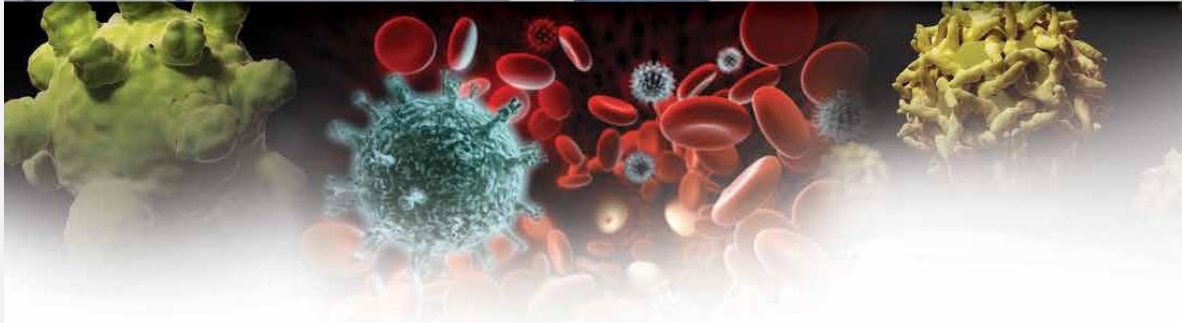


# THE DIRT ON GERMS:



THE GOOD,  
THE BAD,  
THE UNKNOWN



55<sup>TH</sup> ANNUAL SYMPOSIUM • 55<sup>E</sup> CONGRÈS ANNUEL

June 11 -14, 2016      du 11 au 14 juin 2016  
Fairmont Royal York Hotel, Toronto, ON



## FINAL PROGRAM

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# PROGRAM OUTLINE

## Saturday June 11<sup>th</sup>

Time	Event
08:00–12:30	<b>Off-site Workshop Departures</b>
	100 – Husbandry, Handling and Restraint of the Mouse, Rat and Rabbit
	101 – Current Technologies in Mouse Genome Manipulations
	102 – Multi-Modality Laboratory Animal Imaging
	105 – Swine Intubation and Basic Blood Collection Techniques
	<b>On Site Workshops</b>
08:00–12:30	104 – Zebrafish Biosecurity, Diseases and Necropsy
12:30–16:30	<b>Off-site Workshop Departures</b>
	200 – An Introduction to Anesthesia, Blood Sampling, and Injections in Rodents
	201 – Physiological Monitoring and Anesthesia in Mice
	203 – Tour of a CL2-Ag Research Facility <i>Note: Bus returns at 17:30</i>
	204 – Carotid and Jugular Catheterization in Rats
13:00–16:00	<b>On Site Workshops</b>
	202 – Zebrafish – The Latest on Husbandry and Housing for Biomedical Research
	206 – Moving from Controversy to Conversation: Building Public Trust in the Face of Animal Activism

## Sunday June 12<sup>th</sup>

Time	Event
Various	<b>Off-site Workshop Departures</b>
08:00-12:00	101 – Current Technologies in Mouse Genome Manipulations
08:00-12:00	301 – Rodent Necropsy
08:00-12:00	303 – Visit to the Mounted Unit of Toronto Police stables
08:00-15:00	304 – Zoo Day!
08:00-12:30	302 – Behind the Scenes at Ripley's Aquarium of Canada
09:00–11:00	<b>CALAM/ACMAL Board Meeting</b> ( <i>by invitation only</i> )
09:00–12:00	<b>On Site Workshops</b>
	300 – Preparing for the RMLAT Examination
	305 – Humane Endpoints and Interventions
	306 – The Animal Care Committee (ACC)101: Keystone of the Institutional Program
12:30-16:00	<b>Off-site Workshop Departure</b>
	400 – Swine Intravascular Cannulation Techniques
12:45-14:00	<b>Talking Posters</b>



<b>Time</b>	<b>Event</b>
12:45-13:00	<b>Out of the Wild and into the Lab with the Black-capped Chickadee</b> <i>Carol Boechler, BSc, RLAT, Science Animal Support Services, Edmonton, AB</i>
13:00-13:15	<b>Keeping Aquatics Safe: Quarantining Aquatic Animal Pathogens</b> <i>Sarah Collard, RMLAT, AHT, University of Alberta, Edmonton, AB</i>
13:15 – 13:30	<b>Cage-side Pain Assessment in Real Time with the Rat Grimace Scale</b> <i>Vivian Leung, BSc, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB;</i> <i>Daniel Pang, BVSc, PhD, DECVA, DACVAA, MRCVS, Faculty of Veterinary Medicine and</i> <i>Hotchkiss Brain Institute, University of Calgary, Calgary, AB</i>
13:30-13:45	<b>The Relationship Between Loss of Consciousness and Bradycardia during Gaseous Euthanasia in Rats</b> <i>Jessie Chisholm, BSc, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI; Daniel Pang, BVSc, PhD, DECVA, DACVAA, MRCVS, Faculty of Veterinary Medicine and Hotchkiss Brain Institute, University of Calgary, Calgary, AB</i>
13:45 – 14:00	<b>Genotyping by use of Fecal Samples</b> <i>Lindsey Bertrand, RLAT, BSc; Youssef Ismail, PhD, Canadian Nuclear Laboratories, Ottawa, ON</i>
13:00-15:00	<b>CALAM/ACMAL Annual General Meeting</b>
14:00-17:30	<b>Vendor Technical Presentations</b>
14:00-14:30	<b>VAF/Elite® Animal Models</b> <i>Michel Provence, General Manager of Research Models of Canada, Charles River Canada, St. Constant, QC</i>
15:00-15:30	<b>Oh, My Aching Feet!</b> <i>Gordon Yee, Marketing Director, Ancare</i>
15:30-16:00	<b>Low-Flow, Digital Vaporizer for Mice and Rats: Safer for You, Safer for Your Animals</b> <i>David FitzMiller, Marketing Manager, Kent Scientific</i>
16:00-16:30	<b>The Growing Trend of the Germ Free and Gnotobiotic: A Big Help Coming From The Industry</b> <i>Massimo Ferrari, Area Product Manager, Tecniplast</i>
16:30-17:00	<b>Implementation of the 3Rs in Rodent Colony Health Monitoring Programs</b> <i>Cindy Besch-Williford, DVM, PhD, DACLAM, IDEXX BioResearch</i>
17:00-17:30	<b>The Heart Rate of Mice, Throughout Life and Death</b> <i>Thomas G. Hampton, PhD, President, Mouse Specifics</i>
17:00-17:30	<b>CALAS/ACSAL Member Orientation</b>
17:30-18:45	<b>CALAS/ACSAL Member Service Awards</b>
18:00-20:00	<b>Poster Presentations on Display</b> <b>*See page 8 for listing*</b>
18:45-20:00	<b>Opening Reception with Exhibitors</b>





## Monday June 13<sup>th</sup>

Time	Event
07:45-08:45	<b>CALAS/ACSAL Annual General Meeting &amp; Breakfast</b> <i>Breakfast Sponsored by: Ancare</i>
08:50-09:00	<b>President's Welcome</b> <i>Colleen Geary-Joo, CALAS/ACSAL President</i>
09:00-10:00	<b>Keynote Address</b> <b>Reducing Infection-related Causes of Death and Disability in Pregnant Women and Children</b> <i>Kevin C. Kain, MD, FRCPC, Director, Tropical Disease Unit, Professor of Medicine, University of Toronto</i>
10:00-10:30	<b>Coffee with Exhibitors</b>
10:30-12:00	<b>Parallel Sessions</b>
<b>Scientific Program</b>	<b>Paper Presentations</b>
10:30-11:15 <b>Animal Models in Tuberculosis Vaccine Research</b> <i>Jun Liu, PhD, Professor, Department of Molecular Genetics, University of Toronto</i>	10:30 – 10:45 <b>Evaluation of Rack Design and Disease Prevalence on Detection of Rodent Pathogens in Exhaust Debris Samples from Individually Ventilated Caging (IVC) Systems</b> <i>Cindy Besch-Williford, DVM, PhD, DAACLAM, IDEXX BioResearch, Columbia, MO, USA</i>
11:15-12:00 <b>Infectivity Mechanisms of the Lyme Disease Pathogen</b> <i>Tara Moriarty, PhD, Assistant Professor, University of Toronto</i>	10:45 – 11:00 <b>Lidocaine Hydrochloride vs MS222 for the Euthanasia of Adult Zebrafish (Danio rerio)</b> <i>Chereen Collymore, DMV, DAACLAM, University of Toronto, Toronto, ON</i>
	11:00 – 11:15 <b>Case Report: Staphylococcus aureus Strains Isolated from an Outbreak of Preputial Gland Abscesses in C57BL/6J Mice Under Exclusion Barrier</b> <i>Mahesh Jonnalagadda, DVM, MS, PhD, DAACLAM, University of Calgary, Calgary, AB</i>
	11:15- 11:30 <b>Anemia in Research Sheep: Causes, Diagnostics and Challenges</b> <i>Melissa Dyson, DVM, MS, DAACLAM, University of Michigan, Ann Arbor, MI, USA</i>
	11:30 – 11:45 <b>The Ontario Animals for Research Act and Why it Matters to You</b> <i>Denna M Benn, BSc, DVM, MSc, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Guelph, ON</i>
	11:45 – 12:00 <b>To Warm or Not to Warm: The Effect of Three Warming Strategies on Peri-Anesthetic Temperature and Recovery in Rats</b> <i>Chelsea Schuster, BHSc, University of Calgary, Calgary, AB</i>
12:00-14:00	<b>Networking Lunch with Exhibitors</b> <i>Sponsored by: Mouse Specifics, Inc.</i>



<b>Time</b>	<b>Event</b>	
12:00-14:00	<b>CALAM Lunch</b> <i>(by invitation only)</i> <i>With Guest Speaker: Dr. Gabriela Mastromonaco, Toronto Zoo</i>	
14:00-15:00	<b>Parallel Sessions</b>	
	<b>CALAM/ACMAL TRACK</b>	<b>CALAS TRACK</b>
	<p><b>Use of the Animal Welfare Assessment Grid (AWAG) to Monitor the Life Time Experience of Animals</b> <i>Professor Sarah Wolfensohn, University of Surrey, School of Veterinary Medicine, Guildford, UK</i></p> <p><b>Sponsored by: CALAM/ACMAL</b></p>	<p><b>Gut Microbiota and Reproducibility of Rodent Models of Disease</b> <i>Dr. Craig Franklin, RADIL</i></p> <p><b>Sponsored in part by: IDEXX BioResearch</b></p>
15:00-15:30	<b>Coffee with Exhibitors</b> <b>Sponsored by: NuAire</b>	
15:30-17:00	<b>Parallel Sessions</b>	
	<b>CALAM/ACMAL TRACK</b>	<b>CALAS TRACK</b>
	<p><b>CALAM Roundtable Discussion</b> <i>Moderator: Dr. Andrew Winterborn</i></p> <p><b>Overview of Current Endpoint Regulations in North America: a case based review</b> <i>Shawn Petrik MSc, DVM, Dip LAM Veterinary Director, Comparative Medicine Thrombosis &amp; Atherosclerosis Research Institute (TaARI), Hamilton, ON</i></p> <p><b>Biological markers of repeated stress, and their potential implications for re-using animals in research or teaching</b> <i>Georgia Mason, PhD, Professor of Animal Welfare, University of Guelph, Guelph, ON</i></p> <p><b>European Endpoint Regulations and Future Directions of Endpoints</b> <i>Professor Sarah Wolfensohn, University of Surrey, School of Veterinary Medicine, Guildford, UK</i></p> <p><b>Sponsored by: CALAM/ACMAL</b></p>	<p>15:30 - <b>The Influence of the Microbiota on Gut Immune Responses</b> <i>Dana Philpott, PhD, University of Toronto, Toronto, ON</i></p> <p>16:15 - <b>Viruses as Delivery Vehicles</b> <i>Martha Brown, PhD, University of Toronto, Toronto, ON</i></p>
17:30	Main Lobby	<b>Charles River Reception--All Welcome</b>



## Tuesday June 14<sup>th</sup>

Time	Event
08:00-09:00	<b>Trainer's Breakfast</b> <i>All trainers are welcome for networking breakfast to share ideas and innovations related to training.</i>
08:30-09:00	<b>Continental Breakfast</b> <b>Sponsored by: IDEXX BioResearch</b>
09:00-10:00	<b>Parallel Sessions</b>
<b>CCAC TRACK</b>	<b>CALAS TRACK</b>
<b>Safe and Secure</b>  <b>Sponsored by: Canadian Council on Animal Care</b>	<b>The Role of Cancer Stem Cells in Therapy Failure and Disease Recurrence</b> <i>John E. Dick, PhD, FRS, Princess Margaret Cancer Centre, Toronto, ON</i>
10:00-10:30	<b>Coffee Break with Exhibitors</b>
10:30-12:00	<b>Parallel Sessions</b>
<b>CCAC TRACK</b>	<b>Scientific Program</b>
<b>Safe and Secure (Continued)</b>  <b>Sponsored by: Canadian Council on Animal Care</b>	10:30-11:15 <b>Mismatch Repair and the Etiology of Colon Cancer</b> <i>Alberto Martin, PhD, University of Toronto</i>  11:15-12:00 <b>Plugging a Hole as a Novel Therapeutic Strategy for Influenza – The Contribution of Leaky Blood Vessels to Mortality</b> <i>Warren Lee, MD, PhD, FRCPC, St. Michael's Hospital, University of Toronto</i>
12:00-14:00	<b>Networking Lunch with Exhibitors</b>
12:00-14:00	<b>RCC Lunch</b> ( <i>by invitation only</i> )
14:00-15:15	<b>Parallel Sessions</b>
<b>Paper Presentations</b>	<b>Scientific Program</b>
14:00 – 14:15 <b>Enjoy Some Conflict, It's On The House</b> <i>Subibe Choudhury, BComm, MBA, McGill University, Montreal, QC</i>  14:15 – 14:30 <b>Evaluation of Analgesia Efficacy in a Guinea Pig Surgical Pain Model</b> <i>Vanessa Oliver, DVM, MSc, BSc, University of Michigan, Ann Arbor, MI</i>  14:45- 15:00 <b>New Technology – Are Dirty Bedding Sentinel Programs Now Obsolete?</b> <i>Cheryl Perkins, Charles River Laboratories; Michael G Sidelsky Sr., RLATG, Allentown</i>	14:00-14:45 <b>From Stem Cells to T cells, in vitro Applications and in vivo Implications</b> <i>Dr. Juan Carlos Zúñiga-Pflücker, Department of Immunology, University of Toronto, and Sunnybrook Research Institute</i>  14:45-15:15 <b>Ancient Tools for Novel Insights into Human B Cell Responses</b> <i>Dr. Goetz Ehrhardt, Department of Immunology, University of Toronto</i>



Time	Event
15:00- 15:15	<b>Biomedical Imaging Using Synchrotron Radiation: Biomedical Imaging and Therapy (BMIT) Facility at the Canadian Light Source</b> <i>Adam Webb, Canadian Light Source, Saskatoon, SK</i>
15:15-15:30	<b>Refreshment Break</b>
15:30-16:15	<b>Humanized Mouse Models of Infection: A Tremendous Leap Forward</b> <i>Dr. Scott Gray-Owen, Professor of Molecular Genetics, University of Toronto, Toronto, ON</i>

## Poster Abstracts

### **P1. Culturing Brachionus Plicatilis Rotifers as a First Food for Larval Zebrafish**

*Christine Archer, BSc, RVT, University of Ottawa ACVS, Ottawa, ON*

### **P2. Assessing the Side-effects of Lidocaine Used as an Analgesic on Rainbow Trout**

*Frederic Chatigny, DVM; Don Stevens, BSc, MSc, PhD, WFS; Collins Kamunde, BVM, MSc, PhD; David Groman, BA, MSc, PhD, UPEI, Charlottetown, PE*

### **P3. Characterization of the Fecal Microbiota of Farmed Mink**

*Nicole Compo<sup>1</sup>, DVM, Brian Tapscott<sup>2</sup>; Diego Gomez<sup>1</sup>, DVM, MSc, DACVIM; J. Scott Weese<sup>1</sup>, DVM, DVSc, DACVIM; Patricia V. Turner<sup>1</sup>, MSc, DVM, DVSc, DACLAM, DABT, DECAWBM (AWSEL)*

<sup>1</sup> University of Guelph, Guelph, ON <sup>2</sup> OMAFRA, Guelph, ON

### **P4. A Comparison of Three Different Delivery Methods of Shredded Paper Nesting Material in a Large Scale Mouse Facility**

*Kyle Duffin, RLAT, RVT; Lise Phaneuf, DVM, DVSc, DACLAM, The Centre for Phenogenomics, Toronto, ON*

### **P5. Piloting a Peer-Assessment Program: Effects of Peer Assessment and Assessment Order on Surgical Performance in the University of Calgary Institutional Animal User Training Program**

*Michelle Gillespie, BSc, RMLAT; Stefanie Anderson, DVM; Kent Heckert, PhD; Pat Lauzon, PhD; Greg Muench, DVM; Mejid Ayroud, DVM; Doug Morck, PhD, DVM, University of Calgary, Calgary, AB*

### **P6. Venous Catheters in Guinea Pigs for Longitudinal Studies**

*<sup>1,2</sup> Jennifer Hadway, RVT, RLAT; <sup>1,3,4</sup> Timothy RH Regnault, PhD; <sup>1,2</sup> Ting-Yim Lee, PhD*

*<sup>1</sup> Imaging Division, Lawson Health Research Institute, <sup>2</sup> Robarts Research Institute, University of Western Ontario; <sup>3</sup> Departments of Obstetrics and Gynecology and Physiology and Pharmacology, University of Western Ontario, <sup>4</sup> LHRI and Children's, Health Research Institute, London, ON*

### **P7. Provision of Colyte to CF Mice During Transport**

*Debbie Holsmer, DVM; Heather Williams, Vet Technician, The Hospital For Sick Children, Toronto, ON*

### **P8. Efficacious Delivery of Sulfatrim Formulated in a Soft Gel Diet or Mixed in a Liquid Gel Delivery System**

*Ovidiu Jumanca, DVM<sup>1</sup> Cert LAM, IRCM- Institu de recherches cliniques de Montréal, Montreal, QC; Jay Palmer, MSc, Clear H2O, Westbrook, ME; Denise Giuvelis, BSc Clear H2O, Westbrook, ME*





**P9. Comparison of PCR to Microbiologic Culture for Detecting *Klebsiella oxytoca* Colonization of Mice**

*Cynthia Besch-Williford, DVM, PhD; Robert Livingston, DVM, PhD; Marcus Crim, DVM; Earl Steffen, PhD, IDEXX BioResearch, Columbia, MO, USA*

**P10. Mixed-strain Housing for Female C57BL/6, DBA/2, and BALB/c Mice: Validating a Split-plot Design that Promotes Refinement and Reduction**

*Georgia Mason<sup>1</sup>, PhD; Michael Walker<sup>1</sup>; Carole Fureix<sup>2</sup>, PhD; Rupert Palme<sup>3</sup>, PhD; Jonathan Newman<sup>1</sup>, PhD; Jamie Ahloy Dallaire<sup>4</sup>*

*<sup>1</sup>University of Guelph, Guelph, ON, <sup>2</sup>Bristol University, UK, <sup>3</sup>University of Veterinary Medicine, Vienna,*

*<sup>4</sup>Stanford University, Stanford, CA, USA*

**P11. Maintenance of an Outbred Rat Breeding Colony**

*Annette Morin, BSc, RLAT, Science Animal Support Services, Edmonton, AB*

**P12. Pathogen Contamination of Human Tumors and Patient-derived Xenografts**

*Cynthia Besch-Williford, DVM, PhD; Lela Riley, PhD; Robert Livingston, IDEXX BioResearch, Columbia, MO, USA*

**P13. Japanese Quail: Life at Laurier**

*Kelley Putzu, Supervisor of Animal Care, Wilfrid Laurier University, Waterloo, ON*

**P14. Looking for Rare Antibodies – Development of an In-Vivo Plasmablast Expansion Model**

*Lauren Rose<sup>1</sup>, RVT, RLAT; Cathy Zeiler<sup>1</sup>, RLAT; Arif Jetha<sup>2</sup>, MSc; Christopher Murawsky<sup>2</sup>, PhD*

*<sup>1</sup>Comparative Biology and Safety Sciences, <sup>2</sup>Discovery Biologics, Amgen, British Columbia, Canada*

**P15. Evaluation of Four Topical Anesthetics for Pain Mitigation in Piglets Undergoing Surgical Castration**

*Abbie Viscardi; Lily Hu; Taylor Braden; Patricia V Turner, MSc, DVM, DVSc, DACLAM, DABT, DECAWBM (AWSEL), University of Guelph, Guelph, ON*

**P16. Development of Procedures for Testing Low Dose, per os Cyclophosphamide in Combination with a Potent Cancer Vaccine in Preclinical Mouse Model**

*Andrea West, VT; Alecia MacKay, RMLAT, Immunovaccine Inc., Halifax, NS*

**P17. Noah's Ark in Montreal: Consolidation and Modernization of the Animal Facilities at the Research Institute of the McGill University Health Center**

*Lucie C. Côté, DVM, MBA; Joshua Ejdelman, BSc; Anna, Choy, AHT; Guylaine Gadoury, AHT, Animal Resources Division, The Research Institute of the McGill University Health Centre, Montreal, QC*

**P18. Site-specific Recombination in Pre-implantation Stage Mouse Embryos and Adult Reproductive Tissues using Cell-permeable Cre Protein**

*Marina Gertsenstein<sup>1</sup>, Lauryl M.J. Nutter<sup>1,2</sup>, Steffen Biechele<sup>3</sup>, Kyunga Kim<sup>4</sup>, Andrea Jurisicova<sup>4</sup>, Janet Rossant<sup>5</sup>*

*<sup>1</sup>The Centre for Phenogenomics (TCP), Toronto, Canada; <sup>2</sup>Physiology & Experimental Medicine, The Hospital for Sick Children, Toronto, Canada; <sup>3</sup>Center for Reproductive Sciences, Department of Obstetrics, Gynecology and Reproductive Sciences, Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research, University of California, San Francisco, USA; <sup>4</sup>Lunenfeld Tanenbaum Research Institute, Mount Sinai Hospital; Department of Physiology, Department of Obstetrics and Gynecology, University of Toronto, Toronto, Canada; <sup>5</sup>Program in Developmental and Stem Cell Biology, The Hospital for Sick Children; Department of Molecular Genetics, University of Toronto, Toronto, ON*



**P19. Cas9 RNA-guided Nuclease – Efficient Model Generation in Various Strain Backgrounds**

*Lauryl MJ Nutter<sup>1,2</sup>, Marina Gertsenstein<sup>1</sup>, Janet Rossant<sup>3</sup>*

*<sup>1</sup>Physiology & Experimental Medicine, The Hospital for Sick Children; <sup>2</sup>The Centre for Phenogenomics, and <sup>3</sup>Developmental & Stem Cell Biology, The Hospital for Sick Children, Toronto, ON*

