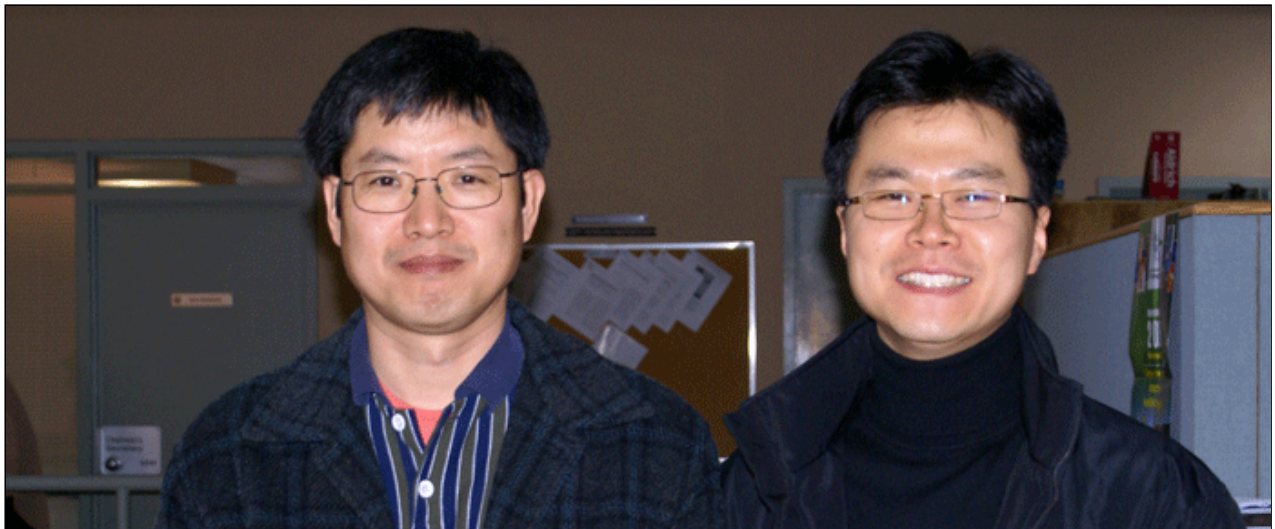


Two Recent Appointments to Pathology and Microbiology



Dr Byeonghwa Jeon (right) joined the Department of Pathology and Microbiology in April. He completed his PhD at the University of Tokyo in 2005, did his postdoctoral training at Dr Qijing Zhang's lab at Iowa State University, and became an Assistant Professor at UPEI in 2010. His research focus is on the molecular mechanisms of antibiotic resistance in *Campylobacter*, gene-based drug discovery using antisense technology, and functional genomics. He will also develop molecular diagnostic tools using nanotechnology. Jeon has many collaborators in several countries such as the US, Japan, and South Korea, and plans to develop international collaboration networks.

Dr Nakhyung Lee (left) joined UPEI in April as a post-doctoral fellow in Dr. Jeon's lab after completing his PhD at Iowa State University in 2009. He has significantly contributed to the understanding of the pathogenicity of *Mycoplasma bovis*. During his PhD research, he established innovative genetic tools for *M. bovis* and developed an excellent live vaccine strain after screening thousands of transposon mutants. The vaccine strain has been successfully patented.

Postdoctoral Fellowship

After completing her PhD at the Atlantic Veterinary College in the department of Pathology and Microbiology, **Sarah Stewart-Clark** has accepted a post-doctoral fellowship position through an Innovation PEI Fellowship at the Atlantic Veterinary College. "I am extremely proud to have conducted my PhD through the department of Pathology and Microbiology and feel that the research experiences

and opportunities that I gained through my graduate program have prepared me to become an innovative researcher in the international research community". Sarah will be conducting her post doctoral research with **Dr Spencer Greenwood** and **Dr Jeff Davidson** using a new innovative mussel microarray to assess the impact of tunicate fouling and tunicate mitigation treatments on mussel health. PEI mussels are world renowned as a quality product and Sarah is excited that her research will help contribute to the innovative science that the AVC Shellfish Health group conducts in support of this important Island industry. In addition to mussel health research, Sarah will continue her research using molecular biology to investigate aquatic invasive species with collaborators throughout our region.



Our Alumnus: Tomy Joseph

Dr Tomy Joseph DVM (India) completed his MSc (2001) and PhD (2004) in our department under the supervision of **Dr Fred Kibenge**. His MSc thesis, entitled "Use of epitope mapping to identify a polymerase chain reaction template for protein amplification of BHV-1 glycoprotein D", received the category of "Distinguished". Tomy switched to infectious salmon anaemia virus (ISAV) for his PhD thesis "Studies on host-pathogen interactions of infectious salmon anaemia virus". After completing his PhD, he



received a Visiting Fellowship from the Institute of Allergy and Infectious diseases, National Institutes of Health (NIH), Bethesda, Maryland, USA, to do Postdoctoral research in Dr Kanta Subbarao's lab. At the NIH, Tomy developed a live attenuated vaccine against avian influenza A H7 subtype viruses for human use by taking advantage of reverse genetics technique. After his postdoc, he moved back to Canada in 2007 to accept the virologist position at the Veterinary Diagnostic Services of Manitoba Agriculture, Food and Rural Initiatives (MAFRI) in Winnipeg, Manitoba. Currently, his research focuses on the spread and pathogenesis of pandemic H1N1-2009 influenza virus in commercial swine in Manitoba. He also has an Assistant Professor

(Adjunct) appointment with the Department of Medical Microbiology, Faculty of Medicine, University of Manitoba.

NSERC Engage Grant: Immunological priming and anti-parasite resistance

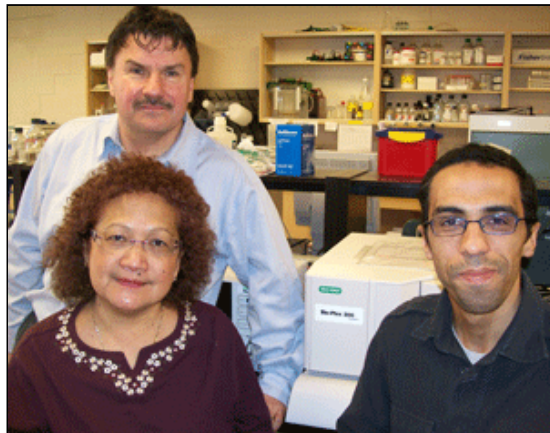
As part of a recently announced NSERC Engage Grant initiative to foster collaborations between industry and academia, **Drs Mark Fast, John Burka and Fred Markham** have received federal funding of \$25,000 in a pilot project (over the next 6 months) with Northeast Nutrition. This project will investigate modes of

immunostimulation in salmon and their potential anti-parasitic effects. With the increasing costs/losses in salmonid culture due to sea lice infections and the real threat of resistance to drug therapy, new methods for enhancing host immune responses against this parasite are of major importance to the industry. As such, Northeast Nutrition (Cooke Aquaculture) will provide in-kind contributions as well as their expertise to this project, in the hopes of better understanding the mechanisms of anti-parasitic resistance.



Innovation PEI Discovery and Development Fund

Dr Ahmed Siah (Principal Investigator), **Dr Carmencita Yason** (Principal Investigator) and **Dr Dave Groman** (Co-Investigator) were successful in their funding application to the Innovation PEI Discovery and Development Fund. Their proposal, entitled "Development of high-throughput diagnostic assay for simultaneous detection of salmonid viruses using fluidic bead-based molecular assay technology", was granted \$99,960.00. The main goal of this project is to develop a multiplexing molecular diagnostic tool



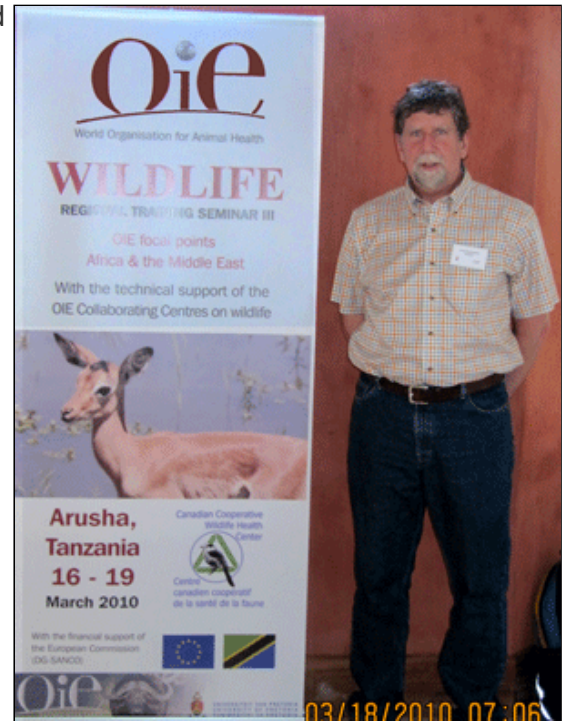
that will be able to simultaneously detect five economically important viruses of salmonids: ISAV, IPNV, IHNV, VHSV and Pancreas Disease virus. The new tool can be used for disease diagnosis, bio-surveillance and routine infectious agent screening. This assay will be validated as a diagnostic tool, and its sensitivity and specificity will be compared to the existing diagnostic tests offered at the Regional Diagnostic Virology Services such as PCR and/or Real Time PCR and virus isolation. If successful, this new multiplex diagnostic tool will be protected and added to the list of tests at AVC Diagnostic Services, and actively promoted among federal and provincial laboratories and aquaculture industry in Canada. The work will be done at

the Mollusk Health Laboratory and the Regional Diagnostic Virology Services Laboratory.

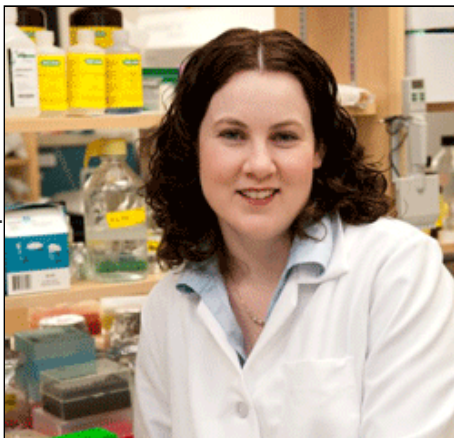
OIE SEMINAR ON WILDLIFE HEALTH SURVEILLANCE IN TANZANIA

Within the framework of the World Organization for Animal Health's (OIE's) ongoing training of wildlife focal points, a joint seminar for English speaking African and Middle Eastern countries was held in Arusha, Tanzania, March 16-19th, 2010. Focal points on wildlife from 21 African countries and 9 Middle Eastern countries attended. The workshop was organized by OIE Regional Representations in Botswana, Mali and Lebanon, along with the OIE Headquarters in France, the OIE Collaborating Centre on Training in Integrated Livestock and Wildlife Health and Management, based at the Dept. of Veterinary Tropical Diseases of the Faculty of Veterinary Science, Pretoria, South Africa, and the OIE Collaborating Centre on Wildlife Disease Surveillance and Monitoring, Epidemiology and Management, based at the Canadian Cooperative Wildlife Health Centre (CCWHC). **Dr Scott McBurney**, CCWHC Atlantic Region, was an invited lecturer and facilitator for the seminar. The training seminar provided OIE-centred subject material to the Focal Points on wildlife to ensure they had the necessary information, updates and skills to better assume their responsibilities and obligations towards the national OIE Delegates in their respective countries. The educational content was designed to

strengthen interaction with the OIE, emphasizing adequate and timely notification of significant wildlife health issues. The interactive seminar used small working group sessions to promote discussion amongst the focal points regarding wildlife health surveillance in their own region; wildlife health professionals from the South African and Canadian OIE Collaborating Centres for Wildlife facilitated the dialogue.



Recent Appointment to Editorial Board



Congratulations to post-doctoral fellow **Dr Sarah Stewart-Clark**, who has been appointed to the editorial board of the journal *Aquatic Invasions* as Associate Editor. This journal is a peer-reviewed, open access journal that publishes original research articles as well as review articles on biological invasions in both inland and coastal waters. These include advances in species identification, patterns of species dispersal, population dynamics, ecological and evolutionary impacts, prediction of new invasions, early detection and early warning, ecological risk assessment and advances in management of invasive species. Dr Stewart-Clark is currently the only Canadian scientist on the editorial board of this journal.

<http://www.aquaticinvasions.net/index.html>

AVC Internal Research Funding

AVC Internal Research Fund awarded \$9 749 to Drs Carol McClure, **Spencer Greenwood**, Jeff Davidson and J McClure to study "Optimizing recovery of protozoan parasites *Cryptosporidium* and *Giardia* from shellfish on PEI".

Dr Byeonghwa Jeon received \$ 9,987 from the AVC Research Fund. His project is about the molecular characterization of a transcriptional regulator essential for *Campylobacter* viability. Due to the inability to construct a knockout mutant of essential genes (their mutation leads to cell death!), it has not been technically feasible to characterize essential genes in *Campylobacter*. However, using antisense technology, he will investigate the function of an essential regulator to explain its essentiality and to explore its potential as an antimicrobial drug target.

Successful Honours Graduate now NSERC-USRA Student

Jessica Willis has successfully defended her honours thesis "Development of a molecular assay for the detection of the

invasive tunicate *Diplosoma listerianum* in water samples" through the biology department at UPEI. Jessica was co-supervised by **Sarah Stewart-Clark** and Dr. Pedro Quijon (Biology). Jessica conducted her research within the AVC LSC and the AVC Shellfish Health group with **Dr Spencer Greenwood** and Dr Jeff Davidson serving as committee members. Jessica was awarded the best honours presentation for 2010.



Jessica Willis will be working with **Dr Spencer Greenwood** to develop a new PCR assay for the identification of the parasitic dinoflagellate *Hematodinium sp.*, the causative agent of Bitter Crab Disease (BCD), a fatal disease of crustaceans. Jessica's summer research is part of a larger NSERC Strategic Grant on "Integrated Studies of the Effects of Bitter Crab Disease on Atlantic Canadian Snow Crab" awarded to **Drs Rick Cawthorn, Andrea Battison and Spencer Greenwood** last year.

Recent Publications

Jeon B, Muraoka, WT, Zhang Q. 2010. Advances in *Campylobacter* biology and implications for biotechnological applications. *Microbial Biotechnology* 3:242-258.

Mateo DR, Greenwood SJ, Araya MT, Berthe F, Johnson GR, Siah A. 2010. Differential gene expression of -Actin, Toll-Like Receptor 2 (TLR-2) and Interleukin 1 Receptor-Associated Kinase 4 (IRAK-4) in *Mya arenaria* haemocytes induced by *in vivo* infections with two *Vibrio splendidus* strains. *Developmental and Comparative Immunology* 34:710-714.

Forzan MJ, R Vanderstichel, Y F Melekhovets, S McBurney. 2010. Trichomoniasis in finches from the Canadian Maritime provinces an emerging disease. *Canadian Veterinary Journal* 51:391396

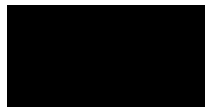
Abstracts and Presentations

Conboy, G. Canine Angiostrongylosis: The French Heartworm - An Emerging Threat In North America. American Heartworm Society's 2010 Heartworm Symposium in Memphis, Tennessee, April 15-18, 2010

Upcoming Events

Graduate Studies and Research Days, May 13-14, 2010

The "Prato Conference on the Pathogenesis of Bacterial Diseases of Animals" Monash Prato Campus, Prato Italy October 6-9, 2010. For further information please visit the [official web site](#).



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For comments or suggestions for our newsletter, please contact Alfonso Lopez

lopez@upei.ca



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