Bio-Update

University of Lethbridge - Department of Biological Sciences Newsletter
Fall 2010

WELCOME FROM THE DEPARTMENT CHAIR

On behalf of the members of the Department of Biological Sciences, it is my pleasure to extend a warm welcome to our 16 new Graduate students. I would also like to send greetings to current Graduate students. We now have over 60 graduate students in our department! With graduate student enrollment at an all-time high, it is hard to miss your presence in our department. You play a vital role in the various research programs and are critical to the delivery of our undergraduate programs. I would encourage you to get to know one another as well as the other members of our Department. Become involved in community, campus and departmental activities. We routinely have departmental mixers during the semester – come to these events, don't be shy. I look forward to meeting all of you in the near future as I do my "walkabouts". If I can be of assistance, please let me know! I wish you all the best for a productive, rewarding and enjoyable year.

~ Brent

On science and research:

The scientist is not a person who gives the right answers, he's one who asks the right questions.
~ Claude Lévi-Strauss

Research is to see what everybody else has seen, and to think what nobody else has thought.
~ Albert Szent-Györgi

The most exciting phrase to hear in science, the one that heralds the most discoveries, is not "Eureka!" (I found it!) but "That's funny..." *~ Isaac Asimov*

You just might be a grad student if...

you look forward to summers because you're more productive without the distraction of classes.

Young researchers should practice their Nobel acceptance speeches early in their careers; but leave the subject area blank for now.

NEW GRADUATE STUDENTS IN THE DEPARTMENT

MUNIMA ALAM

Hometown: Lethbridge, AB
Undergraduate Degree: B.Sc. Biochemistry (U of L)
Graduate Project: (M.Sc.) I am working in the field of molecular genetics/epigenetics, investigating epigenetic dysregulation in the molecular etiology of ionizing radiation-induced malignancies.
Supervisor: Dr. Olga Kovalchuk
Other interests: Philanthropy, travelling, staying active.

PANKAJ BANIK

Hometown: Chittagong, Bangladesh
Undergraduate Degree: B.Sc.- M.Sc. Agricultural Engineering (Bangladesh), M.Sc.- Res.M. Agricultural Science (U of Plymouth, UK)
Graduate Project: (Ph.D.) Stress resistance in Tobacco plants.
Supervisor: Dr. Igor Kovalchuk
Other interests: Meeting with new people, having traditional food from different countries.

MICHAEL CAMPEN

Hometown: Lethbridge, AB
Undergraduate Degree: B.Sc. Environmental Science (U of L)
Graduate Project: (M.Sc.) I am studying the productivity of southern Alberta's reservoirs to determine the factor or factors which makes one reservoir more productive than another. Mapping the community structure and energy flow through the food webs.
Supervisor: Dr. Joseph Rasmussen
Other interests: Hunting, fishing and camping

Melanie Kalischuk

Hometown: Lethbridge, AB
Undergraduate Degree: B.Sc. Biological Sciences (U of L), M.Sc. Forest Biology (U of A).
Graduate Project: (Ph.D.) The theme of my program is plant host and pathogen interactions and my research is concentrated in three main areas:
- biotic transgenerational adaption in plants
- interactions within the small interfering RNA pathway between a pararetrovirus and a perennial host plant
- disease resistance genes and the involvement of surface cell receptor mediated signal transduction
Supervisor: Dr. Igor Kovalchuk
Other interests: hiking and short distance triathlons

Peter Kruczkiewicz

Hometown: Victoria, BC
Undergraduate Degree: B.Sc. Biochemistry (U of Victoria)
Graduate Project: (M.Sc.) Developing high-throughput genotyping methods and the software tools to help create them or analyze the data generated by these methods for *Listeria monocytogenes*.
Supervisor: Dr. Jim Thomas & Dr. Eduardo Taboada
Other interests: Gaming, programming, working out, traveling, reading, reddit.

Kathryn Kuchapsky

Hometown: Prince Albert, Saskatchewan
Undergraduate Degree: B.Sc. Biological Sciences (U of C)
Graduate Project: (M.Sc.) I am studying the effects of selenium loading on fish community composition in foothills streams draining reclaimed coal surface mines.
Supervisor: Dr. Joseph Rasmussen
Other interests: Outdoor activities, travelling - anything to get outside and on the road

Brittany Lanser

Hometown: Taber, Alberta
Undergraduate Degree: B. Sc.with Honours in Toxicology (U of Saskatchewan)
Graduate Project: (M.Sc.) My project will be involved with characterizing the molecular basis of checkpoint adaptation within cancer cells. Our aim will be to identify proteins that help cancer cells survive cancer treatments, such as drugs or radiation that should have normally stopped their growth. By characterizing the protein pathways that cancer cells use to respond to treatments, we will be better able to propose new ways to improve cancer treatments.
Supervisor: Dr. Roy Golsteyn
Other interests: Among my interests are travelling, reading and snowboarding

Preston Lennox

Hometown: Moose Jaw, Saskatchewan
Undergraduate Degree: B.Sc. Environmental Science (U of L)
Graduate Project: (M.Sc.) I am studying the effects of anthropogenic stream channelization on reaches of the Crowsnest River as they relate to fish habitat and macro-invertebrate populations.
Supervisors: Dr. Joseph Rasmussen
Other interests: Anything outdoors.

Aki Matsuoka

Hometown: Yokkaichi city, Japan
Undergraduate Degree: B.Sc. Biology (U of L)
Graduate Project: (M.Sc.) My project is *Agrobacterium*-mediated transformation of plants: Improvement of chloroplast transformation by generation of modified VirD2. The goal of my study is to create a new method for chloroplast transformation in order to use it for agricultural applications.
Supervisors: Dr. Alicja Ziemienowicz & Dr. Igor Kovalchuk
Other interests: Playing music

Zoe Dnielle Migicovsky

Hometown: Pointe-Claire, Quebec
Undergraduate Degree: B.Sc. with Honours in Biology (Acadia University)
Graduate Project: (M.Sc.) I will analyze specific epigenetic changes in plants exposed to stress using the model plant Arabidopsis thaliana. The objective of these experiments will be to examine the influence of high and low temperature stresses on Arabidopsis plants.
Supervisor: Dr. Igor Kovalchuk
Other interests: Reading, writing, travel, movies.

Mohammad Rahavi

Hometown: Isfahan, Iran
Undergraduate Degree: B.Sc. Microbiology (Azad University, Iran), B.Sc. Agricultural Biotechnology (UofL)
Graduate Project: (M.Sc.) I am focusing on epigenetic perspective of transgenerational stress tolerance and stress memory in plants.
Supervisors: Dr. Igor Kovalchuk
Other interests: I enjoy outdoor activities like camping, hiking, biking, and skiing and I always would like to meet new people and make more friends.

Corinne Sidler

Hometown: Allschwil, BL Switzerland
Undergraduate Degree: B.Sc. Biology, ETH Zurich, Switzerland
Graduate Project: (Ph.D.) Biomolecular Science. Combined effects of radiation and aging on epigenetic responses in eukaryotic cells.
Supervisors: Dr. Olga Kovalchuk & Dr. Igor Kovalchuk
Other interests: Travelling, reading, music, playing tennis.

Joel Stimson

Home country: Calgary, Alberta
Undergraduate Degree: B.Sc. Biological Sciences (U of L)
Graduate Project: (M.Sc.) I will be investigating the bystander effects, which occur in male and female *Rattus norvegicus* liver tissue after exposure to ionizing radiation to the cranium. I will be observing the molecular changes through epigenetic mechanisms, including DNA methylation patterns, gene expression, micro-RNA (miRNA) changes, and western blot analysis.
Supervisors: Dr. Olga Kovalchuk
Other interests: Physical activity is high on my list of priorities, including, running, intramural sports (ice & floor hockey), weight lifting, etc. I also enjoy spending time with family, and friends, regardless of the activity that accompanies it.

Melissa Thomson

Hometown: Coaldale, Alberta
Undergraduate Degree: B.Sc. Biological Sciences (U of A)
Graduate Project: (M.Sc.) The purpose of my study is to evaluate the circulation of the 'Lancet liver fluke' (*Dicrocoelium dendriticum*) among potential definitive hosts within Cypress Hills Provincial Park. The relatively closed nature of the park provides the opportunity to estimate the reproductive rate of individual parasites within individual hosts. This data, coupled with estimates of host population size, will allow me to determine those hosts most responsible for overall transmission. A second aim is to evaluate seasonal and spatial patterns of infection of larval stages in ants and to determine where and when grazing ungulates are most are risk of infection.
Supervisor: Dr. Cameron Goater
Other interests: The activities I enjoy include: hiking, camping, horse riding, hunting, reading, wall climbing, kickboxing, rollerblading and running.

Pan Wang

Hometown: Jinan, China
Undergraduate Degree: B.Sc. Microbiology, (Shandong University, China), M.Sc. Microbiology, (Shandong University, China)
Graduate Project: (Ph.D.) I am working on a transcriptomics/metatranscriptomics project from rumen microenvironment, which will enhance the understanding of the molecular mechanisms of bioconversion of lignocelluloses to value added economically significant products.
Supervisors: Dr. Brent Selinger & Dr. Tim McAllister
Other interests: Reading, gardening, cooking.

Stephanie Wickersham

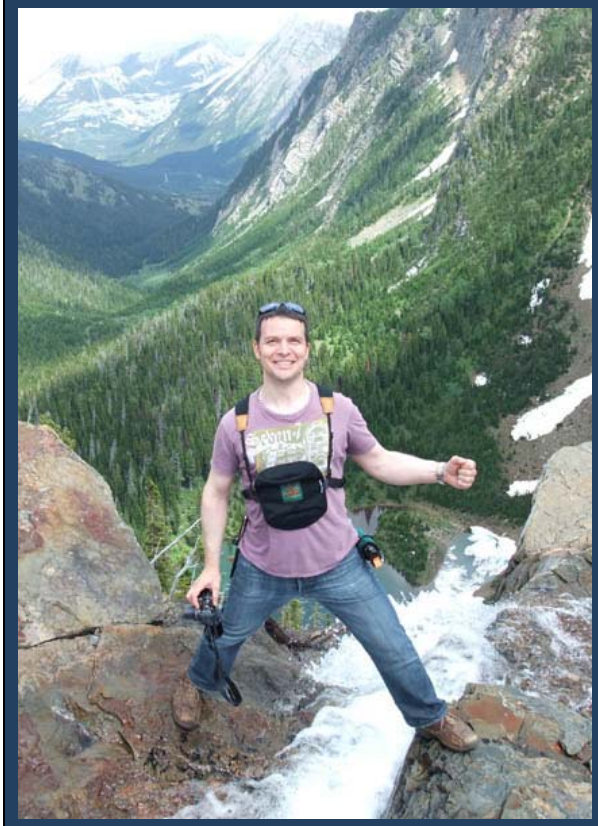
Hometown: Lethbridge, AB
Undergraduate Degree: B. Sc. Neuroscience (U of L).
Graduate Project: (M.Sc.) Down-regulation of Ku70 in Mammalian Cells using Cell-Penetrating Peptides.
Supervisor: Dr. Igor Kovalchuk
Other interests: Motorcycles, road trips, biking

RULES OF THE LAB:

- If an experiment works, something has gone wrong.
- When you don't know what you're doing, do it neatly.
- Experiments must be reproducible, they should fail the same way each time.
- First draw your curves, then plot your data.
- Experience is directly proportional to equipment ruined.
- Always keep a record of your data. It indicates that you have been working.
- To do an experiment really well, have your report done well in advance.
- If you can't get the answer in the usual manner, start at the answer and derive the question.
- In case of doubt, make it sound convincing.
- Do not believe in miracles - rely on them.
- Teamwork is essential, it allows you to blame someone else.
- No experiment is a complete failure. At least it can serve as a negative example.

OTHER NEW FACES IN THE DEPARTMENT

Margaret Cook has been with the University of Lethbridge for over 12 years; and has spent the last 8 ½ years with the Department of Geography. She has recently been reassigned to the Biology Department as an Admin Support III.
Margaret has Business Administration certificate from the Lethbridge College and has completed a Management Certificate (02) through the U of L Faculty of Management and is currently three quarters of the way through a Bachelor of Arts degree. She is quite active with the AUPE (Union) and is currently entering her second 3 year term as a Senator and is also a Union Steward.
Margaret enjoys cross-stitching and crossword puzzles in the little free time that her 3 year old granddaughter allows her.



Dmitry Litvinov joined the department in January 2010 as a research associate in Dr. Olga Kovalchuk's laboratory. Dmitry is trained in cell biology, molecular biology, and biochemistry. He was born and raised in Russia. After graduating from Moscow State University he obtained a PhD degree at the Engelhardt Institute of Molecular Biology under Dr. Kirill Turpaev and Dr. Lev L Kisselev studying the cross-talk of nitric oxide and oxidative conditions on gene expression during inflammation. Afterwards Dmitry spent six years in the United States continuing his research in signaling and oxidative stress-related projects in cardiovascular biology with Dr. Victoria Bolotina's laboratory at the Boston Medical Center; Dr. Thomas Michel's laboratory at the Brigham and Women Hospital in Boston, MA; and Dr. Sampath Parthasarathy's laboratory at the Ohio State University Medical Center.
Dmitry is interested in applying high throughput molecular biology approaches and bioinformatics to better understand genetic and epigenetic basis for complex diseases such as hypertension, atherosclerosis, or cancer. His current project in Dr. Olga Kovalchuk's laboratory is to reveal the epigenetic changes after low dose irradiation, and to study if these changes lead to genome instability and/or can lower the harmful effects of following high dose radiation exposure.
When Dmitry needs a break from intense lab work, he goes for a hike or skis on the spectacular Canadian Rockies.

Priti Maheshwari completed both her M.S. and Ph.D. degrees at Devi Ahilya University, Indore, India. Her research involved screening of plants for bioactive secondary metabolites, in vitro regeneration of medicinal plants for conservation and large scale propagation, establishment of cell suspension and callus cultures for production of bioactive compounds. In her present position as a Research Associate in Igor Kovalchuk's Lab, Priti is working on improving and developing new plant transformation methods in various crop plants including monocots and dicots viz. Triticale, wheat, canola, castor and also on tree species like poplar. Research does not leave much time for hobbies, but Priti loves to dance. She is a trained dancer of various East Indian dance forms including classical dance 'Kathak'. Now in Canada she is trying to learn Ballet. Priti also loves cooking and travelling to new places.

Natasha Singh was born and brought up in India where she completed her Bachelor's and Master's degrees in Biochemistry. This was followed by a PhD with Dr. Yohannes Tesfaigzi from Lovelace Respiratory Research Institute and University of New Mexico on the post-transcriptional regulation of bcl-2 mRNA by p53 and INF-gamma induced Noxa in lung epithelial cells. She came to Canada to work as a postdoctoral research scholar with Dr. John Mercer at the Cross Cancer Research Institute in Edmonton, where she was working on developing aptamers for phosphatidylserine (PS) externalization during early apoptosis that could be used for diagnosing if therapy was effective in cancer patients undergoing treatment for their condition. Currently Natasha is working as a research associate with Dr. Olga Kovalchuk. Her project deals with understanding the epigenetic mechanisms involved in low dose radiation-induced genome instability. Natasha is also an avid reader and interested in the outdoor activities like canoeing and hiking.

Bo Wang joined the department in July 2010 as a post-doctoral fellow in the Olga Kovalchuk's Lab. He obtained a M.D. from Harbin Medical University, People's Republic of China, and his Ph.D. (Biochemestry) from University of Cape Town, South Africa. Bo is studying the epigenetic alterations (DNA methylation, histone modifications, and microRNAs) of mammary gland, thymus and spleen in response to low dose of ionizing radiation using rat model, and mechanisms involved in microRNA transcription. When he has free time, Bo enjoys outdoor activities, as well as reading and watching cartoons and movies.

ACA GRANTS IN BIODIVERSITY

Are you interested in biodiversity research? Information and application forms for this year's competition for the **ACA Grants in Biodiversity** are available on the website **http://www.acabiodiversity.ca/** .

This grant program is sponsored by the Alberta Conservation Association, and has been established to increase knowledge of flora and fauna in Alberta, and to support Alberta-based research. Graduate students are invited to submit applications outlining proposals for research studies to be done in Alberta. Any area of interest relevant to biodiversity will be considered.

Please note that applications must have signatures from your Department, Faculty and University. Applications must be received at the address indicated on the form by 4:00pm, December 1, 2010.

For more information about the grants, contact Tracy Stewart at tracy.stewart@ualberta.ca.

Have information that you would like to see in a future issue of the newsletter?
This newsletter cannot be produced without the input and support of all Department members and graduate students, so if you have suggestions, comments, or material for the newsletter, please contact Tatiana Arjannikova (***arjannikova@uleth.ca***) or Katrina Mendez (***katrina.mendez@uleth.ca***).