



# Bio-Update

*University of Lethbridge - Department of Biological Sciences Newsletter*  
*Spring 2008 Issue*

## **NEWS FROM THE CHAIR**

This year's research activities summary indicates another spectacular year of productive research in our department. I extend a collective WELL DONE and CONGRATULATIONS to everyone. It is a special thrill to see so many of our undergraduate and graduate students included in so many high-quality publications. Following a year when we celebrated the Board of Governor's Chairship Awards to Igor and Olga AND Stew's Ingrid Speaker Medal for Distinguished Research, I find it incredible that we celebrate additional accomplishments only one year later. Our most sincere congratulations go to Stew for been awarded a highly prestigious Killam Research Fellowship and to Larry for being awarded this year's Ingrid Speaker Medal for Distinguished Research. These are both pinnacle awards, acknowledging lifetimes of outstanding contributions to research. I wish everyone all the best for continued success in your research endeavors over the next year.

Proudly,  
Cam

## **New Research Equipment**

The new tabletop scanning electron microscope has arrived and Doug Bray would like department members to know that it is available for demonstrations and use throughout the summer. It is currently situated in D760A. Anyone wishing to use the new SEM can contact Doug for an appointment. The new SEM is extremely easy to use and could be incorporated into your research and/or teaching programs.



## **IN THE NEXT ISSUE**

Watch for the special graduate student edition of BioUpdate in Fall 2008. As always, this newsletter cannot be produced without the input and support of all Department members, and we thank you for your contributions. If you have suggestions for future newsletter issues, please send them to Katrina White ([katrina.white@uleth.ca](mailto:katrina.white@uleth.ca)).

### **Department Member Highlight – Dr. Alice Hontela**



Dr. Hontela holds a Canada Research Chair in Ecotoxicology. The main focus of her research is the effect of chronic low-level exposure to environmental pollutants on the health of animal species in the wild. Certain toxins have important implications for wildlife as they can affect the endocrine system, which regulates physiological functions through hormones. Alice's specific focus in recent research is on how pollutants affect adrenal function and corticosteroid hormones in teleost fish and amphibians. The synthesis of certain hormones, such as cortisol and corticosterone, which play a role in metabolism, osmoregulation and immune function, can be disrupted by environmental pollutants leading to deleterious effects on animal health.

Alice spoke at the SACPA in April 2007, discussing the impact of water contaminants.

"So many feedlots, riverside developments and agribusinesses, and so little research on their impact on southern Alberta water systems. In a nutshell, that was the message University of Lethbridge professor Alice Hontela spread during a luncheon address to an audience of the Southern Alberta Council on Public Affairs.

River water can be contaminated from a myriad of sources, Hontela explained. Sewage treatment plants do not have the capacity to filter out all traces of pharmaceuticals and antibiotics that are excreted, then flushed into sewage. Because many rivers and streams in Alberta don't include buffer zones, cattle treated with antibiotics and hormones may have their solid and liquid wastes leach directly into rivers...

"Unfortunately, the average person will be interested in water quality issues only when big problems happen. When people get sick, then everybody is interested"

Hontela hopes the burgeoning water quality research done at the U of L will act as a catalyst outlining the complexity and inter-relatedness of water quality issues."

(Lethbridge Herald, Friday, April 20, 2007)

#### **Recent publications from Alice's research and collaborations:**

Hontela, A. V.S. Leblond, J.P. Chang. 2008. Purification and isolation of corticosteroidogenic cells from head kidney of rainbow trout (*Oncorhynchus mykiss*) for testing cell-specific effects of a pesticide. *Comparative Biochemistry and Physiology, Part C* 147:52-60.

Campbell, P.G.C., L.D. Kraemer, A. Giguere, L. Hare, and A. Hontela. (in press). Subcellular distribution of cadmium and nickel in chronically exposed wild fish: inferences regarding metal detoxification strategies and implications for setting water quality guidelines for dissolved metals. *Human and Ecological Risk Assessment*

Rasmussen J.B., Gunn J.M., Sherwood G., Iles A., Gagnon A., Campbell P.G.C., Hontela A. (in press). Direct and indirect (foodweb mediated) effects of metal exposure on growth of yellow perch (*Perca flavescens*): implications for ecological risk assessment. *Human and Ecological Risk Assessment*

Miller L.L., F. Wang, V.P. Palace, A. Hontela. 2007. Effects of acute and subchronic exposures to waterborne selenite on the physiological stress response and oxidative stress indicators in juvenile rainbow trout. *Aquatic Toxicology* 83: 263-271.

Gagnon E., A. Hontela, C. Jumarie. 2007. Reciprocal inhibition of Cd and Ca uptake in isolated head kidney cells of rainbow trout, *Oncorhynchus mykiss*. *Toxicology in Vitro* 21: 1077-1086.

## 2007 DEPARTMENT RESEARCH ACTIVITIES

(Department members shown in bold, graduate and independent study students underlined)

### Journal Articles, Book Chapters, etc.:

**Acharya, S.N., S.K. Basu and J.E. Thomas.** 2007. Medicinal properties of fenugreek (*Trigonella foenum-graecum* L.): a review of the evidence based information. In: *Advances in Medicinal Plant Research*.

Acharya, S.N. and J.E. Thomas (Eds). Research Signpost (Publisher), pp. 81-122.

**Acharya, S.N. and J.E. Thomas** (Eds). 2007. *Advances in Medicinal Plant Research*. pp. 550. Research Signpost (Publisher).

**Acharya, S.N., J.E. Thomas** and S.K. Basu. 2007. Improvement in the medicinal and nutritional properties of fenugreek (*Trigonella foenum-graecum* L.). In: *Advances in Medicinal Plant Research*.

Acharya, S.N. and J.E. Thomas (Eds). Research Signpost (Publisher), pp. 491-512.

Auer, S.K, **D.M. Logue**, R.D. Bassar and D.G. Gammon. 2007. Nesting biology of the Black-bellied wren in central Panama. *Wilson Journal of Ornithology* 119:71-76.

Baker, M.C. and **D.M. Logue**. 2007. A comparison of three noise reduction procedures applied to bird vocal signals. *Journal of Field Ornithology* 78:240-253.

Basu, S., F. Eudes, and **I. Kovalchuk**. (in press). ROLE OF *recA/rad51* gene family in homologous recombination repair and genetic engineering of transgenic plants. Ashwani Kumar (Ed). In *Plant Biotechnology*.

Basu, S.K., **J.E. Thomas** and **S.N. Acharya**. 2007. Prospects for growth in global nutraceutical and functional food markets: a Canadian perspective. *Aust. J. Basic Appl. Sci.* 1(4). 637-649.

Bizimungu, B., D.R. Lynch, **L.M. Kawchuk**, Q. Chen, M. Konschuh, J. Holley, D.K. Fujimoto, D. Driedger, H. Wolfe, L. Dunbar, D. Waterer, P. Bains, J. Wahab and P. McAllister. 2007. Northstar: A high yielding white cold-storage chipping potato cultivar with attractive, oval tubers resistant to late blight. *American Journal of Potato Research* 84: 457-465.

Boyko, A., P. Kathiria, F. Zemp, Y. Yao, I. Pogribny, and **I. Kovalchuk**. 2007. Transgenerational changes in the genome stability and methylation in pathogen-infected plants. *Nucleic Acids Research*, 35(5):1714-25. Profiled in "Faculty of 1000" with the factor of "6.0"

Boyko A. and **I. Kovalchuk**. (in press). Genetics and epigenetic nature of transgenerational changes in pathogen exposed plants. C.S. Nautiyal (Ed.) In *Molecular Mechanisms of Plant and Microbe Co-existence*, Review.

Boyko A. and **I. Kovalchuk**. 2008. Epigenetics of plant response to stress. *Environmental and Molecular Mutagenesis* 49(1):61-72, Review.

Boyko A. and **I. Kovalchuk**. 2007. Genetics and epigenetics of pathogen-induced genome instability. *Plant Stress* 1(1), 23-31, Review.

Boyko, A., and **I. Kovalchuk**. 2007. Advancing efficiency of genetic transformation in dicots. IN VITRO CELLULAR & DEVELOPMENTAL BIOLOGY-PLANT 43(6):671-671

**Burg, T.M.** 2008. Provenance of wandering albatrosses killed in longline fisheries off the east coast of New Zealand. *Aquatic Conservation Special Issue*:S93-S101

- Burg, T.M.** 2007. Phylogeography of chestnut-backed chickadees in western North America. Editor Ken Otter. In *Evolution and Behaviour in the New World Parids*. Oxford University Press.
- Cárcamo, H.A., **K.D. Floate**, B.L. Lee, B.L. Beres and F.R. Clarke. (in press). Developmental instability in a stem-mining sawfly: can fluctuating asymmetry detect plant host stress in a model system? *Oecologia*
- Chekhun, V.F., N.Y. Lukyanova, V.P. Tryndyak, **O. Kovalchuk** and I.P. Pogribny. 2007. Epigenetic profiling of multidrug resistant breast cancer cells reveals novel hypo- and hypermethylated targets. *Molecular Cancer Therapeutics* 6:1089-1098.
- Chivers, D.P., B.D. Wisenden, C.J. Hindman, T.A. Michalak, R.C. Kusch, S.G.W. Kaminskyj, K.L. Jack, M.C.O. Ferrari, R.J. Pollock, C.F. Halbgewachs, M.S. Pollock, S. Alemadi, C.T. James, R.K. Savaloja, **C.P. Goater**, A. Corwin, R.S. Mirza, J.M. Kiesecker, G.E. Brown, J.C. Adrian Jr., P.H. Krone, A.R. Blaustein and A. Mathis. 2007. Epidermal 'alarm substance' cells of fishes maintained by non-alarm functions: possible defence against pathogens, parasites and UVB radiation. *Proceedings of the Royal Society of London* 274:2611-2619.
- Conn, D.B., **C.P. Goater** and **D. Bray**. (in press). Developmental and functional ultrastructure of *Ornithodiplostomum ptychocheilus diplostomula* (Trematoda: Strigeoidea) during invasion of the brain of the fish intermediate host, *Pimephales promelas*. *Journal of Parasitology*
- Esmenjaud-Mailhat, C., V. Lobjois, C. Froment, **R.M. Golsteyn**, B. Monsarrat, B. Ducommun. 2007. Phosphorylation of CDC25C at S263 controls its intracellular localisation. *FEBS Letters* 581:3979-3985.
- Floate K.D.** 2007. Endectocides residues affect insect colonization of dung from treated cattle: implications for toxicity tests. *Medical and Veterinary Entomology* 21:312-322.
- Floate K.D.**, H.A. Cárcamo, R. Blackshaw, B. Postman and S. Bourassa. 2007. Response of ground beetle (Coleoptera: Carabidae) populations to four years of Lepidoptera-specific Bt corn production. *Environmental Entomology* 36:1269-1274.
- Floate, K.D.**, P.C. Coghlin and D. Taylor. (in press). An update on the diversity of Wolbachia bacteria in Spalangia spp. (Hymenoptera: Pteromalidae). *Biocontrol Science and Technology*
- Friesen, V.L., **T.M. Burg** and K.M. McCoy. 2007. Mechanisms of population differentiation in seabirds. Invited Review for Molecular Ecology. *Molecular Ecology* 16:1765-1785.
- Goater, C.P.** and **D.D. Colwell**. 2007. Epidemiological characteristics of an invading parasite: *Dicrocoelium dendriticum* in sympatric wapiti and beef cattle in southern Alberta, Canada. *Journal of Parasitology* 93:491-494.
- Kathiria, P., Boyko, A., Kovalchuk, I. 2007. Compatible plant-pathogen interactions trigger various transgenerational responses. CANADIAN JOURNAL OF PLANT PATHOLOGY-REVUE CANADIENNE DE PHYTOPATHOLOGIE 29 (2): 210-210
- Koturbash, I., K. Kutanzi, R. Rodriguez-Juarez, D. Kogosov and **O. Kovalchuk**. (in press). Distinct epigenetic manifestations of the *in vivo* radiation-induced bystander effects in male and female mice. *Mutation Research*.
- Koturbash, I., F.J. Zemp, K. Kutanzi, L. Luzhna, J. Loree, B. Kolb and **O. Kovalchuk**. (in press). Sex-specific microRNAome deregulation in the shielded bystander spleen of cranially exposed mice. *Cell Cycle*.
- Koturbash, I., J. Loree, K. Kutanzi, C. Koganow, I. Pogribny, and **O. Kovalchuk**. 2008. In vivo bystander effect: cranial X-irradiation leads to elevated DNA damage and altered cellular proliferation and apoptosis in shielded spleen. *International Journal of Radiation Oncology\*Biology\*Physics* 70: 554-62.

Koturbash, I., A. Boyko, R. Rodriguez-Juarez, R. McDonald, V. Tryndyak, **I. Kovalchuk**, I. Pogribny and **O. Kovalchuk**. 2007. Role of epigenetic effectors in maintenance of the long-term persistent bystander effect in spleen in vivo. *Carcinogenesis* 28:1831-1838.

**Kovalchuk I.** and **O. Kovalchuk**. (in press). Monitoring heavy metal pollution with transgenic plants. In *Heavy Metal Pollution* by Nova Publishers Inc.

**Kovalchuk, I.** and **O. Kovalchuk**. 2008. Transgenic Plants as Environmental Biosensors. In Special Issue “Phytosensors: Environmental Sensing with Plants and Plant Cells”. *Sensors* 8, 1539-1558. Review.

**Kovalchuk, I.**, J. Molinier, Y. Yao, A. Arkhipov, and **O. Kovalchuk**. 2007. Transcriptome analysis reveals fundamental differences in plant response to acute and chronic exposure to ionizing radiation. *Mutation Research* 624:101-13.

**Kovalchuk, O.**, J. Filkowski, J. Meservy, Y. Illytsky, V. Tryndyak, V. Chekhun and I. Pogribny. (in press). Involvement of microRNA-451 in resistance of the MCF-7 breast cancer cells to chemotherapeutic drug doxorubicin. *Molecular Cancer Therapeutics*.

**Kovalchuk, O.** 2008. Epigenetic research sheds new light on the nature of interactions between organisms and their environment. *Environmental and Molecular Mutagenesis* 49:1-3.

**Kovalchuk, O.** and J.E. Baulch. 2008. Epigenetic changes and non-targeted radiation effects – is there a link? *Environmental and Molecular Mutagenesis* 49:16-25

**Kovalchuk, O.**, V.P. Tryndyak, B. Montgomery, A. Boyko, K. Kutanzi, F. Zemp, A.R. Warbritton, J.R. Latendresse, I. Kovalchuk, F.A. Beland, and I.P. Pogribny. 2007. Estrogen-induced rat breast carcinogenesis is characterized by alterations of DNA methylation, histone modifications and aberrant microRNAs expression. *Cell Cycle* 6: 2010-2018.

**Logue, D.M.** and W. Forstmeier. (in press). Constrained performance in a communication network: Implications for the function of song-type matching and the evolution of multiple ornaments. *The American Naturalist*

**Logue, D.M.**, C. Chalmers & A.H. Gowland. 2008. The behavioural mechanisms underlying temporal coordination in black-bellied wren duets. *Animal Behaviour* 75: 1803-1808.

**Logue, D.M.** 2007. Duetting in space: A radio-telemetry study of the black-bellied wren. *Proceedings of the Royal Society of London, Series B* 274:3005-3010.

**Logue, D.M.** 2007. A male Greater Ani (*Crotophaga major*) gives a nuptial gift during copulation. *Ornitología Neotropical* 18:311-312.

**Logue, D.M.**, E. Droessler, D. Roscoe, Vokey, J., Rendall, D. and R. Kunimoto. 2007. Sexually antithetical song structure in a duet singing wren. *Behaviour* 144:331-350.

**Logue, D.M.** 2007. How do they duet? Sexually dimorphic behavioural mechanisms structure duet songs in the black-bellied wren. *Animal Behaviour* 73:105-113.

Mennill, D.J., **T.M. Burg**, R.L. Curry, K. Martin, A.R. Norris, L. Ratcliffe, M.W. Reudink, L.M. Rossano and K.A. Schubert. 2007. Parid reproductive behavior. Editor Ken Otter. In *Evolution and Behaviour in the New World Parids*. Oxford University Press.

Noronha C., G.A.P. Gibson and **K.D. Floate**. 2007. Hymenopterous parasitoids of house fly and stable fly (*Muscidae*) puparia in Prince Edward Island and New Brunswick, Canada. *Canadian Entomologist* 139: 748-750.

Pearson, K and **C.P. Goater**. (in press). Distribution of long-toed salamanders relative to introduced trout in high and low-elevation wetlands in southwestern Alberta, Canada. *EcoScience*

Pogribny, I., T.V. Bagnyukova, V.P. Tryndyak, L. Muskhelishvili, R. Rodriguez-Juarez, **O. Kovalchuk**, T. Han, J.C. Fuscoe, and F.A. Beland. 2007. Gene expression profiling reveals the underlying molecular mechanisms of the early stages of tamoxifen-induced rat hepatocarcinogenesis. *Toxicol Appl Pharmacol.* 225:61-69.

Pogribny, I., V. Tryndyak, A.Boyko, R. Rodriguez-Juarez, F.A. Beland and **O. Kovalchuk**. 2007. MicroRNAome deregulation in tamoxifen-induced rat liver carcinogenesis. *Mutation Research* 619:30-37.

Ruthardt, N., **L.M. Kawchuk**, R. Fischer and N. Emans. 2007. The verticillium wilt resistance gene Ve2 is located in the endoplasmic reticulum. *Canadian Journal of Plant Pathology* 29: 3-8.

Sedelnikova, O., A. Nakamura, **O. Kovalchuk**, I. Koturbash, S. Mitchell, S. Marino, D. Brenner, and W. Bonner. 2007. DNA double-strand breaks form in bystander cells after microbeam irradiation of three-dimensional human tissue models. *Cancer Research* 67:4295-4302.

Tamminga, J., I. Koturbash, M. Baker, K. Kutanzi, P. Kathiria, I. Pogribny, R. Sutherland and **O. Kovalchuk**. (in press). Paternal cranial exposure induces distant bystander damage in the germline and leads to epigenetic alterations in the offspring. *Cell Cycle*.

Tryndyak V.P., **O. Kovalchuk**, L. Muskhelishvili, B. Montgomery, R. Rodriguez-Juarez, S. Melnyk, S.A. Ross, F.A. Beland, and I.P. Pogribny. 2007. Epigenetic reprogramming of liver cells in tamoxifen-induced rat hepatocarcinogenesis. *Molecular Carcinogenesis* 46:187-197.

Vitale, I., L. Galluzzi, S. Vivet, L. Nanty, P. Dessen, L. Senovilla, K.A. Olaussen, V. Lazar, M. Prudhomme, **R.M. Golsteyn**, M. Castedo, G. Kroemer. 2007. Inhibition of Chk1 kills tetraploid tumor cells through a p53-dependent pathway. *Public Library of Science (PLoS) ONE* 2:1337.

Wisenden, B.D., **C.P. Goater** and C.T. James. (in press). Behavioral defenses against parasites and pathogens, In *Fish Defenses*, Vol. 2. G Zaccone, C Perriere, A Mathis & B G Kapoor (Eds.). Science Publishers, Inc. Enfield, NH, U.S.A. and Plymouth, U.K.

Yamada, R., **K.D. Floate**, M. Riegler and S.L. O' Neill. 2007. The influence of male development on strength of cytoplasmic incompatibility expression in *Drosophila melanogaster*. *Genetics* 177:801-808.

Yauk, C., A. Polyzos, A. Rowan-Carroll, C.M. Somers, R.W. Godschalk, F J. Van Schooten, M.L. Berndt, I.P. Pogribny, I. Koturbash, A. Williams, G.R. Douglas, and **O. Kovalchuk**. 2008. Germline Mutations, DNA Damage and Global Hypermethylation in Mice Exposed to Particulate Air Pollution in an Urban/Industrial Location. *Proceedings of the National Academy of Sciences of the USA* 105:605-10.

Yauk, C.L., A. Polyzos, A. Rowan-Carroll, I. Koturbash, A. Williams, and **O. Kovalchuk**. 2008. Tandem repeat mutation, global DNA methylation and regulation of DNA methyltransferases in cultured mouse embryonic stem cells chronically exposed to chemicals with different modes of action. *Environmental and Molecular Mutagenesis* 49:26-35.

Ying-Chu Lin, Hsin-I Huang, Li-Hsuan Wang, Chi-Cheng, Tsai, **Oliver Lung**, Chia-Yen Dai, Ming-Lung Yu, Chi-Kung Ho and Chung-Ho Chen. (in press) Polymorphisms of COX-2 -765G>C and p53 codon 72 and risks of oral squamous cell carcinoma in a Taiwan population. *Oral Oncology*.

### Patents:

Chris Sikora and **John Cherwonogrodzky** have obtained a USA patent on a new virulence factor and possible vaccine candidate against *Francisella tularensis* (tularemia).

**Conference Presentations given by Faculty Members and U of L students:**

**Bandara, M., E.L. Lee, D. Driedger, S. Acharya and J. Thomas.** 2007. 12<sup>th</sup> World Congress on Clinical Nutrition. Edmonton, AB.

**Bandara, M., E.L. Lee, D. Driedger, S. Acharya and J. Thomas.** 2008. International Crop Science Congress, Jeju, Korea.

**Basu, S.K., S.N. Acharya and J.E. Thomas.** 2008. 13<sup>th</sup> World Congress on Clinical Nutrition. Xalapa, Mexico.

**Basu, S.K., J.E. Thomas and S.N. Acharya.** 2007. 12<sup>th</sup> World Congress on Clinical Nutrition. Edmonton, AB.

**Basu, S. K., F. Eudes, and I. Kovalchuk.** 2007. PUBS. Regina, SK.

**Boyko, A., Zemp, F., Kathiria, P., Titov, V., Kovalchuk, I.** 2008. 51<sup>st</sup> Annual Meeting of Canadian Society of Biochemistry, Molecular and Cellular Biology. Banff, AB.

**Boyko, A., Zemp, F., Kathiria, P., Kovalchuk, I.** 2008. RNAi, MicroRNA, and Non-Coding RNA. Whistler, AB.

**Boyko, A., Kovalchuk, I.** 2007. International Symposium on Biocatalysis and Biotechnology.

**Boyko, A., Zemp, F., Kathiria, P., and Kovalchuk, I.** 2007. 5th Canadian Plant Genomics Workshop, Vancouver, B.C.

**Boyko, A., Zemp, F., Kathiria, P., Titov, V. and Kovalchuk, I.** 2007. Plant Vascular Biology, Taipei, Taiwan.

**Boyko, A., Kovalchuk, I.** 2007. Plant Vascular Biology, Taipei, Taiwan.

**Boyko, A., Kovalchuk, I.** 2007. Alberta Agricultural Genomics and Biotechnology.

**Boyko, A., van Klei, E., Kovalchuk, I.** 2007. Canadian Society of Plant Physiologists.

**Boyko, A., Kovalchuk, I.** 2007. Canadian Society of Plant Physiologists Annual Meeting.

**Boyko, A., Zemp, F., Kathiria, P., Titov, V. and Kovalchuk, I.** 2007. Canadian Society of Plant Physiologists Annual Meeting.

**Boyko, A., Kovalchuk, I.** 2007. In Vitro Biology Meeting, Indianapolis, Indiana, USA.

**Boyko, A., Kovalchuk, I.** 2007. Plant Biology 2007 – Chicago, Illinois, USA.

**Boyko, A., Zemp, F., Kathiria, P., Kovalchuk, I.** 2007. Keystone Symposia “MicroRNAs and siRNAs: Biological Functions and Mechanisms”.

**Burg, T.M., D. Rains, E. Milot and H. Weimerskirch.** 2007. Waterbird Society Meeting, Barcelona, Spain.

**Cherwonogrodsky, J.** 2007. *Brucella* conference and CRWAD, Chicago, Illinois, USA.

**Filkowski, J., V. Tryndyak, I. Pogribny, O. Kovalchuk.** 2008. Society of Toxicology Meeting, Seattle, WA, USA.

**Filkowski, J., J. Meservy, Y. Ilnytsky, V.F. Chekhun, V. Tryndyak, I. Pogribny, O. Kovalchuk.** 2007. Alberta Cancer Board Research Meeting, Banff, AB.

Filkowski, J., J. Meservy, I. Pogribny and **O. Kovalchuk**. 2007. The 38th Annual EMS Meeting in Mutational and Epigenetic Mechanisms of Susceptibility and Risks for Genetic Diseases. Atlanta, GA, USA.

**Golsteyn, R.M.** 2007. Alberta Cancer Board, Banff, AB.

Greer, MS., Eudes, F., **Kovalchuk, I.** 2007. CSPP Western Regional Meeting.

Greer, MS., Eudes, F., **Kovalchuk, I.** 2007. Plant Canada.

Hallewell, J., **J.E. Thomas**, E.N. Taboada, A. Kropinski and **V.P.J. Gannon**. 2007. Multidisciplinary Graduate Student Conference. Lethbridge, AB.

Kathiria, P., Boyko, A., Zemp, F., **Kovalchuk, I.** 2007. CSPP Western Regional Conference, Kelowna, B.C.

Koturbash, I. and **O. Kovalchuk**. 2007. The 38th Annual EMS Meeting in Mutational and Epigenetic Mechanisms of Susceptibility and Risks for Genetic Diseases. Atlanta, GA, USA.

**Kovalchuk, O.**, J. Filkowski, K. Kutanzi, J. Meservy, V. Tryndyak, V. Chekhun and I. Pogribny. 2008. Keystone Symposium 'RNAi, MicroRNA, and Non-Coding RNA', Whistler, BC.

**Kovalchuk, O.**, K. Kutanzi, V. Tryndyak, I. Pogribny. 2008. Society of Toxicology Meeting, Seattle, WA, USA.

**Kovalchuk, O.** 2007. Alberta Cancer Board Research Meeting, Banff, AB.

Kutanzi, K., V. Tryndyak, I. Pogribny, **O. Kovalchuk**. 2008. Society of Toxicology Meeting, Seattle, WA, USA.

Lee, E.L., **M. Bandara**, **D. Driedger**, **J.E. Thomas** and **S. Acharya**. 2008. Canadian and Obesity Network – Student and New Professional Research Day. Calgary, AB.

Lee, E.L., **J.E. Thomas** and **M. Bandara**. 2007. Multidisciplinary Graduate Student Conference. Lethbridge, AB.

Luzhna, L., V. Tryndyak, V. Chekhun, I. Pogribny, **O. Kovalchuk**. 2008. Society of Toxicology Meeting, Seattle, WA, USA.

Matisz, C. 2007. American Society of Parasitologists, Merida, Mexico. (won 'Distinguished Student Paper' Award for her presentation)

Rains, D. and **T.M. Burg**. 2007. Multi-Disciplinary Research Conference. Lethbridge, AB.

Ross, S., E.N. Taboada, J.M. Mackinnon, J. Johnson, M.J. Roberts, W.O.S. Mauro, A. Ratansi, J. Yan, J.A. Lorentz, **J.E. Thomas**, K. Rahn and **V.P.J. Gannon**. 2007. Multidisciplinary Graduate Student Conference. Lethbridge, AB.

Tamminga, J. and **O. Kovalchuk**. 2007. The 38th Annual EMS Meeting in Mutational and Epigenetic Mechanisms of Susceptibility and Risks for Genetic Diseases, to be held in Atlanta, GA, USA.

**Thomas, J.E.**, E.L. Lee, **M. Bandara**, **D. Driedger** and **S. Acharya**. 2008. 13<sup>th</sup> World Congress on Clinical Nutrition, Xalapa, Mexico.

**Thomas, J.E.**, **B. Selinger**, C. Jokinen, **V.P.J. Gannon**. 2007. ASM 107<sup>th</sup> Gen. Mtg. Toronto, ON.

Zemp, F., Bui, T., **Kovalchuk, I.** 2007. The 13th International Congress of Radiation Research, San Francisco, California, USA.