, he prepared a draft of the Clinical Guidelines for New York’s Pandemic Influenza Response Plan. In Biodefense Chris is focusing his efforts on developing a Bioplex-based assay for ricin toxin and staphylococcal enterotoxin B, with the goal of obtaining rapid, accurate results from a minimum of sample volume. Following his fellowship, Chris was accepted to medical school in San Antonio, Texas, and will pursue a medical career focused upon the diagnosis and treatment of infectious diseases.

Valerie Polletta  
WC/NYSDOH EID Training Fellow, 2003-2004

Valerie began her fellowship with three short rotations through Clinical Bacteriology, Molecular Development, and Parasitology, where she learned both traditional and molecular diagnostic techniques. She then returned to Bacteriology’s Molecular Development laboratory to complete her project on the development of a real-time PCR assay for the detection of E. coli O157:H7. Valerie then chose to conclude her fellowship with two longer rotations through the Clinical Mycobacteriology laboratory and the Immunizations Program of the Epidemiology Division. In addition to learning clinical diagnostic techniques in the Mycobacteriology lab, she studied mechanisms of resistance in Tuberculosis and assisted with the development of a real-time PCR assay for the differentiation of species with in the Mycobacterium complex. During her time in the Immunizations Program, Valerie participated in case studies of outbreaks of pertussis and was involved in the implementation of an immunization program for migrant workers. Valerie is now employed by the New York State Department of Health’s Immunization Program.
Jill Thompson

Jill began her fellowship in Molecular Development where she designed a real-time multiplex PCR assay for the van genes found in vancomycin-resistant *Enterococcus* (VRE). This assay was additionally used to identify the first vancomycin-resistant *Staphylococcus aureus* (VRSA) in New York State. She then rotated through the viral reference lab, gaining experience in cell culture and viral techniques. Jill finally settled down in the Viral Genotyping Lab, where she worked on a heteroduplex assay to look at HCV viral markers involved in disease progression. This fellowship has provided many unique and exciting opportunities and through this experience, Jill hopes to gain a clearer vision of her future and the future of public health. Jill is currently a clinical technologist in Molecular Oncology at Seattle Cancer Care Alliance.

Anh Woodmansee

Anh Woodmansee obtained her PhD in microbiology from the University of Illinois at Urbana-Champaign in 2002. She spent her fellowship working on SARS-CoV in the laboratory of Dr. Paul Masters. Her project involved constructing a SARS-CoV strain in which the normal SARS S protein epitope is replaced by the corresponding murine S gene. The resulting mSARS-CoV strain would be able to infect only murine cells. This will enable researchers to dissect the role of various SARS-CoV genes in a standard laboratory setting without the need for BSL-3 safety procedures.

Rebecca Albright

Becca chose to spend her fellowship in the Arbovirus Laboratory gaining experience in both classical virology and molecular cloning techniques. She learned such techniques as cell culture, plaque assay, flow cytometry, molecular cloning and real time RT-PCR. She has been trained in animal and cell work in a biosafety level three laboratory setting. During her fellowship, Becca’s main research project focused on the cell tropism of West Nile Virus and the packaging of replicon particles in diverse cell types. These experiments are with the aim to further elucidate cell/virus interactions of WNV in vitro and in vivo. Her current research focuses on cloning with the WNV replicon in an effort to expand the applications of the current system to different cell and animal types. Through this fellowship, Becca has had many opportunities to see both the laboratory and academic sides of research, furthering her desire to pursue a career in public health research.
Tachanda Bryant

Tachanda started the first rotation of her fellowship in the Clinical Bacteriology laboratory acquiring all the necessary techniques to conduct the Retail Food Study in collaboration with the CDC and FDA. During her initial rotation in Bacteriology, she rotated through several different departments including Enterics, Pulse-Field Gel Electrophoresis, and General Bacteriology. She chose to conduct a second rotation in Molecular Bacteriology, where she developed a TaqMan Real-Time PCR Assay to detect *Vibrio parahaemolyticus* and *Vibrio alginolyticus* from patient isolates. Tachanda is concluding her fellowship experience in a Microbiology Lab working with Dr. Guangchun Bai, PhD., investigating gene regulation in *Mycobacterium bovis* BCG. She has been accepted in the Cellular and Molecular Biology program at the University of Alabama-Birmingham where she will pursue an MPH degree.

Matthew Donnelly

During my time as a fellow, I chose to rotate only once in a molecular virology laboratory that studies influenza and SARS coronavirus. Presently I am working on a number of projects. We are developing a real time RT-PCR diagnostic assay that is able to detect influenza A virus with pandemic potential from a number of different species. We are also developing a method to amplify the entire Influenza genome in one multiplex RT-PCR reaction. Using this multiplex PCR assay, we are currently studying virulence determinants in virulent and avirulent strains of H5 avian influenza as well as zoonotically transmitted strains of influenza A. We are also involved in starting an influenza surveillance program testing water fowl.

Erica Dirks

Erica spent her fellowship in the Mobile Elements of DNA Lab, focusing on conjugation in *Mycobacterium smegmatis*, a model organism for *M. tuberculosis*. There she helped carry out a transposon mutagenesis screen to identify genes involved in conjugation. To further characterize these genes, she created complementation plasmids, as well as doing targeted gene knock-outs. During her time as a fellow, Erica gained a variety of lab skills such as cloning and PCR as well as a better understanding of how basic research benefits public health. Following the fellowship, she will be applying to graduate school.
Traci Hobby

CDC/APHL EID Training Fellow, 2005-2006

The Wadsworth center offers a unique opportunity to rotate through different labs. I spent the majority of my time in Biodefense, Rabies, and Arbovirus. In Biodefense I learned different techniques involved in the development of multiplex assays using fiber optics. I used these techniques to develop DNA based diagnostics for Bacillus anthracis and sub-typing identification of Clostridium botulinum. In the Rabies lab I contributed to the development of an assay to detect Memory B-cells against Rabies in the bat population. In the Arbovirus lab I participated in a West Nile Virus pathogenesis study using mouse models as well as observing arbovirus surveillance. I feel that this fellowship will provide me with laboratory experience and knowledge of the public health system that will aid me in making a decision on the avenue of public health that I will pursue in the future.

Sy Nakao

CDC/APHL EID Training Fellow, 2005-2006

Sy started his fellowship with the Bioterrorism Epidemiology Program preparing a draft document of the New York State Department of Health BioWatch Response Plan. He also coordinated with the Regional Epidemiology Program to investigate several clusters of listeriosis and E. coli O157:H7 infections identified with the CDC PulseNet function. Sy then rotated through the Biodefense Laboratory where he completed a validation study of the New York State White Powder Biothreat Collection Kit utilized by first responders throughout the state to collect suspicious powders for testing. He concluded his fellowship with a rotation in Molecular Virology working on WNV while learning many viral techniques and molecular methods. The fellowship provided Sy with experiences in various different areas of public health and infectious diseases, opening him to a career path in public health and science.

Crystal Piper

WC/NYSDOH EID Training Fellow, 2005-2006

Crystal started her fellowship in Dr. Nick Mantis’s Mucosal Immunology Laboratory. Here, she did research with the ricin toxin and worked on a project entitled “Identification of neutralizing epitopes on ricin using phage display technology.” She did a small project in Dr. Gary Winslow’s Immunology lab, where she learned how to generate fused hybridoma cells. For her rotation in the Immunization Department, under Dr. Debra Blog, she wrote a physician education document describing the new human papillomavirus vaccine, which will be distributed with in the New York State when the vaccine is available in the summer of 2006. Finally, Crystal rotated through Dr. Kathleen McDonough’s lab and assisted in projects aimed at deciphering the roll of cAMP in the lifecycle and pathogenesis of the bacteria and helped research possible Mycobacterium tuberculosis transcription factor proteins. Crystal accepted a position in Dr. Monica Parker’s HIV/Hep C lab at the end of her fellowship where she conducts data monitoring for their drug resistance study, performs molecular tests for HIV and HCV analysis and assist in data analysis for HIV and HCV investigational activities.
Kali Shaw

Kali’s fellowship focused on global health as well as underserved populations in New York State. Her first rotation involved creating a new plasmid for work in spirochetes, specifically the model organism *Treponema denticola*, and the second consisted of an overview of the Clinical Bacteriology Labs. Kali’s next rotation in the Vector Biology Lab focused on sequencing a mitochondrial gene from *Anopheles marajoara* to elucidate population structure of this malaria vector in Brazil and Venezuela. Kali’s fourth rotation was in epidemiology where she helped develop bilingual educational materials for the Migrant Immunization Project. Kali will spend the last part of the fellowship in Ecuador, where she will participate in a providence-wide Chagas disease research project. Her trip will also include mosquito collections from malaria-endemic areas in southern Ecuador to be used for further population studies in the Vector Biology Lab.

Amber Singh, MPH

As an EID fellow I gained a great perspective in the world of the public health laboratory. Throughout this year, I completed rotations in the Bacteriology and Biodefense lab as well as a rotation in Epidemiology. I learned techniques that allowed me to identify *Salmonella* and *Campylobacter* species, such as the ELISA immunoassay, utilization of biochemicals, and serotyping. During my rotation in the Biodefense lab I helped design and execute a reverse transcriptase real-time PCR clinical assay of RNA virus. In combination with my Epidemiology rotation, I was able to understand the different aspects of public health, both scientific and clinical, and how they connect with each other. This fellowship provided me with mentors that have strengthened my logical reasoning, which I believe will guide me while choosing a doctoral program and profession. I am currently working in a position in the Wadsworth Center’s Influenza Laboratory with Dr. David Wentworth.

Lora Edwards

The EID Fellowship created the perfect opportunity for me to explore various areas of science in an atmosphere that encouraged learning and a deep understanding for what I was doing. Throughout the year, I participated in a Retail Food Study isolating *Salmonella*, *Campylobacter* and *E. coli* from various meat samples. I learned to use several types of selective media, how to use biochemicals effectively as well as how to serotype *Salmonella* species. I also spent a rotation in the Arbovirus lab working with West Nile Virus. During my rotation, I was able to work with mice in the BSL-3 lab, perform ELISAs, Immunofluorescence Assays, flow cytometry, and use cell cultures. After this fellowship, I have a new appreciation for Immunology and Virology as a whole. I also rotated through the BioDefense Lab and was able to work on a bioplex assay and gain practical knowledge of the molecular methods that are usually behind the scene. Throughout the fellowship, I attended conferences and seminars that really helped me learn a lot and get an idea of how the scientific community functions as a whole. The best part of attending conferences is that I could gauge how much I had learned by my level of understanding. The best part of the fellowship overall, is the people at the Wadsworth Center, everyone was so supportive and eager to help us out. This was a very enjoyable experience.
Katherine Frankey

WC/NYSDOH EID Training Fellow, 2006-2007

Kate spent the first part of her fellowship in the Molecular Bacteriology Laboratory developing an assay for the detection of exfoliative toxins in *S. aureus*. She used this rotation to become familiar with real time PCR and its applications in public health. After spending a few months in this rotation, she moved on to work with *M. smegmatis* in Dr. Keith Derbyshire’s Lab. In this lab she acquired such techniques as plasmid constructing, conjugation assays, transformations, and fluorescent photography to further understand how *M. smegmatis* can be used as a model to study *M. tuberculosis*. Upon completion of her rotation in Dr. Derbyshire’s Lab, she hopes to finish her assay in Molecular Bacteriology. Her final rotation will be spent in Epidemiology in the vaccine program. Here she hopes to learn the role that epidemiology plays in the field of public health.

Keoni Omura

WC/NYSDOH EID Training Fellow, 2006-2007

Keoni spent his first month with Dr. Amy Dean and Daryl Lamson in the Molecular Methods Development Group (MMDG) under the Clinical Virology Program. While at the MMDG Keoni had the opportunity to participate in test on a new PCR supported, immuno assay for the detection of flu and flue like viruses. This new assay utilized the sensitivity of PCR and the versatility of ELISA like immuno assay; the purpose of the assay was to be able to detect eleven flu-like viruses, within a single sample. In conjunction to working on the immuno assay, Keoni also helped the Viral Encephalitis Laboratory validate the NucleiSens Easy Mag automated extractor, while also adding the MMDG in validating a Fluid handling workstation.

Keoni then rotated to the Viral Genotyping Laboratory headed by Dr. Monica Parker. At the Viral Genotyping Laboratory Keoni examined the capability of detecting subtype sequenced for the rare HCV genotype 5. Keoni also worked with the labs HCV Upstream assay to assess its capability for use on all HCV genotypes. After the Upstream research, Keoni helped the VGL with the validation of the NucliSens Easy Mag, and wrote the Standard Operation Procedure for the Easy Mag. Keoni ended his Viral Genotyping Rotation by participating with the HIV National Drug Resistance study.

Veronika Redmann

WC/NYSDOH EID Training Fellow, 2006-2007

Veronika Redmann attended Randolph-Macon Woman’s College in Lynchburg, VA where she received her BS in Biology. Her first rotation was with General Epidemiology where she attended regular conference calls and departmental meetings and worked specifically on cases of tularemia and leptospirosis. Her second rotation was with Clinical Bacteriology. She learned the steps of processing patient specimens for suspected anaerobes and ran surveillance on retail meat products for *Clostridium difficile*. Her next rotation was in an influenza lab where she worked to create a recombinant influenza virus that expressed tuberculosis peptides in its neuraminidase stalk. Her final rotation will be in the Rabies Laboratory. Veronika is heading to graduate school after the fellowship to pursue a PhD in Microbiology at Mount Sinai School of Medicine.
Jessica Wynalek  
CDC/APHL EID Training Fellow, 2006-2007

Engaging in research this year at the Wadsworth Center allowed me to integrate my passions for public health and laboratory science. I began my rotations in the Mucosal Immunology Lab of Dr. Nicholas Mantis, developing an attachment/invasion assay for *E. coli* and *S. typhimurium* and visualizing cell infection through fluorescence microscopy. I then did a short rotation through the Zoonoses Epidemiology Program, where I assisted in data entry and analysis for several projects, including a rabies education survey and an oral rabies vaccination effort for raccoons. I then worked on a project in the Rabies Lab to determine if bats have memory to rabies. I first standardized a procedure for isolation of memory B cells from dog and goat blood, ultimately to be optimized for bat blood. The EID fellowship has confirmed my passion for public health and shown me the opportunities available to integrate public health with my varied interests. I hope to continue applying public health with what I learn in medical school next year as I pursue my MD/MPH.

Eric Battaglioli  
CDC/APHL EID Training Fellow, 2007-2008

During my EID fellowship at the Wadsworth Center, I gained a greater understanding of the world of public health. I chose to spend my time in the lab of Dr. Keith Derbyshire examining bacterial conjugation in *Mycobacterium smegmatis*. This lab helped me to become proficient in several new techniques including cloning, sub-cloning, western-blotting, and bacterial mating assays. Using these techniques, I examined a type II/IV secretion apparatus known as the Tad Locus to determine its role in conjugation. I hope to characterize the effects of five different genes in the Tad Locus and determine if they can be complimented by genes from other species of mycobacteria. Though I spent my time in one lab, it was easy to see the vastness of the public health community through the Wadsworth Center and how my interests fit in that community. I will be taking my experience here with me to the University of Wisconsin – Madison in the fall for my PhD training and hope one day to return to the public health arena.

Daniel Garcia, PhD, MPH  
WC/NYSDOH EID Research Fellow, 2007-2009

Dan came to the Wadsworth Center to work with Epidemiology and Bacteriology Lab staff on the molecular epidemiology of infectious diseases, predicting virulence, outbreak potential, and virulence gene profiling of pathogenic bacteria. He began with rotations in Clinical Bacteriology, Molecular Development, the Bureau of Communicable Diseases and the Emerging Infections Program. He participated in an evaluation of multi-drug resistant clinical isolates of *Salmonella* collected over a six year period in order to investigate a logistical and cost-effective testing strategy for antibiotic resistance testing. He also investigated virulence and outbreak potential of clinical and environmental isolates of over 300 pathogenic *Escherichia coli* by developing real-time PCR and sequencing platforms. Several novel strains were identified and selected for further characterization using microarray and whole-organism sequencing platforms. Dan has presented his work at the General Meeting of the American Society for Microbiology. In addition, he developed a multi-locus sequence typing scheme to type clinical isolates of *Streptococcus pneumoniae* revealing novel genotypes and the occurrence of vaccine-to-nonvaccine serotype switching (i.e. vaccine escape) using phylogenetic and evolutionary analysis algorithms. As an EID fellow, Dan has strengthened his training as an epidemiologist and microbiologist for a career in Public Health.
Lisa Mingle, PhD  
CDC/APHL EID Research Fellow, 2007-2009

Lisa split her time as a fellow between the Virus Reference and Surveillance Lab (VRSL) and the Biodefense Lab. In VRSL, Lisa worked on three projects, a retroactive study on herpes simplex samples, anti-viral drug resistance testing in Influenza specimens, and an adenovirus subtyping assay on autopsy specimens. The adenovirus project was presented as a poster at the Clinical Virology Symposium in April 2008. The influenza project was incorporated into a manuscript that was published in the Journal of Clinical Microbiology. In the Biodefense Lab, Lisa received Special Agent clearance from the CDC, BSL3 level training and was trained to process and test clinical and environmental samples for bioterrorism agents. She also developed and validated a Pyrosequencing assay to differentiate the different *Brucella* species which was presented as a poster at the General Meeting of the American Society of Microbiology in May 2009. Following her fellowship, Lisa accepted a position in the Bacteriology Laboratory at the Wadsworth Center.

Marcia Peck  
WC/NYSDOH EID Training Fellow, 2007-2008

Marcia’s fellowship centered on receiving an overview of various laboratories and techniques used in the state health department setting. Her ongoing project was the NARMS Retail Food Study which included: shopping, cataloging, and organism identification from retail meats. Alongside this study Marcia also rotated through the Bacteriology Laboratory learning both conventional and molecular identification of organisms, which included: PFGE, PCR, biochemical analysis, and serotyping of *Salmonella* and *Campylobacter* species. Her second rotation was in the Mycology Laboratory where she developed and tested real-time PCR assays for *Histoplasma, Blastomyces, and Coccidioides*. Her third rotation was in the Parasitology Laboratory where she learned the clinical testing and identification of parasitic organisms. Marcia's last rotation continued her work with food microbiology through the Food Emergency Response Network (FERN) in the Biodefense Laboratory. Through the EID fellowship and her rotations within New York State Department of Health she has increased her passion for public health and it has prompted her to continue to work in the public health laboratories. She is now developing and validating assays for FERN at the Wadsworth Center.

Kristina Piastro  
CDC/APHL EID Training Fellow, 2007-2008

During my fellowship, I was able to integrate one project through collaboration with two labs. I studied the regulation of genes that may have significant role in gene transfer and virulence within Mycobacterial species in Dr. Derbyshire’s lab. The main project involved the study of several proteins that had previously been identified by transposon mutagenesis to have down-regulatory effect on gene transfer. Collaboration with Dr. Wade’s lab came from the Chromatin Immunoprecipitation assay. My project involved developing this assay in *M. smegmatis*, an avirulent cousin of *M. tuberculosis*, to investigate DNA-protein and DNA-DNA interaction in-vivo. Gaining knowledge in the interplay of these key proteins, we hope to be better equipped to rationally design methods to prevent horizontal gene transfer, which often leads to the spread of antibiotic resistance. The fellowship has provided an excellent venue for exploring the fascinating career that is research science. Starting medical school in August, I have gained a new perspective on career plans and hope to integrate both public health and research on my quest to becoming a physician scientist.
Wes Sanders, M.S.  
CDC/APHL EID Training Fellow, 2007-2008

Wes’ fellowship allowed him to rotate through the Arbovirus, Bacteriology, and Vector Biology Laboratories. His initial rotation was in the Arbovirus Lab working with West Nile virus and learning the care and maintenance required to run a BSL-2 insectary. This rotation also allowed him to work on project involving the co-infection of Culex tarsalis mosquitoes with two different strains of West Nile Virus and determining which viral strain is being transmitted in saliva after 5 and 9 wks post infection. Wes’ second rotation consisted of an overview of the Bacteriology Labs followed by a project involving the creation of a PCR to detect *Klebsiella pneumoniae* from clinical samples. His final rotation was in the Vectory Biology Labs where he focused on sequencing an array of single copy nuclear genes from *Anopheles darlingi* to look into phylogenetics of this important malaria vector. This fellowship has allowed Wes to gain a greater understanding and appreciation for the public health and laboratory sciences. He hopes to continue working in the public health field and pursuing a PhD in an infectious diseases field.

Britta Wood, MS  
WC/NYSDOH EID Training Fellow, 2007-2008

Britta’s first rotation was in the Molecular Method Development group of the Clinical Virology Program. Her project was to validate CDC real-time RT-PCR Influenza A/H1 and A/H3 subtyping assays for use in the clinical laboratory. Britta’s next rotation was in the Rabies Laboratory where she learned cell culture techniques and identification of rabies virus variants in rabid bats using monoclonal antibody. Additionally, she has taken part in the multi-state investigation of the bat die-off in the Northeast by assisting with bat collection trips and a virus isolation investigation. Before the completion of the fellowship, she is intending to do a rotation in the Epidemiology Department and another research laboratory. Britta will be continuing her interest in infectious diseases and public health by pursuing a Ph.D. at Colorado State University, Fort Collins.

Tia Deas, PhD  
WC/NYSDOH EID Research Fellow, 2008-2009

Tia Deas, PhD began her fellowship rotation in the Influenza virus and Coronavirus Pathogenesis Laboratory of Dr. David Wentworth. Her project focused on the targeted RNA recombination of severe acute respiratory syndrome coronavirus (SARS-CoV). She has added several techniques to her arsenal including many molecular virology methodologies. She has had the opportunity to begin the development and characterization of a reverse genetics system for SARS-CoV by the construction of mutants within the spike protein of the virus responsible for cellular attachment and entry. Through this fellowship Tia has confirmed her passion for a career in public health and is looking for opportunities to continue her education in the field of public health research.
James Dornenburg  
**WC/NYSDOH EID Training Fellow, 2008-2009**

James started his fellowship with a rotation in the Wade lab. There, he focused on identifying novel non-coding RNA in *E. coli*. To accomplish this, he developed a protocol that mapped all 5' ends of the *E. coli* transcriptome. Close to 1000 new RNAs were found using the sequencing technique known as Deep sequencing. He became experienced with techniques such as real-time PCR, sequence analysis and bioinformatics, classical RNA and DNA extraction, protocol development, and aseptic techniques. He will be published in the inaugural issue of *mBio* for his work conducted in the Wade Lab. For his next rotation, he joined the Mucosal Immunology lab to learn more about how the body defends itself from pathogens. With Dr. Nicholas Mantis as his mentor, he focused on host-pathogen interaction at mucosal surfaces from a bacterial perspective. He has used microarray technology, real time PCR, and mutant strains to shed light on how antibody binding elicits a genetic response in bacteria. James is now a lab technician in the Mantis Lab and continues to elucidate the mechanism by which secretory IgA antibodies inhibit *Salmonella*’s ability to cause disease in sub-agglutinating conditions. He will be attending Auburn University to pursue a PhD beginning Fall 2010.

Scott Speer  
**CDC/APHL EID Training Fellow, 2008-2010**

My EID fellowship has been split between the Arboviral Pathology Laboratory with Dr. Kristen Bernard, and the Influenza Virus and Coronavirus Pathogenesis Laboratory (IVCP) with Dr. David Wentworth. While in the Arboviral Pathogenesis lab, I investigated which cell populations support the persistent West Nile virus infection in the central nervous system. My research project in the IVCP lab has focused on the development and rescue of a contemporary H1N1 influenza A virus from a reverse genetics construct for use in vaccine research. When my fellowship term ends, I will attend the Mount Sinai School of Medicine and work towards a PhD in microbiology and virology.

Samantha Wirth, MS  
**APHL/CDC EID Training Fellow, 2008-2010**

Samantha spent the first four months of her EID Training Fellowship in the Molecular Bacteriology Lab where she worked with Dr. Bill Wolfgang on the “Name that Bug” Project. She was able to use molecular diagnostic techniques (such as PCR and 16S/23S DNA sequencing) as well as conventional microbiological methods in order to successfully characterize a new species of *Psychrobacter* isolated from patient blood samples. Samantha presented this data at the General Meeting of the American Society of Microbiology. She completed additional rotations in Bacteriology and then Samantha ventured outside the realm of bacteria to spend two months in the Parasitology Lab where she learned various techniques to identify intestinal parasites (acid fast staining, trichrome staining, bright field microscopy, ELISAs, direct immunofluorescence) and blood parasites (DNA extraction, PCR, Giemsa staining, microscopy). After APHL awarded Samantha a six month extension, she spent the last 12 months of her fellowship in the Mycobacterial Genetics lab under the mentorship of Dr. Keith Derbyshire and Dr. Todd Gray. The project in this lab required various molecular techniques including PCR, cloning, transformation, and DNA sequencing. Proteins associated with *M. tuberculosis* virulence were labeled with a fluorescent molecule, then expressed in the model organism, *M. smegmatis*. Next, high-powered fluorescence microscopy was used to visualize these proteins in live cells. Overall, the EID Fellowship has cultivated a robust appreciation for the public health system and Samantha plans to continue her career in infectious disease research.
Patrick Bryant, PhD  
CDC/APHL EID Research Fellow, 2008-2010
During my fellowship I’ve had the opportunity to gain experience in both basic and clinical science. My basic research project involved an examination of a possible role for oxidative stress on both HSV-1 and KSHV replication. While working on this project, I used several techniques including siRNA, cell culture and Western Blot analysis. Next, I did a rotation in the VRSL clinical virology lab where I performed Influenza drug susceptibility testing and sub-typing assays. While working in the VRSL I gained further molecular experience using probe based Real-Time PCR for the detection and sub-typing of Flu A/B and H1/H3. I also learned how to do PCR amplification for pyrosequencing to identify drug resistant Flu strains to both Tamiflu and Adamantane. In addition to learning clinical diagnostic techniques the VRSL also introduced me to clinical laboratory protocol such as working in a clean room as well as operating clinical robots for nucleic acid purification and PCR plate setup. I am currently beginning a third rotation in the Biodefense lab where I will be working on a Real-Time PCR assay to detect Rickettsia. So far this fellowship has exposed me, not only to excellent research, but has also given me a firm introduction to both clinical and basic public health research.

Sarah Buss, PhD  
CDC/APHL EID Research Fellow, 2009-2011
During the fellowship period I will complete 2-4 rotations of 6 months or longer in various Wadsworth Center laboratories. My first rotation will be in Diagnostic Parasitology where I will begin to gain an understanding of how the Wadsworth Center impacts public health. I will learn how to identify parasites using microscopy, ELISA and qRT-PCR, learn how the NYS Clinical Laboratory Evaluation Program (CLEP) and Proficiency Testing Program (PTP) function, participate in workshops given to CLEP labs, carry out two research projects and develop relevant diagnostic tools as the need arises. Research projects in the Parasitology laboratory will be focused on novel targets for drug discovery in Trypanosoma brucei, the causative agent of human African trypanosomiasis (HAT). Additional rotations in Wadsworth Center laboratories will be designed to broaden my experience in Public Health laboratory diagnostics, surveillance methodology and the vector side of public health research.

Magdia De Jesus, PhD  
CDC/APHL EID Research Fellow, 2009-2011
Magdia spent the first part of her fellowship rotating through the Molecular Bacteriology Laboratory where she worked extensively on an RNA based assay to determine Legionella pneumophila viability. This assay has the potential to be applied to Legionella water samples to rule out viable but unculturable samples. During this rotation, Magdia has had the opportunity to teach two classes for the Biodefense course. This opportunity was very important because Magdia is a strong proponent of education and enjoys teaching and training others. Magdia also is closely working with the American Society for Microbiology (ASM) student chapter and the Post-doctoral Association and serves as a liaison between both groups. She is currently working on establishing an ASM Post-doctoral chapter. She will be rotating through the Mucosal Immunology Laboratory and the Biodefense Laboratory. After the fellowship, Magdia hopes to continue a career in Public Health with an emphasis on Public Health Education.
Shantel Hamilton  
**WC/NYSDOH EID Training Fellow, 2009-2010**

Shantel spent the first several months of her fellowship in the Mycobacteriology laboratory, where she had the opportunity to observe the practices of the clinical lab. She also participated in a research project on the validation of a DNA microarray for *Mycobacterium tuberculosis* complex members. She spent some time in the Parasitology laboratory, where she helped in the development of a real time assay for *Cryptosporidium* spp. She plans on spending her remaining time in either the Rabies laboratory or in the Mycology laboratory. This fellowship has allowed Shantel to further her interests in working the public health setting. She hopes to attend Tulane University and get her MD/MPH in Tropical Medicine and Parasitology.

Kelly Hughes  
**WC/NYSDOH EID Training Fellow, 2009-2010**

Kelly began her rotations in the BioDefense lab, and continued on to spend time in the labs of Parasitology, Mycobacterium (Tuberculosis), Arbovirus and Rabies. Much of her work focused on molecular assay development and detection of various pathogens. In the BioDefense lab she assisted in the validation of an assay for the detection of food-borne pathogens, and then in the Parasitology lab she worked to develop an assay to detect and speciate *Cryptosporidium*. In the Mycobacteriology lab she is currently working to develop a speciation assay using the new DNA-based Luminex technology. She has expanded her knowledge of the scope of public health through attendance at national conferences like the American Society for Tropical Medicine and Hygiene, and the American Society for Microbiology, at which she presented a poster of her work on the molecular detection of *Cryptosporidium*. Following completion of her fellowship here she plans to apply to graduate school for a PhD program before continuing with her career. This fellowship provides experiences in various different areas of public health and infectious diseases, preparing her well for a career path in public health and science.

Kara Mitchell, PhD  
**WC/NYSDOH EID Research Fellow, 2009-2011**

This EID fellowship will give me the opportunity to explore various aspects of public health and it has given me the opportunity to begin a career in the public health field. My first rotation as an EID fellow has been in the Bloodborne Virus Lab. While in the Bloodborne Virus Lab I have been working on two independent projects. The first project I have been working on is developing an assay to genotype and subtype HCV from patient samples. My second project has been to validate and get FDA approval for a commercially available HCV Real time PCR detection assay. In addition, I have also been exposed to other aspects of the lab including processing of patient samples, incidence reporting, and newborn screening. Following my rotation in the Bloodborne Virus Lab, I also plan to do a rotations in other clinical labs at the Wadsworth center. Based on my experience so far, I feel that this fellowship has allowed me to gain a greater understanding of public health and I look forward to finishing my fellowship and pursuing a career in public health.
Fellow Comments

“The EID fellowship has given me the opportunity to explore both public health and basic science research. It has been an amazing experience!”
-Magdia De Jesus, Ph.D. (Bacteriology Laboratory)

“The fellowship program continues to more than meet my expectations. The rotation portion of the fellowship has provided me the unique opportunity to gain exposure to a wide variety of public health disciplines, most recently in the area of molecular-based clinical diagnostic assay development. The knowledge gained during each rotation will certainly serve me well as I pursue my goal of becoming a public health laboratory director.”
-Michael LaGier, Ph.D. (Biodefense Lab)

“At the start of the fellowship I was sick of lab work. I had done it all in college and really want to do epi here. Especially STD epi. Now...I love bats. Who would have thought? Bats? I have never even seen a bat before I came here. I love the lab and growing cell cultures...I feel I have a good hold on the Lab aspect between my undergraduate studies and this fellowship. By the time I finish my school, I could run a whole public health lab by myself! I would definitely recommend this fellowship to other people. I feel that it is one of the few ways to see how the whole public health system works. Usually people only see the lab side, or the epidemiology side. Here we were given the opportunity to see both sides and how they are interrelated.”
-Wendy Radlich (Rabies Lab)

“The most rewarding aspect of the EID program has been the opportunity to acquire techniques that benefit people's lives and health.”
-Patrick Bryant, Ph.D. (Biodefense Lab)
Current occupation of former APHL/CDC and Wadsworth Center EID fellows hosted by the Wadsworth Center

- Graduate/Medical School: 26%
- Research Laboratory: 17%
- Clinical Laboratory: 7%
- Infectious Disease Medicine: 2%
- Public Health including Wadsworth Center: 21%
- Public Health Epidemiology: 10%
- Non-Laboratory Careers: 12%
- Non-Lab Public Health Related: 5%

Where Are They Now?

Class of 2003

Current Fellows
Selected Fellow Publications


Selected Fellow Publications


Recent Fellow Poster Presentations

- **De Jesus M**, Nazarian EJ, Musser KA. Assessment of methods to determine *Legionella pneumophila* viability in water samples using real-time RT-PCR. Presented at the 110th General Meeting of the American Society for Microbiology, May 2010.

- **Habura A**, Hughes K, Hamilton S, Madison-Antenucci S. Detection and Differentiation of *Cryptosporidium* by real-time PCR. Presented at the 110th General Meeting of the American Society for Microbiology, May 2010.


The faces of Public Health in New York State

2008 Anti-viral drug resistance study in influenza
Genetics of African malaria vector mosquito
HCV genotyping assay development
West Nile virus mouse-to-mouse transmission research
2007 Pandemic influenza planning
2001 Anthrax Investigation
2001 West Nile virus serosurvey for New York City residents

2000 Acinetobacter Outbreak in NYC Hospitals, Mycoplasma Outbreak
1999 Human Botulism Cases in Upstate NY
2004 Metapneumovirus, VRSA, Bordetella pertussis Outbreak
2002 Development of a real-time PCR assay for influenza

E. Coli and Salmonella multi-state outbreaks
2002 West Nile acquired infection in Organ Transplant Patients

2007 Bat Die Off Investigation
2005 New York State Department of Health BioWatch Response Plan
Population expansion of malaria-transmitting Anopheles mosquitos in Brazil and Nigeria

1999 Development of PCR assay for anthrax
1998 Mycobacterium bovis/BCG cases in NYS
H5 influenza protein project
Assessment and improvement of Rabies DFA
Regional Information

The Capital Region:
✦ Eight counties
✦ Three cities: Albany, Schenectady and Troy
✦ Population of over 700,000
✦ Located near the intersection of the Hudson and Mohawk Rivers
✦ A 2.5, 3, and 4 hour drive, to New York City, Boston, and Montreal, respectively

Cultural Activities:
✦ Albany Symphony Orchestra
✦ Empire Center for the Performing Arts
✦ Glimmerglass Opera
✦ Capital Repertory Company
✦ Troy Music Hall
✦ Lake George Opera Festival
✦ Proctor’s Theater
✦ The Saratoga Performing Arts Center
✦ Tanglewood.
✦ New York State Museum
✦ Albany Institute of History and Art
✦ Adirondack Museum
✦ Clark Institute

Sporting and outdoor activities:
✦ Adirondack Park, a 6 million acre natural sanctuary of public and private land – more than 2,500 lakes and ponds and 30,000 miles of rivers and streams
✦ Olympic Village of Lake Placid, 3 hours north of Albany, year-round resort for cross country skiing, downhill skiing, speed skating, hiking, canoeing, biking, swimming, toboggan, luge and bobsled runs
✦ Saratoga State Park, know for European-style mineral baths
✦ Saratoga Race Course
✦ Tri-City Valley Cats Baseball
✦ NCAA Division I college basketball
✦ Albany is the summer home of the NY Giants Training Camp
Contact Information

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**Useful Websites:**

www.wadsworth.org
www.health.state.ny.us
www.albany.edu/sph
http://www.aphl.org/training_and_fellowships/fellowships