



**CIHR International Infectious Disease &  
Global Health Training Program**

Canada • Colombia • India • Kenya

# Canadian Institutes of Health Research International Infectious Disease & Global Health Training Program

## ANNUAL REPORT • 2010



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IID&GHTP Trainees with Drs. Javier Mignone, Carlos Rojas and Keith Fowke at the University of Manitoba for the 2010 Ecology of Infectious Diseases (Eco-ID) course.

# OBJECTIVES

1. To equip trainees with the research, scientific knowledge and skills to become **outstanding researchers** in infectious diseases and global health.
2. To create a novel and stimulating **multidisciplinary** and **truly international** research training environment that fosters creativity, opportunity, and innovation, and one that demands excellence.
3. To harness the unique opportunity offered by the **critical mass** of infectious diseases and global health infrastructure, research opportunities and outstanding scientists in the training of the next generation of infectious disease researchers.
4. To make available **collaborative international research sites** for the trainees' primary research projects, sites for research practica and major course offerings.
5. To offer a **shared learning environment**, where trainees and mentors from all four of CIHR's research pillars and the four international training sites work cooperatively to explore issues of international infectious diseases and global health.

## MENTOR SPOTLIGHT



Dr. Keith Fowke

**Keith Fowke** is currently Program Director of the CIHR International Infectious Disease & Global Training Program (IID&GHTP). As his career has evolved he has taken a greater interest in mentorship and has led the team on developing the current iteration of the training program and as part of that development he is now assuming the lead role for the Training Program. Dr. Fowke's research is focused on understanding the immune correlates of protection to HIV infection and disease. With 18 years of research experience in Nairobi, Kenya. Dr. Fowke is also very involved in human and physical research capacity building in that country and he holds cross appointments in two departments of the University of Nairobi. Capacity building also includes leading the development of new laboratory facilities in Nairobi.

**Francis Plummer** is a key leader in the training program and is considered one of Canada's leading researchers in HIV epidemiology and basic science, and a CRC Tier I Chair in Resistance and Susceptibility to Infections. Dr. Plummer is also Scientific Director General of the Public Health Agency of Canada's (PHAC's) National Microbiology Laboratory. As Director of this unique Canadian resource, Dr. Plummer leads research on SARS, viral hemorrhagic fever, Zoonotic infections, pandemic influenza, prions and microbial resistance. Dr. Plummer holds operating grants from the CIHR, NIH and the Bill & Melinda Gates Foundation.



Dr. Stephen Moses

**Stephen Moses** is a key leader and site leader at the Bangalore, India international site. Dr. Moses has made major contributions to the field of HIV prevention, including being co-PI on the Kenya male circumcision randomized clinical trial that demonstrated that male circumcision provided a greater than 50% protective effect against HIV acquisition in men. Dr. Moses, currently residing in Bangalore, India, is the Director of a major HIV intervention program in India, undertaking research and providing HIV prevention programs to a population larger than that of Canada's. Dr. Moses holds grants from USAID, the Bill & Melinda Gates Foundation, CIHR and the NIH. His main research and programmatic interests include biological and behavioural risk factors for STI/HIV transmission; syndromic approaches and risk assessment in the management of STIs; focused interventions among vulnerable groups to reduce the transmission of STIs and HIV infection; health worker training in STI management in resource-poor settings; and integrated approaches to STI/HIV prevention and control. From 2001- 2006, he held an Investigator Award from CIHR.

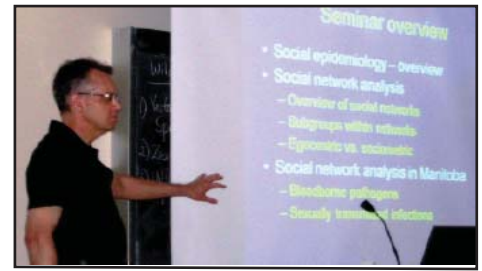
## MENTOR SPOTLIGHT, continued

**John Wylie** is a key leader and the lead of the practica portion of the training program. Dr. Wylie has a background in molecular microbiology and social epidemiology of infectious diseases, with a focus on HIV, STI, and other bloodborne pathogens. The majority of his work has been conducted in vulnerable populations in Canada, many of whom are Aboriginal. He has pioneered the use of social epidemiology approaches and methods in Canada. He was one of the originators of the new Colombia-Canada partnership between the University of Manitoba and the Universidad de Antioquia in Medellin, Colombia. He currently holds grants from the Thorlakson Foundation and the CIHR.

**Javier Mignone** is a key leader in the training program and lead of the Infectious Minds Scientific Discussions portion. Dr. Mignone is a new social scientist faculty member and recent graduate of the ICID Training Program. During his postdoctoral fellowship with the Training Program, he published an article in the Journal of Ethnobiology and Ethnomedicine on best practices in intercultural health that has been accessed by 2,511 readers since it was published. Dr. Mignone has a background in clinical psychology, health services administration, and community health sciences. He is involved in research on social determinants of health in First Nations in Canada, as well as on Indigenous health and health care in Guatemala, Colombia and Argentina. Dr. Mignone also leads HIV prevention studies in rural India and in Manitoba. He is a Research Affiliate with the Centre for Aboriginal Health Research.

**Joseph Kaufert** is a lead of the ethics portion of the training program. Dr. Kaufert is a Professor in the Department of Community Health Sciences, Senior Researcher, Centre for Aboriginal Health Research and Adjunct professor in the Department of Anthropology. His research and teaching at the University of Manitoba and University of London (St. Thomas Medical School) has focused on cultural issues in public health, health promotion and research ethics. Over the past 15 years he has worked with the National Council for Ethics in Human Research and the CIHR Institute for Aboriginal Peoples' Health to develop policy guidelines and knowledge translation strategies for community-based research ethics. He currently is Co-PI or team leader in four CIHR funded research projects focusing on cultural and ethical issues in the areas of (1) research ethics and the human subject, (2) research ethics governance, (3) ethical issues in access to palliative care, and (4) development of appropriate hospice care for cultural and religious communities.

**James F. Blanchard** is a mentor and trainee supervisor in the training program and is an epidemiologist and public health specialist. He is currently the Director of the Centre for Global Public Health (CGPH) at the University of Manitoba (Canada), where he is also an Associate Professor of Community Health Sciences. A cornerstone of CGPH is applied research, and the design and implementation of international health and development projects in several countries including India, China and Pakistan, primarily in the areas of HIV and STI prevention. From 2001-2007, Dr. Blanchard lived and worked in India as Resident Coordinator of the University of Manitoba's HIV programs. Dr. Blanchard's diverse research agenda includes the epidemiology of inflammatory bowel disease, the transmission dynamics and social epidemiology of HIV and STIs, and improving the impact of public health interventions through program science. He currently holds a Tier 2 Canada Research Chair in Epidemiology and Global Public Health.



Dr. John Wylie, lecturing for the Eco-ID course held in Winnipeg, Manitoba



Drs. Carlos Rojas and Javier Mignone



## MENTOR SPOTLIGHT, continued

**Reynold Washington** is a mentor in the training program. Dr. Washington is a community health specialist affiliated with the St John's Research Institute, St John's National Academy of Health Sciences in Bangalore, India. He is the Deputy Chief of Party of the *Samastha* project, a five year USAID funded integrated HIV prevention, care and support program in Karnataka and coastal Andhra Pradesh, and leads the medical services division in the Karnataka Health Promotion Trust. With more than a decade of teaching experience at the medical college, his expertise lies in developing and managing systems for capacity development of care providers, STI and HIV care services and surveillance of HIV.

**Carlos Rojas** is the site leader at the Medellín, Columbia international site. Dr. Rojas is an MD (Colombia) with a PhD in epidemiology (UNC at Chapel Hill). He has experience in the design and conduction of epidemiological studies for infectious diseases in rural (leishmaniasis) and urban (tuberculosis) settings in Colombia. Since 2003, he has been an associate professor of the National School of Public Health at the Universidad de Antioquia where he lectures on epidemiological and research methods. He has received international funding from WHO/TDR, IDRC, UNC and PAHO. He has also received national funding from COLCIENCIAS, Gobernación del Valle and Instituto Nacional de Salud de Colombia.



Drs. Maryanne Crockett and Marissa Becker during the major course held at the University of Mantioba in May 2010

**Marissa Becker** is a mentor in the training program. Dr. Becker is an Infectious Diseases clinician and scientist with a focus on HIV care and research. She is a recent post-doctoral clinical fellow graduate of the ICID training program. Over the last five years she has been working in south India on a number of HIV research studies including being a site PI on a microbicide trial. She has recently joined the Faculty of Medicine and is also the Associate Director of the Manitoba HIV Program. While continuing her infectious disease clinical work in Winnipeg, she remains active with her ongoing research studies in India and is establishing an HIV research program in Manitoba with a focus on the First Nations population.

**Benson Estambale** is a mentor in the training program and the Director of the University of Nairobi Institute for Tropical and Infectious Diseases (UNITID). Dr. Estambale is the Principal Investigator on a project of intermittent preventive treatment (IPT) for malaria in schools in western Kenya.

# TRAINEES

## 2009 Intake at the University of Manitoba

15 applicants were accepted, 14 from the Department of Medical Microbiology and one from the Department of Community Health Sciences:

3 Post-Doctoral Fellows, 11 PhD and 1 MD/PhD  
2 Clinical, 12 Basic Science, and 1 Social Science Pillar

## Intake at the International Sites

Bangalore, India Site

3 applicants were accepted (1 Post-Doctoral Fellow & 2 PhDs)  
All are from the Social Pillar

Nairobi, Kenya Site

2 applicants were accepted (2 PhDs)  
1 Clinical, 1 Basic Science Pillar

Medellin, Colombia Site

1 applicant was accepted (1PhD) from the Public Health Pillar



Trainees at the major course in May 2010

# LIST OF TRAINEES AND PROJECTS

## Ph.D. Trainees

- Winnie Apidi** The glycolysis pathway in HIV-1 resistance
- Catherine Card** Regulatory T cells and Immune Quiescence: a model for resistance to HIV infection
- Arup Kumar Das**  
Psychosocial, Behavioral and Contextual Determinants of STI/HIV Vulnerability among Female Workers in Bars: A life cycle approach.
- Jennifer Juno** The Role of Genetic Polymorphisms at the CD4 locus in HIV disease progression
- Cisily Meeme** Evaluation of Drug Resistance Profiles and Viral Characteristics in HIV-1 Viruses from Infected Patients Before and After Receiving Antiretroviral Therapy
- Peter Maturi Mwamba**  
The Role of Arboviruses in the pathogenesis of Burkitts Lymphoma
- Robert Were Omange**  
Linkage of innate and adaptive immunity in HIV-1 resistant women in Nairobi.
- Michael Babu Raj**  
PPTCT Services: Are We Reaching Out? From Human Rights Perspective
- Meika Richmond**  
Polyfunctionality and proliferation of CD8+ T cells in chronic and acute HIV infection



Dr. Heather Adam, course lecturer, and Arup Kumar Das, trainee



Catherine Card, Zulma Rueda and Meika Richmond during the major course





Dr. Kaveri Gurav, trainee and Dr. Keith Fowke, Program Co-coordinator during the major course offering at the University of Manitoba Meet & Greet Lunch

## LIST OF TRAINEES AND PROJECTS, continued

### Ph.D. Trainees, continued

#### Zulma Vanessa Rueda

Epidemiologic and clinical characteristics of *Mycobacterium tuberculosis* in prisoners at four different jails, Colombia 2010-2012

#### Souradet Shaw

Understanding autoimmune diseases: combining traditional epidemiological techniques and complex systems approaches

#### Dan Alex Silaghi

Identification of virulence determinants in the 1918 Influenza Hemagglutinin (HA) and H1N1 flu

#### Aida Sivro

The Role of IRF-1 Polymorphisms in susceptibility to HIV-1 Infection

#### Derek Stein

Mass Spectrometry based characterization of HIV-1 resistance in the female genital tract.

#### Michael Stobart

Identification of Non-Essential Host Genes Required for PrP106-126 Mediated Neurotoxicity

#### Yingfeng Zheng

Functional role and molecular mechanism underlying the interplay of HIV-1 integrase with host cofactors

### Post Doctoral Fellow Trainees

#### Zhujun Ao

Investigation of mechanism underlying anti-HIV action of R88-A3G: Development of a potent anti-HIV approach in primary CD4+ T cells and macrophages

#### Kaveri Gurav

Vulnerabilities associated with migration of female sex workers (FSWs) in India

#### Julie Lajoie

Mucosal immune activation in commercial sex workers

#### Lyle McKinnon

Effect of antiretroviral therapy on mucosal immunology in female sex worker cohorts

#### James Sainsbury

Characterisation of a novel candidate gene for the HIV-1 Resistance Phenotype in the Pumwani Sex Worker Cohort.

### Clinical Research Fellow Trainees

#### Yoav Keynan

Understanding factors influencing cross-reactive antibody and cellular immunity to influenza

# FUNDING & ACADEMIC PARTNERS

## Funding Partners

National Collaborating Centre for Infectious Diseases  
National Microbiology Laboratory  
Province of Manitoba –Innovation, Energy and Mines  
University of Manitoba

## Academic Partners

Centre for Aboriginal Health Research  
Manitoba Institute for Child Health (MICH)  
St. John's Medical College  
University of Nairobi  
University of Manitoba Centre for Global Public Health  
University of Winnipeg Global College  
Infectious Immunology Research Interest Group  
University of Toronto Joint Centre for Bioethics  
University of Indiana Centre for Bioethics  
Universidad de Antioquia



Dr. Kaveri Gurav, trainee, during Eco-ID course group discussions



Arup Kumar Das, and Dr. Yoav Keynan, trainees, speak with Dr. Lawrence Elliott; Yinfeng Zheng, trainee, in foreground

## ACADEMIC PROGRAM

### Ecology of Infectious Disease (Eco-ID)

Hosted in Winnipeg, the course was taught in a condensed eight-hour day over a two week period from April 26-May 7, 2010.

Each session was comprised of three elements: 1) a didactic component in which an overview of the topic is provided; 2) a student-led in-depth exploration of key issues related to the primary topic; 3) student-facilitated activity involving the entire class e.g., debate, role playing exercise, open discussion.

The course was intended to demonstrate to students the inter-relatedness of infectious diseases with their physical, social, biological, and cultural surroundings. During the first section of the course, infectious diseases were viewed from a number of different perspectives such as pathogenesis, clinical science, host responses to infection, molecular epidemiology, public health interventions, medical anthropology, global health, international infectious disease prevention/control, spatial aspects and ethnographic approaches to IDs, aboriginal issues in infectious diseases, zoonotic infections and pandemic preparedness.

In the other section, a number of applied topics were covered, designed to improve the students' ability to plan, prepare and execute a scientific proposal as well as prepare for their future as researchers. Topics in this section of the course included; research design and statistical issues, introduction to research ethics, use of medical administrative databases, research translation/communication, intellectual property, research commercialization, grant writing and reviewing. The final assignment was a CIHR-style multi-disciplinary grant that was due four weeks following the end of the last class.



Eco-ID session where trainees participated in group discussions

# ACADEMIC PROGRAM, continued

## ECO-ID LEARNING VISITS

Following the Ecology of Infectious Disease course which was offered April 26 – May 7, 2010, Winnipeg hosted learning visits which included a tour of Nine Circles Community Clinic and the National Microbiology Laboratory, presentations from the Department of Community Health, University of Manitoba, a tour of Manitoba's Boreal Forest Petroglyphs at the Whiteshell Provincial Park and participation in a traditional Indigenous Sweat Lodge at Red Willow Lodge.

## TRAINEE PERSPECTIVES

### A day during the learning visits at Whiteshell Provincial Park by Meika Richmond

For the second day of training visits the trainees were taken out to the Whiteshell Provincial Park for a day of wilderness and culture. The day began at the Alfred Hole Goose Sanctuary, where the trainees learned about some of the Manitoba's wildlife as well as the importance of the fur trade in Manitoba and Canada's history. Next was a tour of the Bannock Point Petroform site. This site is a very sacred place for the Anishinabe people and it is believed to enrich the mind, heal the body, and nurture the spirit. The petroforms are made up of boulders and rocks, which are placed to resemble people, animals, and various other symbols. These petroforms are used for mutual learning, teaching, and healing.

For lunch the trainees got a chance to sample and help prepare some classic Manitoba cuisine, including a pickerel fish fry and a bannock bake. Following the hearty meal we left the Whiteshell Provincial Park and headed to the Red Willow Lodge for a traditional sweat lodge. We had the incredible opportunity to learn about and experience the healing power of a sacred Anishinabe sweat lodge. The ceremony was a very moving and educational experience for all that choose to participate and was a perfect way to end an amazing day.

### Meeting with Community Health Sciences by Souradet Shaw

On May 14th 2010, IID & GHTP trainees participated in a meeting co-presented by the Directors of three of the Research Centres within the Department of Community Health Sciences. Dr. James Blanchard, Director of the Centre for Global Public Health (CGPH) presented background information on the work of CGPH, both internationally as well as in Manitoba. Dr. Brenda Elias, Co-Director of the Centre for Aboriginal Health Research (CAHR) discussed the development of the Indian Registry System and how it could be used to understand and address disparities in the health burden in the Manitoba First Nation population. Dr. Pat Martens, Director of the Manitoba Centre for Health Policy (MCHP) introduced IID & GHTP trainees to MCHP researchers, and discussed some of the groundbreaking and world-renowned research produced over the years by MCHP, with a particular focus on how MCHP's body of work has influenced health policy in Manitoba and nationally. At the end of the presentations, IID & GHTP trainees participated in a lively and fertile roundtable discussion with the Directors of the three centres.



Trainees visit the Whiteshell Provincial Park in Manitoba for the Eco-ID course learning visits.



Dr. Marc Ouellette, Director, CIHR  
presenting at the Scientific Symposium

## ACADEMIC PROGRAM, continued

### CIHR IID& GH Training Program Scientific Symposium

The Scientific Symposium was held over two days, May 10 – 11, at the Bannatyne campus. It highlighted each trainee's research. Trainees invited two guest speakers to take part in the symposium: Dr. Marc Ouellette, Director, CIHR, Infections and Immunity and Dr. Joyce Slater, Assistant Professor, Faculty of Human Nutritional Sciences. Dr. Carlos Rojas, and Dr. Julius Oyugi, Lecturer, Department of Medical Microbiology, the University of Nairobi Site Leader were also invited guest speakers.

## INFECTIOUS MINDS SCIENTIFIC DISCUSSIONS

The purchase of video conference equipment for each international site enabled important scientific discussions to take place in real time and allowed smaller sites the benefit of “critical mass”.

On February 3rd, a Meet and Greet session lead by Dr. Keith Fowke, as PI and Program Director, was a great opportunity for the trainees and mentors and key leaders at the Winnipeg, Colombia, India and Kenya sites to meet and test the bridging of three international sites through video-conferencing.

### The Infectious Minds sessions held in 2010

#### February 24

Guest Speaker: Dr. Stephen Moses, University of Manitoba

Talk entitled: Scaling up a Focused HIV Prevention Program for Female Sex Workers & MSM in Karnataka, South India: Evaluating Outputs, Outcomes and Impact.

#### March 17

Guest Speaker: Dr. Frank Plummer, National Microbiology Laboratory, Public Health Agency of Canada

Talk entitled: H1N1 – an update



## The Infectious Minds sessions held in 2010, continued

### April 21

Guest Speaker: Dr. Keith Fowke, University of Manitoba

Talk entitled: Resistance to HIV 1 infection

Trainee Presenters: Catherine Card, from the Winnipeg site and Lyle McKinnon, at the Kenya site

### June 23

Guest Speaker: Dr. Carole Beaudoin, Public Health Agency of Canada

Talk entitled: Use of Social Network in Public Health Surveillance

Trainee Presenters: Zulma Rueda, Colombia site, and Arup Kumar Das, India site

### September 22

Talk entitled: Alternative Ancient Medicine, Qigong Ancient Healing

Trainee Presenters: Zhujun Ao and Michael Stobart, Winnipeg site and Arup Kumar Das, at the India site

### October 13

Guest Speaker: Dr. Ethan Rubenstein, University of Manitoba

Talk entitled: CA-MRSA – An Emerging Infectious Disease

Trainee Presenters: Yoav Keynan and Jennifer Juno, Winnipeg site and Cisily Meeme, at the Kenya site

### November 24

Guest Speaker: Assembly of Manitoba Chiefs

Talk entitled: Research Ethics and the Law in Canada: Brief Overview

Trainee Presenters: James Sainsbury, Winnie Apidi, from the Winnipeg site

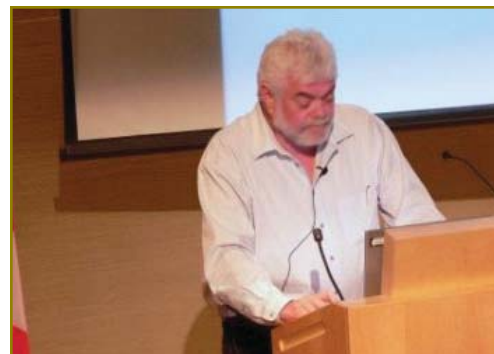
### December 15

Guest Speaker: Dr. Ravikumar, Kempegowda Institute of Medical Sciences, Bangalore, India

Talk entitled: Update in Epidemiology of Vector Borne Diseases

Topic: Malaria

Trainee Presenters: Michael Babu Raj, Kaveri Gurav, India site and Meika Richmond from the Winnipeg site



Dr. Frank Plummer at Infectious Minds in March

## **PROGRAM ADVISORY COMMITTEE**

The Program Advisory Committee is composed of key stakeholders who may eventually employ graduates of the training program or those whose input can help shape the training program. This committee was struck in March 2010 with the first meeting scheduled May 12. Dr. Marc Ouellette, director of CIHR's Institute for Infection and Immunity was invited to participate and offered valuable comments on the program. Dr. Gary Glavin, Associate Vice-President (Research) accepted the invitation to serve as PAC Chair and he opened the meeting with a roundtable introduction of all PAC members followed by an explanation of members' roles.

Dr. Keith Fowke asked the international sites (India, Kenya and Colombia) to update the PAC members on the program. Highlighted were the Infectious Minds Scientific Video-conference sessions and an update on framework of the Practicum portion of the program requirements.

## **PLANS FOR 2011**

The trainees will be in India to attend the "Planning, implementing and evaluating scaled HIV prevention programs among vulnerable populations in resource-poor settings" course in Bangalore, India from February 14 – 25, 2011 hosted by India site leader Dr. Stephen Moses.



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Canadian Institutes of Health Research (CIHR)  
International Infectious Disease and Global  
Health Training Program (IID & GHTP)

Address:

University of Manitoba, Dept. of Medical Microbiology  
Room 514C, BMSB, 745 Bannatyne Avenue.  
Winnipeg, MB, CANADA  
R3E 0J9

Phone: (204) 977-5609

Fax: (204) 789-3926

E-mail: [zieske@ms.umanitoba.ca](mailto:zieske@ms.umanitoba.ca)



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