

# Insect Biotech Conference – 2009

## Conference Schedule

### Wednesday Evening – June 10

- 6:00 pm            **Registration:** Outside Newman Room
- 7:00 pm            **Plenary Talk:** Newman Room  
Professor Carl Lowenberger, Canadian Research Chair in Parasitology and Vectors of Disease, Simon Fraser University  
*Insects and Parasites: After so much time why do we know so little?*
- 7:45 – 9:30 pm    **Reception:** Outside Newman Room

### Thursday, June 11

- 7:45 – 8:50 am    **Breakfast:** Outside Newman Room (Full Canadian)
- 8:50 am            **Opening Remarks:** Ian Orchard
- Session Chair:**     **Ian Orchard**
- 9:00 am            **VISUALISATION OF FREEZING PROCESSES IN INSECTS THAT DO AND DO NOT SURVIVE FREEZING** [*see abstract- page 1*]  
Sinclair, B.J.<sup>1</sup>, Gibbs, A.G.<sup>2</sup>, Lee, W.-K.<sup>3</sup>, Rajamohan, A.<sup>4</sup>, Socha, J.J.<sup>5</sup>, & Roberts, S.P.<sup>2</sup>  
<sup>1</sup>Department of Biology, University of Western Ontario, London, ON, Canada; <sup>2</sup>School of Life Sciences, University of Nevada Las Vegas, Las Vegas, NV, USA; <sup>3</sup>Advanced Photon Source, Argonne National Laboratory, Argonne, IL, USA; <sup>4</sup>Department of Entomology, North Dakota State University, Fargo, ND, USA; <sup>5</sup>Department of Engineering Science and Mechanics, Virginia Tech, Blacksburg, VA, USA
- 9:20 am            **DIET-SPECIFIC EXPRESSION OF SALIVARY TRANSCRIPTS IN BEET ARMYWORM, SPODOPTERA EXIGUA, CATERPILLARS** [*page 2*]  
K. Afshar, P. J. Dufresne, L. Pan, M. Merckx-Jacques and J.C. Bede  
Department of Plant Science, McGill University, Ste-Anne-de-Bellevue, Québec, Canada.
- 9:40 am            **HSP22 OVER-EXPRESSION AND TEMPERATURE SENSITIVITY OF LARVAL LOCOMOTION IN DROSOPHILA MELANOGASTER** [*page 3*]  
Joshi, N., and Robertson, R.M.  
Department of Biology, Queen's University, Kingston, ON, Canada.
- 10:00 am            **STRUCTURAL FEATURES CONFERRING DUAL GERANYL / FARNESYL DIPHOSPHATE SYNTHASE ACTIVITY TO AN APHID PRENYLTRANSFERASE** [*page 4*]  
Vandermoten, S.<sup>1,2</sup>, Charlotiaux, B.<sup>3</sup>, Santini, S.<sup>3</sup>, Béliveau, C.<sup>1</sup>, Francis, F.<sup>2</sup>, Haubruge, É.<sup>2</sup> and Cusson, M.<sup>1</sup>  
<sup>1</sup>Laurentian Forestry Centre, NRCan-CFS, Québec (Québec), Canada G1V 4C7; <sup>2</sup>Unité d'entomologie fonctionnelle et évolutive, et <sup>3</sup>Centre de biophysique moléculaire numérique, Faculté des sciences agronomiques de Gembloux, Gembloux, Belgium

10:20 – 10:40 am      **Coffee Break:** Outside Newman Room

**Session Chair:**      **Angela Lange**

10:40 am      **MDR PROTEINS AND RESPONSE TO XENOBIOTICS BY THE CABBAGE  
LOOPER MOTH, *TRICHOPLUSIA NI* [page 5]**

Simmons, J.S.<sup>1</sup> and B. C. Donly<sup>1,2</sup>

<sup>1</sup>Department of Biology, University of Western Ontario, London, ON, Canada; <sup>2</sup>Southern  
Crop Protection and Food Research Centre, AAFC, London ON, Canada

11:00 am      **A POSSIBLE ROLE FOR THE ANAL PAPILLAE IN CADMIUM TOLERANCE  
IN *CHIRONOMUS RIPARIUS* [page 6]**

Belowitz, R.F., Leonard, E.M and M.J. O'Donnell

Department of Biology, McMaster University, Hamilton, ON, Canada.

11:20 am      **EFFECT OF DESTRUXIN A, A CYCLIC PEPTIDE MYCOTOXIN, ON THE  
MALPIGHIAN TUBULES OF *RHODNIUS PROLIXUS* [page 7]**

Ruiz-Sanchez, E., Orchard, I. and Lange, A.B.

Department of Biology, University of Toronto Mississauga, Mississauga, ON.

11:40 – 12:00 pm      **Short Exposures** (5 minute talks plus questions)

**PLANT DEFENSE RESPONSES TO CATERPILLAR HERBIVORY [page 8]**

T. Copley and Jacqueline C. Bede

Department of Plant Science, McGill University, Ste-Anne-de-Bellevue, Québec,  
Canada.

**RESPONSES TO REFLECTION ARE ALTERED BY SOCIAL EXPERIENCE IN  
*DROSOPHILA MELANOGASTER* [page 9]**

Holly Y. May & A. Joffre Mercier

Dept. of Biological Sciences, Brock University, ON, Canada

**EVOKED CONTRACTIONS OF THE VAGINA MUSCLES IN THE WESTERN  
CONIFER SEED BUG, *LEPTOGLOSSUS OCCIDENTALIS* HEIDEMANN  
(HETEROPTERA: COREIDAE) [page 10]**

Chiang, R.G.<sup>1,2</sup> and M.J. O'Donnell,<sup>2</sup>

<sup>1</sup>Biology Department, Redeemer University College, Ancaster, ON, Canada; <sup>2</sup>Biology  
Department, McMaster University, Hamilton, ON, Canada

12:00 – 1:10 pm      **Lunch Break:** Outside Newman Room (Sandwich Bar)

**Session Chair:**      **Jacqueline Bede**

1:10 pm      **EXPRESSION AND FUNCTIONAL CHARACTERIZATION OF INSECT  
MULTIDRUG RESISTANCE-ASSOCIATED PROTEINS [page 11]**

Labbe, R., Caveney, S., and B.C. Donly

Department of Biology, University of Western Ontario, London, ON, Canada.  
Agriculture and Agri-Food Canada, London, ON, Canada.

- 1:30 pm      **APICAL V-type H<sup>+</sup> ATPase COUPLED TO NHE3 DRIVES SODIUM SECRETION BY THE LARVAL POSTERIOR RECTUM OF THE EXCEPTIONALLY SALINE TOLERANT MOSQUITO *OCHLEROTATUS TAENIORHYNCHUS*. [page 12]**  
Donini, A.<sup>1</sup>, Patrick, M.L.<sup>2</sup> and M.J. O'Donnell<sup>3</sup>  
<sup>1</sup>Department of Biology, York University; <sup>2</sup>Department of Biology, University of San Diego <sup>3</sup>Department of Biology, McMaster University.
- 1:50 pm      **IONOREGULATION IN LARVAL CHIRONOMIDS: INORGANIC ION FLUXES AT THE ANAL PAPILLAE OF *CHIRONOMUS RIPARIUS* [page 13]**  
Nguyen, H. and A. Donini.  
 Department of Biology, York University, Toronto, Ontario.
- 2:10 pm      **EFFECTS OF ACUTE AND CHRONIC EXPOSURE TO DIETARY METHOTREXATE (MTX) AND SALICYLATE ON THE RENAL SECRETION OF MTX AND SALICYLATE IN *D. MELANOGASTER* LARVAE [page 14]**  
Sarah Chahine and MJ O'Donnell  
 Department of Biology, McMaster University, Hamilton, ON
- 2:30 – 2:55 pm      **Short Exposures (5 minutes plus questions)**
- MOLECULAR CHARACTERIZATION AND GENE EXPRESSION OF JUVENILE HORMONE BINDING PROTEIN FROM THE COCKROACH *DIPLOPTERA PUNCTATA* [page 15]**  
Ritdachyeng, E.<sup>1,2</sup>, Tobe, S.S.<sup>1</sup> and T. Singtripop<sup>2</sup>  
<sup>1</sup>Department of Cell and System Biology, University of Toronto, ON, Canada; <sup>2</sup>Department of Biology, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand.
- IDENTIFICATION OF A NEW PRENYLTRANSFERASE IN THE BROWN SPRUCE LONGHORN BEETLE (*TETROPIUM FUSCUM*) [page 16]**  
Béliveau, C.<sup>1</sup>, Lestra, M.<sup>1</sup>, Silk, P.<sup>2</sup>, Sweeney, J.<sup>2</sup> and Cusson, M.<sup>1</sup>  
 Natural Resources Canada, Canadian Forest Service,<sup>1</sup> Laurentian Forestry Centre, Québec, QC, Canada and <sup>2</sup> Atlantic Forestry Centre, Fredericton, NB, Canada.
- mRNA EXPRESSION OF THE C- AND B- SUBUNIT OF THE V-TYPE H<sup>+</sup>-ATPase AND Na<sup>+</sup>/K<sup>+</sup>-ATPase α-SUBUNIT IN *CHIRONOMUS RIPARIUS*. [page 17]**  
Nasirian, A. and A. Donini  
 Department of Biology, York University, Toronto, On, Canada
- ROLE OF UPSTREAM TAAG LATE PROMOTER MOTIFS IN TRANSCRIPTION OF *AUTOGRAPHA CALIFORNICA MULTIPLE NUCLEOPOLYHEDROVIRUS V-CATH* [page 18]**  
Michael J. Norris<sup>1</sup>, Jeffrey J. Hodgson<sup>1</sup>, Peter J. Krell<sup>1</sup>  
<sup>1</sup>Department of Molecular and Cellular Biology, University of Guelph, Guelph, ON N1G 2W1
- 2:55 – 3:20 pm      **Coffee Break**

**Session Chair: Daniel Doucet**

- 3:20 pm **THE ROLE OF ME53 IN BACULOVIRUS INFECTION** [page 19]  
Jondavid de Jong<sup>1</sup>, Basil Arif<sup>2</sup>, David Theilmann<sup>3</sup> and Peter Krell<sup>1</sup>  
<sup>1</sup>Dept. of Molecular and Cellular Biology, University of Guelph, Guelph, ON, N1G 2W1; <sup>2</sup>Great Lakes Forestry Centre, Natural Resources Canada, Sault Ste. Marie, ON, P6A 2E5; <sup>3</sup>Pacific Agri-Food Research Centre, Agriculture and Agri-Food Canada, Summerland, BC, V0H 1Z0
- 3:40 pm **INTRACELLULAR TARGETING AND PROCESSING OF BACULOVIRAL PRE-PROV-CATH** [page 20]  
Jeffrey J. Hodgson<sup>1</sup>, Basil M. Arif<sup>2</sup> and Peter J. Krell<sup>1</sup>  
<sup>1</sup>Department of Molecular and Cellular Biology, University of Guelph, Guelph, ON, N1G 2W1, Canada.; <sup>2</sup>Laboratory for Molecular Virology, Great Lakes Forestry Centre, Sault Ste Marie, ON, P6A 2E5, Canada.
- 4:00 pm **PROTEOMICS ANALYSIS OF THE OCCLUSION DERIVED VIRUS (ODV) OF NEODIPRION ABIETIS NUCLEOPOLYHEDROVIRUS (NeabNPV)** [page 21]  
Shannon R. Escasa<sup>1</sup>, Peter J. Krell<sup>2</sup>, Christopher Lucarotti<sup>3</sup> and Basil M. Arif<sup>1</sup>  
Laboratory for Molecular Virology, Great Lakes Forestry Centre, Sault Ste. Marie, ON, P6A 2E5. <sup>2</sup>Department of Molecular and Cellular Biology, University of Guelph, Guelph, ON, N1G 2W1. <sup>3</sup>Atlantic Forestry Centre, Fredericton, New Brunswick.
- 4:20 pm **FUNCTIONS OF THE RECEPTOR FOR ACTIVATED C KINASE 1 IN SPRUCE BUDWORM** [page 22]  
Guoxing Quan<sup>1</sup>, Daniel Doucet<sup>1</sup>, Tim ladd<sup>1</sup>, Peter J. Krell<sup>2</sup> and Basil M. Arif<sup>1</sup>  
<sup>1</sup>Great Lakes Forestry Centre, Canadian Forest Service, 1219 Queen Street East, Sault Ste. Marie, Ontario, Canada, P6A 2E5; <sup>2</sup>Department of Molecular and Cellular Biology, University of Guelph, Guelph, Ontario, Canada
- 4:40 pm **End of Session**
- 6:00 pm **Vineyard Tour, Vinelands Estates Winery**
- 7:00 pm **Conference Dinner, Vinelands Estates Winery**

## Friday, June 12

8:00 – 9:00 am      **Breakfast:** Outside Newman Room (Full Canadian)

**Session Chair:**      **Stephen Tobe**

9:00 am      **INVESTIGATION OF MECHANISMS UNDERLYING MODULATION OF MUSCLE CONTRACTION BY A *DROSOPHILA* NEUROPEPTIDE** [page 23]  
Milakovic, M.<sup>1</sup>, Clark, J.<sup>2</sup> and Mercier, A.J.<sup>1</sup>  
<sup>1</sup> Department of Biological Sciences, Brock University, St. Catharines, ON, Canada; <sup>2</sup> Department of Biology, York University, Toronto, ON, Canada.

9:20 am      **PEPTIDERGIC INNERVATION OF THE LOCUST GUT** [page 24]  
Robertson, L. and Lange, A.B.  
Department of Biology, University of Toronto Mississauga, Mississauga, ON

9:40 am      **CHARACTERIZATION OF A CRUSTACEAN CARDIOACTIVE PEPTIDE IN THE BLOOD-FEEDING INSECT, *RHODNIUS PROLIXUS*** [page 25]  
Do Hee Lee., Jean-Paul Paluzzi and Angela Lange  
Department of Biology, University of Toronto Mississauga, Mississauga

10:00 am      **THE NEURAL CONTROL OF THE SPERMATHECA IN THE MIGRATORY LOCUST, *LOCUSTA MIGRATORIA*.** [page 26]  
da Silva, R. and A.B. Lange  
Department of Biology, University of Toronto Mississauga, Mississauga, ON, Canada.

10:20 – 10:40 am      **Coffee Break:** Outside Newman Room

**Session Chair:**      **Michael O'Donnell**

10:40 am      **DEVELOPMENT OF A SPRUCE BUDWORM MICROARRAY PLATFORM FOR STUDYING ECDYSONE-CONTROLLED GENE EXPRESSION.** [page 27]  
D. Doucet<sup>1</sup>, D. Zhang, S. Bowman<sup>1</sup>, P.J. Krell<sup>2</sup>.  
<sup>1</sup> Great Lakes Forestry Centre, Canadian Forest Service, 1219 Queen Street East, Sault Ste. Marie, Ontario, Canada, P6A 2E5; <sup>2</sup> Department of Molecular and Cellular Biology, University of Guelph, Guelph, Ontario, Canada

11:00 am      **ENDOCRINE REGULATION OF LOBSTER REPRODUCTION: ROLES OF FARNESOIC ACID AND 20-HYDROXYECDYSONE** [page 28]  
Shirley Hiu-Kwan Tiu<sup>1</sup>, Siu-Ming Chan<sup>2</sup> and Stephen S. Tobe<sup>1</sup>. <sup>1</sup> Department of Cell & Systems Biology, University of Toronto, Toronto, ON, Canada. <sup>2</sup> School of Biological Sciences, The University of Hong Kong, Hong Kong

11:20 am      **MOLECULAR CLONING AND CHARACTERIZATION OF THE RETINOID X RECEPTOR (RXR) HOMOLOG, ULTRASPIRACLE PROTEIN, FROM THE VIVIPAROUS COCKROACH *DIPLOPTERA PUNCTATA*.** [page 29]  
Hult, E. F. and Tobe, S. S.  
Department of Cell and Systems Biology, University of Toronto, Toronto, ON, Canada.

- 11:40 am      **EXPRESSION OF OCTOPAMINE RECEPTOR GENES IN THE CABBAGE LOOPER, *TRICHOPLUSIA NI*** [page 30]  
Lam, F.<sup>a</sup> and B. C. Donly<sup>a,b</sup>  
<sup>a</sup> Department of Biology, University of Western Ontario, London, ON, Canada; <sup>b</sup> Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, London, ON, Canada
- 12:00 – 1:10 pm      **Lunch Break:** Outside Newman Room (Taste of Italy)
- Session Chair:**      **Andrew Donini**
- 1:10 pm      **TRANSPORT OF K<sup>+</sup> ACROSS THE BLOOD BRAIN BARRIER OF THE VENTRAL NEURAL CORD OF THE COCKROACH.** [page 31]  
Kocmarek, A.L. and O'Donnell, M.J.  
 Department of Biology, McMaster University, Hamilton, ON
- 1:30 pm      **THE ACTIVITY OF DIURETIC FACTORS ON THE ANTERIOR MIDGUT AND MALPIGHIAN TUBULES OF *RHODNIUS PROLIXUS*.** [page 32]  
Victoria Te Brugge and Ian Orchard  
 Department of Biology, University of Toronto Mississauga, Mississauga, ON, Canada
- 1:50 pm      **IDENTIFICATION OF AQUAPORINS IN DIFFERENT TISSUES OF *RHODNIUS PROLIXUS*.** [page 33]  
Staniscuaski F.<sup>1</sup>, Paluzzi J.P.<sup>2</sup>, Carlini C.R.<sup>1</sup> and Orchard I.<sup>2</sup>.  
<sup>1</sup> Department of Biophysics and Center of Biotechnology, Universidade Federal do Rio Grande do Sul, Brazil; <sup>2</sup> Department of Biology, University Toronto Mississauga, Canada.
- 2:10 pm      **HAEMOLYMPH [Na<sup>+</sup>] AND [K<sup>+</sup>] HOMEOSTASIS IN *DROSOPHILA* IN RESPONSE TO DIETARY LOADING: THE ROLE OF THE MALPIGHIAN TUBULES.** [page 34]  
Wida Naikhwah and M. J. O'Donnell  
 Department of Biology, McMaster University, Hamilton, ON, Canada.
- 2:30 pm      **MOLECULAR CLONING AND FUNCTIONAL CHARACTERIZATION OF A RECEPTOR INVOLVED IN ANTI-DIURESIS IN THE DISEASE VECTOR, *RHODNIUS PROLIXUS*.** [page 35]  
Paluzzi, Jean-Paul<sup>1</sup>, Yoonseong Park<sup>2</sup> and Ian Orchard<sup>1</sup>  
<sup>1</sup>Department of Biology, University of Toronto Mississauga, Mississauga, ON; <sup>2</sup>Department of Entomology, Kansas State University, Manhattan, KS
- 2:50 – 3:00 pm      **Closing Remarks**
- 3:00 pm      **End of Conference**