Connecting through research and teaching

The University of Guelph, and everyone who studies here, explores here, teaches here, and works here, is committed to a simple purpose: To Improve Life.

As one of Canada’s top comprehensive, research-intensive universities, U of G consistently receives top ranking for agri-food and veterinary research.

It is home to the Ontario Veterinary College, a world leader in advancing veterinary medicine and health research, and educating the next generation of health leaders.

Advanced training includes masters, doctoral, post-doctoral, and Doctor of Veterinary Science levels of study.

The cross-disciplinary RM@G regenerative medicine research network promotes collaboration among U of G researchers investigating emerging areas of stem cells, tissue-engineering, and regenerative medicine, exploring opportunities to enhance animal and human health.

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Dear Colleagues,

Welcome to the 2019 NAVRMA Conference, and thank you for supporting the North American Veterinary Regenerative Medicine Association. NAVRMA held its inaugural conference in California in 2010. Since then, it has held meetings in many parts of the United States. The organization was formed through the efforts and dedication of members of the UC Davis Center for Equine Health, Alamo Pintado Equine Medical Center and Rood and Riddle Equine Hospital. NAVRMA is very pleased to host the meeting for the first time in Canada, our eighth meeting.

Since its inception, NAVRMA has been dedicated to the partnership between the science and practice of veterinary regenerative medicine to better the health and lives of veterinary patients, as evidenced by past conference programs. NAVRMA remains committed to advancing veterinary regenerative medicine, but it is clear that our efforts in the veterinary space also have value to human medicine and vice versa.

This year’s meeting embraces the concept of “One Health” through a combination of speakers from across the veterinary and human medical fields. The speakers were solicited to inspire cross-disciplinary research and to provide veterinary practitioners with access to pre-eminent practitioners who will share their best practices and answer practical “how-to” questions. Thus, practitioners can hone or implement aspects of regenerative medicine into their practices. As our field is maturing and moving towards evidence-based practices and approved products, increased involvement of practitioners through practice-based research projects is expected. It is our hope that practitioners will be able to identify opportunities for such research involvement.

We chose Niagara on-the-Lake and Queen’s Landing as the location for this year’s conference because of its beautiful setting and local attractions such as Niagara Falls as well as its cohesive environment for conference attendees. Our hope is that the various sessions, luncheon tables, and breaks will help you to meet new people, form closer relationships, and begin new collaborations in our field.

On behalf of NAVRMA, I would like to extend a sincere thank you to all of our sponsors who made it possible for us to cross the border and make this a truly North American association – thank you. Before you leave the meeting, I urge all attendees to visit the sponsors to understand how they contribute to the field of regenerative medicine.

Above all, NAVRMA hopes that the promise for a cure that regenerative medicine offers becomes a reality for dogs, cats, horses, and other veterinary species, and that our organization enables development of treatments through its effort to foster education and collaboration.

Welcome, old and new friends, to beautiful Niagara on-the-Lake!

Dr. Thomas G. Koch
2018-2019 Chair, NAVRMA
### Conference at a Glance

#### Sunday, September 8

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>6:00 PM – 8:00 PM</td>
<td>Opening keynote lecture and reception: “Perspectives on One-Health Regenerative Medicine”</td>
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#### Monday, September 9

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<td>8:00 AM – 9:00 AM</td>
<td>Breakfast at the hotel</td>
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<td>9:00 AM – 10:00 AM</td>
<td>Keynote and invited speaker presentations</td>
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<td>Coffee break</td>
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<td>10:30 AM – 12:00 PM</td>
<td>Selected oral presentations</td>
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<td>12:00 PM – 1:00 PM</td>
<td>Lunch at the hotel</td>
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<td>1:00 PM – 3:00 PM</td>
<td>Invited speaker presentations and small animal panel discussion</td>
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<td>3:00 PM – 3:30 PM</td>
<td>Afternoon break</td>
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<td>3:30 PM – 4:00 PM</td>
<td>Invited speaker presentation</td>
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<td>4:00 PM – 5:30 PM</td>
<td>Poster judging session</td>
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<td>6:00 PM – 10:00 PM</td>
<td>NAVRMA dinner at Chateau des Charmes</td>
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#### Tuesday, September 10

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<td>6:00 PM – 8:00 PM</td>
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<tr>
<td>11:30 AM – 12:00 PM</td>
<td>Awards and meeting adjournment</td>
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All-Natural Option for Horses Experiencing Joint Lameness

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Sunday SEPTEMBER 8

6:00 PM – 8:00 PM  **Opening keynote lecture and reception: “Perspectives on One-Health Regenerative Medicine”**
- Lisa Fortier (Cornell University; Past-President, The International Cartilage Repair Society)
- Daniel Weiss (University of Vermont; Chief Scientific Officer, The International Society for Cell and Gene Therapy)
- Boaz Arzi (Director, University of California Davis Veterinary Institute for Regenerative Cures)
- Andras Nagy (Lunenfeld-Tanenbaum Research Institute, University of Toronto, Canada Research Chair in Stem Cells and Regeneration)

Monday SEPTEMBER 9

**Monday Morning**

8:00 AM – 9:00 AM  Breakfast at the hotel

9:00 AM – 10:00 AM  **Keynote and invited speaker presentations**

9:00 AM – 9:30 AM  Plenary Speaker I – Andras Nagy (Lunenfeld-Tanenbaum Research Institute): “Engineering a Universal Cell for Cell and Tissue Replacement”

9:30 AM – 10:00 AM  Dean Betts (University of Western Ontario): “Canine Pluripotent Stem Cells – Progress, Hurdles, and Opportunities”

10:00 AM – 10:30 AM  Coffee break

10:30 AM – 12:00 PM  **Selected oral presentations**

10:30 AM – 10:45 AM  Dori L. Borjesson: “Immune Profiles of Cats with Feline Chronic Gingivostomatitis Prior to and After Mesenchymal Stem Cell Therapy”

10:45 AM – 11:00 AM  Chad B. Maki: “A Novel, Proprietary Intravenous Delivery Solution Sustains Feline Adipose-Derived Mesenchymal Stem Cell Viability and Function for 7 Days at Cold Temperature”

11:00 AM – 11:15 AM  Masataka Enomoto: “Biological Hip Resurfacing for Osteoarthritis Treatment in a Canine Model”

11:30 AM – 11:45 AM Chad B Maki: “Intra-articular Administration of Allogeneic Adipose Derived MSCs Reduces Pain and Lameness in Dogs with Hip Osteoarthritis: A Multicentered, Double Blinded, Randomized, Placebo Controlled Pilot Study”

11:45 AM – 12:00 PM Kylee Merrill: “Platelet Growth Factor Release in Equine Platelet-rich Plasma After Nonsteroidal Anti-inflammatory Drug Administration”

**MONDAY AFTERNOON**

12:00 PM – 1:00 PM Lunch at the hotel

12:00 PM – 1:00 PM NAVRMA board meeting

1:00 PM – 4:00 PM Invited speaker presentations

1:00 PM – 1:30 PM Boaz Arzi (University of California Davis): “Update on Regenerative Approach for Mandibular Reconstruction”

1:30 PM – 2:00 PM Valerie Johnson (Colorado State University): “Using Pre-activated MSC to Treat Multi-Drug Resistant Infections in Dogs”

2:00 PM – 3:00 PM Small animal panel discussion

Panel Discussion of Best Practices in Small Animal Regenerative Medicine

Panelists include: Boaz Arzi, Valerie Johnson, and Sherman Canapp. Moderated by Tracy Webb

3:00 PM – 3:30 PM Afternoon break

3:30 PM – 4:00 PM Mohit Kapoor (Krembil Research Institute, Toronto): “Novel Therapeutic Strategies to Counteract Cartilage Destruction during Osteoarthritis”

4:00 PM – 5:30 PM Poster judging session

6:00 PM – 10:00 PM NAVRMA dinner at Chateau des Charmes (presented by Ontario Racing)

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**Tuesday SEPTEMBER 10**

**TUESDAY MORNING**

8:00 AM – 9:00 AM Breakfast in the conference center with sponsors presentations

8:30 AM – 8:45 AM Lisa Stehno-Bittel (Likarda): “An Injectable Cell Delivery System that Maintains Cell in a Discrete Area for Enhanced Function”

9:00 AM – 10:00 AM Invited speaker presentations
9:00 AM – 9:30 AM Daniel Weiss (University of Vermont): “Current Advances in Lung Regenerative Medicine”

9:30 AM – 10:00 AM Sowmya Viswanathan (University of Toronto): “Engineering Canine, Equine and Human MSC for Osteoarthritis”

10:00 AM – 10:30 AM Coffee break

10:30 AM – 12:00 PM Selected oral presentations

10:30 AM – 10:45 AM Aileen Rowland: “Allo-Recognition of Equine Bone Marrow Derived Mesenchymal Stem Cells is Dependent on Major Histocompatibility Complex Haplotype”

10:45 AM – 11:00 AM Lynn Pezzanite: “Amikacin Cytotoxicity on Equine Joint Cells and Mesenchymal Stromal Cells”

11:00 AM – 11:15 AM Lauren V. Schnabel: “Development of a Novel In-Vivo Equine Model System to Define the Role of the Tendon Inflammatory Cytokine Environment on the Timing and Efficacy of Mesenchymal Stem Cell Treatment”

11:15 AM – 11:30 AM Hamed Alizadeh: “Development of Biomarkers for Use in Prediction of Equine MSC Cultures with High Chondrogenic Potency”

11:30 AM – 11:45 AM Rebecca Harman: “Using Single Cell RNA-Sequencing to Define the Heterogeneity of Equine MSC”


TUESDAY AFTERNOON

12:00 PM – 1:00 PM Lunch at the hotel

1:00 PM – 2:00 PM Invited speaker presentations

1:00 PM – 1:30 PM Judith Koenig (Ontario Veterinary College): “Experiences and Perspectives of Using Equine MSC at the Ontario Veterinary College”

1:30 PM – 2:00 PM Lisa Fortier (Cornell University): “Amnion-Derived Products – What Are They and How Do They Work?”

2:00 PM – 3:00 PM Selected oral presentations

2:00 PM – 2:15 PM Kyla Ortved: “Sustained Interleukin-10 Transgene Expression Following Intra-Articular AAV5-IL-10 Administration in Horses”
2:15 PM – 2:30 PM  Aileen Rowland: “Xenogen-Free Stem Cell Preparation Enhances Safety and Efficacy”

2:30 PM – 2:45 PM  Charlotte Beerts: “A Randomized, Double-Blinded, Placebo-Controlled Proof-of-Concept Study Evaluating Equine Chondrogenic-Induced Mesenchymal Stem Cells As A Treatment For Osteoarthritis”

2:45 PM – 3:00 PM  Charlotte Marx: “The Antimicrobial Properties of Equine Mesenchymal Stromal Cells as a Biological Alternative to Antibiotics”

3:00 PM – 3:30 PM  Afternoon break

3:30 PM – 4:30 PM  Equine panel discussion
Panel Discussion of Best Practices in Equine Regenerative Medicine
Panelists include: Lisa Fortier, Ashlee Watts, Mark Revenaugh, and Scott Hopper. Moderated by Laurie Goodrich.

4:30 PM – 6:00 PM  Poster judging session

6:00 PM – 8:00 PM  Dinner at the conference center

Wednesday September 11

Wednesday Morning

9:00 AM – 11:30 AM  Invited speaker presentations

9:00 AM – 9:30 AM  Michael Kallos (University of Calgary): “Scaling Up Cell Production for Clinical Trials”

9:30 AM – 10:00 AM  Lauren Flynn (University of Western Ontario): “Dynamic Culture Systems to Enhance the Regenerative Capacity of Adipose-Derived Stromal Cells”

10:00 AM – 10:30 AM  Coffee break

10:30 AM – 11:00 AM  Graham Parker (Editor-in-Chief, Stem Cells and Development): “Publishing from an Editor’s Perspective – Common Pitfalls and How to Get Your Work Published”

11:00 AM – 11:30 AM  Lynne Boxer (Center for Veterinary Medicine, FDA): “FDA Regulation of Animal Cells, Tissues, and Cell- and Tissue-Based Products”

11:30 AM – 12:00 PM  Awards and meeting adjournment
**BOAZ ARZI**

Dr. Boaz Arzi is an associate professor of dentistry and oral surgery at the department of Surgical and Radiological Sciences, UC Davis School of Veterinary Medicine. Dr. Arzi completed the residency-training program in dentistry and oral surgery and two years of fellowship in the UC Davis Department of Biomedical Engineering. He is a Diplomate of the American Veterinary Dental College (AVDC) and the European Veterinary Dental College (EVDC). Dr. Arzi is also a Founding Fellow of the AVDC in Oral and Maxillofacial Surgery. Dr. Arzi’s clinical and research focus is on oral maxillofacial disorders and regenerative solutions in dogs and cats. His lab also investigates TMJ disorders and treatments across species. He is a co-principal investigator on the use of adipose-derived mesenchymal stem cells (MSC) for feline gingivostomatitis and also a co-principal investigator on the use of rhBMP-2 for mandibular reconstruction. Furthermore, Dr. Arzi works in collaboration with the biomedical engineering group at UC Davis for the development of biological solutions to TMJ disorders in humans. Dr. Arzi is the director of the school’s Veterinary Institute for Regenerative Cures (VIRC). Ultimately, Dr. Arzi’s work is translational with the aim of One Health treatment modalities for both human and animal health.

**DEAN BETTS**

Dr. Dean H. Betts is internationally recognized for his contributions in embryo development, telomere biology and for deriving some of the first stem cell populations from dogs and horses. He received his BSc and MSc degrees from the University of Western Ontario and his PhD from the University of Guelph. Following a post-doctoral fellowship in the Department of Genetics at Case Western Reserve University, Dr. Betts joined the Ontario Veterinary College as an Assistant Professor in 2001. He moved his research lab to Western in 2008. He is currently a Full Professor in the Department of Physiology and Pharmacology, and a Scientist at Children’s Health Research Institute and at the Ontario Institute of Regenerative Medicine. He is the current Director of Western’s Collaborative Graduate Specialization in Developmental Biology. He has published over 70 peer-reviewed publications and his research is currently supported by CIHR and NSERC operating grants along with other institute, foundation and industry supported research funds. His current research program is aimed at understanding the various events and functions of early embryo development and pluripotent stem cells. One area of focus is to develop stem cell-based therapies for dogs.
LYNNE BOXER
Dr. Lynne Boxer obtained her veterinary degree from the Virginia-Maryland Regional College of Veterinary Medicine. After graduation, Dr. Boxer practiced equine medicine in an ambulatory practice in California before joining FDA’s Center for Veterinary Medicine. Dr. Boxer has been with CVM for 13 years as a Veterinary Medical Officer in the Office of New Animal Drug Evaluation. In her current role, she is the Team Leader for the Cell and Tissue Products Team in the Division of Animal Bioengineering and Cellular Therapies. Dr. Boxer leads the Center in developing regulatory and review policy for animal cells, tissues, and cell- or tissue-based products, as well as conducting educational outreach.

LAUREN FLYNN
Dr. Lauren Flynn is an Associate Professor in the Departments of Chemical & Biochemical Engineering and Anatomy & Cell Biology at The University of Western Ontario. Following her undergraduate degree in Engineering Science, Dr. Flynn completed her PhD in the Department of Chemical Engineering & Applied Chemistry and the Institute of Biomaterials & Biomedical Engineering (IBBME) at the University of Toronto, investigating the design and characterization of natural bioscaffolds for adipose tissue engineering. In 2007, she joined Queen’s University as an Assistant Professor and was subsequently recruited to Western in 2014. The focus of Dr. Flynn’s research is on the development of cell-based regenerative therapies with adipose-derived stem/stromal cells (ASCs) and bioscaffolds derived from the extracellular matrix (ECM) for applications in soft connective tissue regeneration, wound healing, and therapeutic angiogenesis. Her interdisciplinary and translational research program involves collaborations with engineers, biologists, imaging scientists, and clinicians, and is funded by the CIHR, NSERC, Heart & Stroke Foundation, and OIRM. Dr. Flynn was the recipient of an Early Researcher Award and the Western Faculty Scholar Award, and she is currently the Co-Director of the CONNECT! NSERC CREATE Training Program in Soft Connective Tissue Regeneration/Therapy.
LISA FORTIER
Dr. Lisa A. Fortier is the James Law Professor of Surgery and Director of Equine Programs at Cornell University in Ithaca, NY. She received her DVM from Colorado State University and completed her PhD and surgical residency training at Cornell University. She is boarded with the American College of Veterinary Surgeons and practices equine orthopedic surgery at Cornell University in Ithaca and at the Cornell Ruffian Equine Specialists in Elmont, New York. Her laboratory has a particular interest in translational research including the prevention of post-traumatic osteoarthritis. In addition, Dr. Fortier’s research program investigates the clinical application of stem cells and biologics such as platelet rich plasma and bone marrow concentrate for cartilage repair and tendinosis. She has received the Jaques Lemans Award from the International Cartilage Repair Society, the New Investigator Research Award from the Orthopaedic Research Society, the Pfizer Research Award for Research Excellence from Cornell University, and the SUNY Chancellors Award for Scholarship and Creative Activities. Dr. Fortier has served as the Vice President of the International Veterinary Regenerative Medicine Society and President of the International Cartilage Repair Society.

VALERIE JOHNSON
Dr. Valerie Johnson is a post-doctoral fellow at Colorado State University and per diem faculty in the small animal critical care service at CSU James L. Voss Veterinary Teaching Hospital. Dr. Johnson is a Diplomate of the American College of Veterinary Emergency and Critical Care (ACVECC) and completed a microbiology residency at CSU in 2012. Dr. Johnson is currently preparing to defend her thesis focused on the use of mesenchymal stem cells in biofilm infections and multi-drug resistant infections as well as utility of this therapy in the treatment of osteoarthritis both in animal models and clinical trials with canine patients. Dr. Johnson has an interest in exotic species and works part-time providing veterinary services at The Wild Animal Sanctuary. She has developed MSC lines for a variety of novel species and is currently conducting clinical trials for the use of MSC to treat osteoarthritis in megavertebrates and large carnivores. Currently Dr. Johnson’s research is conducted at the Translational Medicine Institute at Colorado State University.
MICHAEL KALLOS
Dr. Michael Kallos is a Professor in the Department of Chemical and Petroleum Engineering, Schulich School of Engineering, an Adjunct in the Department of Cell Biology and Anatomy in the Cumming School of Medicine, and Associate Director of the Pharmaceutical Production Research Facility (PPRF), all at the University of Calgary. He is the Director of the Biomedical Engineering (BME) Calgary Initiative and Associate Director of the Center for Bioengineering Research and Education (CBRE), as well as a member of the McCaig Institute for Bone and Joint Health. The Biomedical Engineering Calgary Initiative at the University of Calgary, bringing together over 300 researchers from multiple faculties across campus to tackle problems in human and animal health and wellness. He is a Professional Engineer registered with APEGA. His research interests lie in the area of stem cell bioprocess engineering, including working with ESCs, iPSCs, MSCs and NSCs. He bases his research on a strong foundation in mass transfer, reactor design, reaction kinetics, fluid dynamics and experience in both experimental and modeling approaches. These fundamentals are key to the industrial/clinical scale-up and production of cell and biomaterial therapies.

MOHIT KAPOOR
Dr. Mohit Kapoor is the Director of the Arthritis Research Program (the largest multidisciplinary Arthritis Research Program in Canada) at the University Health Network (Toronto), where he is directing basic, clinical, and translational research in orthopedics, rheumatology, hand and osteoporosis programs. He is the Tier 1 Canada Research Chair in the Mechanisms of Joint Degeneration. Dr. Kapoor’s translational research program is directed towards: (1) Understanding the complex cellular and molecular mechanisms associated with joint destruction during osteoarthritis; (2) Identifying reliable biomarkers for early identification of patients with osteoarthritis to enable early intervention; (3) Identifying novel therapeutic targets to stop/delay osteoarthritis and restore joint function. His research is funded by various research organizations including the Canadian Institute of Health Research (CIHR), Canadian Foundation for Innovation (CFI), Natural Sciences and Engineering Research Council of Canada (NSERC), Krembil Foundation, The Arthritis Society, Stem Cell Network, etc. He also sits on review panels and boards of various research/funding organizations around the world. His work has been published in respected journals including Nature Medicine, Science Translational Medicine, Annals of The Rheumatic Diseases, Nature Reviews Rheumatology, etc.
INVITED Speakers

JUDITH KOENIG
Dr. Judith Koenig graduated from Veterinary Medicine at the University Veterinary Medicine Vienna in 1996. She did her masters degree in combination with University Veterinary Medicine Vienna & Ontario Veterinary College, graduating in 1997. Dr. Koenig completed a Large Animal Rotating Internship in 1998, then a fellowship at Oregon State University. Following this she completed a Large Animal Surgery Residency at the Ontario Vet College and a concurrent doctorate. Dr. Koenig became board certified in surgery 2003 and has been working as a clinician and faculty member at OVC since. In 2016 Dr. Koenig became board certified in equine sports medicine. She has focused on tissue regeneration for research for the past 12 years.

ANDRAS NAGY
Dr. Andras Nagy is a Shawn Kimel Senior Scientist at the Lunenfeld-Tanenbaum Research Institute, Sinai Health System, Professor in the Department of Obstetrics & Gynaecology and Institute of Medical Science at the University of Toronto, Investigator at the McEwen Centre for Regenerative Medicine and Professor at the Australian Regenerative Medicine Institute in Monash University, Melbourne. He holds a Tier I Canada Research Chair in Stem Cells and Regeneration. He also has a Fellowship of the Royal Society of Canada in the Life Sciences Division of the Academy of Science and recently became a Foreign Member of the Hungarian Academy of Sciences. Dr. Nagy has made significant breakthroughs in the development of mouse and human pluripotent stem cells (both embryonic and induced) that could accelerate research in regenerative medicine and lead to future therapies for currently incurable diseases, such as blindness, diabetes, arthritis, spinal cord injury and many others. His team created the first two Canadian human embryonic stem cell lines and developed a novel method for generating non-viral induced pluripotent stem cells. His research focuses on understanding the process of reprogramming to stem cells at the molecular level and using sophisticated genome editing methodology to pave the way leading to safe and effective cell-based therapies of diseases.
GRAHAM PARKER

Dr. Graham Parker is in the Children’s Research Center of Michigan of the Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine located at Children's Hospital of Michigan. Dr. Parker is the co-leader of the Integrative Health Sciences Facility Core of the NIH NIEHS funded program grant, Center for Urban Responses to Environmental Stressors (CURES), housed at the new integrative bioscience center at Wayne State University. Graham’s research interests include the therapeutic potential and vulnerability of human stem cells with a particular focus on developmental models of the #1 inherited killer of infants, Spinal Muscular Atrophy. Dr. Parker is also the Editor-in-Chief of Stem Cells and Development, Executive Editor of Nucleic Acid Therapeutics, former Co-Editor-in-Chief of the World Stem Cell Report, a Section Editor for BioResearch Open Access, and Ethical Advisor for Mary Ann Liebert, Inc. publishers.

MARK REVENAUGH

Dr. Mark Revenaugh is the owner of Northwest Equine Performance (NWEP). He is a renowned expert in the diagnosis and treatment of lameness and performance issues, attracting clients from all over the northwest. His fascination with equine medicine and competitive performance began long before opening his specialty clinic in the Oregon. Though he studied riding under eventing icon Bruce Davidson, and spent several years in human medical research, his passion was always focused on helping owners and horses maximize their performance potential. He pursued that passion at the University of Illinois College of Veterinary Medicine, graduating in 1991. Dr. Revenaugh worked with some of the leading sport horse veterinarians in the world, including Dr. Kent Allen, Dr. Haynes Stevens, and Dr. Brendon Furlong. During this time, Dr. Revenaugh authored the first license for use of scintigraphy (bone scan) in the state of New Jersey in 1996. In 1997, Dr. Revenaugh took his first trip as official USET Team Veterinarian, traveling to Germany for a pairs Driving World Championship. Dr. Revenaugh has been honored to serve as a Team Veterinarian or Assistant Team Veterinarian since that time. Duties have included selecting, treating and advising elite level professionals in the equine industry, maintaining health and maximizing performance.
INVITED Speakers

**SOWMYA VISWANATHAN**

Dr. Sowmya Viswanathan is an Affiliate Scientist at the Krembil Research Institute, University Health Network, and an Assistant Professor at the Institute of Biomaterials and Biomedical Engineering and at the Department of Medicine of the University of Toronto. Her research is focused on developing anti-inflammatory cell-based therapies including next generation mesenchymal stromal cell (MSC) therapies and immunotherapies. Her lab is also focused on bioprocess optimization and translation of these cell-based therapies into clinical investigations. Dr. Viswanathan is a co-Principal Investigator of a recently completed trial using MSCs to treat osteoarthritis patients, a Canadian first. Dr. Viswanathan serves on several committees at the International Society for Cell and Gene Therapy (ISCT) including the MSC committee and the North American Legal and Regulatory Affairs Committee. She was recently appointed Associate Editor of Cytotherapy, the official journal for ISCT. Dr. Viswanathan chairs a Cell Therapy Stakeholder Group that has bilateral policy discussions with Health Canada. She is a founding member, and team leader of the Manufacturing Committee of CellCAN. She represents Canada at the International Standards Organization (ISO TC276) developing standards on Analytical Methods and Bioprocessing, for Cell and Gene therapies. She is a Regulatory and Manufacturing advisor to the Ontario Institute for Regenerative Medicine.

**DANIEL WEISS**

Dr. Daniel Weiss has had a longstanding interest in lung repair and regeneration after injury, notably gene and cell therapy approaches for lung diseases. This has included developing novel techniques with which to investigate and enhance lung gene and cell therapies. Published work in cell therapy approaches for lung diseases has included several benchmark publications that have included the first ever trial of cell therapy for COPD. As such, Dr. Weiss considers himself a translational scientist whose work spans from benchtop to clinical trials. He has instituted a biennial meeting held at the University of Vermont, Stem Cells and Cell Therapies in Lung Biology and Diseases, that is widely viewed by the NIH, FDA, and non-profit Respiratory Disease Foundations as the major meeting in the field. His overall goal is to provide a firm scientific basis for clinical application of cell therapies in lung diseases. Dr. Weiss has been funded by the NIH, DOD, non-profit Respiratory Disease Foundations, and industry sources since 1995. Current work in the laboratory is focused in four major areas: 1) Bioengineering approaches for development of functional lung tissue ex vivo; 2) Immunomodulation of lung inflammation by mesenchymal stromal cells (MSCs); 3) Development of cell therapy-based approaches for lung disease; and 4) Stem cell medical tourism.
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The University of Guelph is like no other university in Canada. Research-intensive and learner-centred, our campuses span urban hubs and rural communities. We are known for excellence in the arts and sciences, and for our commitment to developing exceptional thinkers and engaged citizens.

The University of Guelph, and everyone who studies here, explores here, teaches here, and works here, is committed to a simple purpose: To Improve Life.

As one of Canada’s top comprehensive, research-intensive universities, U of G consistently receives top ranking for agri-food and veterinary research.

It is home to the Ontario Veterinary College, a world leader in advancing veterinary medicine and health research, and educating the next generation of health leaders.

Advanced training includes masters, doctoral, post-doctoral, and Doctor of Veterinary Science levels of study.

The cross-disciplinary RM@G regenerative medicine research network promotes collaboration among U of G researchers investigating emerging areas of stem cells, tissue-engineering, and regenerative medicine, exploring opportunities to enhance animal and human health.
Likarda is an animal health company developing cell-based therapies for pets. Our unique microencapsulation technology opens new doors to cell therapies by providing an easily administered form. Custom-designed microspheres can be produced for durable cell transplants or for the transient, controlled release of cells into a localized region of the body. Likarda is using its microencapsulation technology to find new ways to treat diabetes and arthritis with encapsulated stem cells, but the technology has endless possible applications for improved cell therapy delivery. Partnerships with industry and academic experts in veterinary health will help us explore the possibilities.

Ontario Racing is a non-profit horseracing industry association. As the successor to the Ontario Horse Racing Industry Association, Ontario Racing is recognized by the provincial government as the authority for horseracing in Ontario.

Ontario Racing is directly responsible for setting an annual program of races, attracting new horse owners, implementing breed improvement programs, growing the fan base, and connecting the industry with government and the general public. Ontario Racing gives horsepeople in the province significant control and responsibility over their future.

Ontario Racing is establishing new ways of doing business and building new relationships. Ontario Racing is committed to listening to horsepeople and giving them a voice, in support of a vibrant racing industry.

eQcell™ is an Ontario-based, Canadian-owned regenerative medicine biotech company based on culture-expanded mesenchymal stromal cells. The company currently offers MSC isolation services for Canadian veterinarians for autologous use in dogs and horses. In these cases, the cells are isolated from adipose tissue of dogs and bone marrow aspirate of horses. Allogenic MSCs are available for use in dogs and horses which do not require any invasive tissue harvesting from the patient prior to treatment. The company also offers individual cell banking of equine cord blood MSCs, referred to as autologous cell-banking. Through academic partnerships, the company is involved in several in vivo research studies and clinical trials.
ARThREX VET SYSTEMS
arthrexvetsystems.com

Arthrex Vet Systems (AVS), a division of Arthrex Inc., provides veterinary surgical solutions, education opportunities, and research investments designed to improve canine and equine health. In collaboration with leading veterinary surgeons, AVS develops innovative products and techniques in the categories of cartilage repair, ligament stabilization, orthobiologics, and more.

DECHRA VETERINARY PRODUCTS
dechra.com

Dechra Veterinary Products continues to add a great level of support to our equine portfolio which includes Osphos®, HY-50®, Orthokine®, and Osteokine®. Our wide range of other products include Vetoryl®, Felimazole®, Zycortal® Canaural®, Isathal and Isaderm®. We are committed to supporting the work of veterinarians and technicians and enhancing the lives of their patients.

KARYOTEKK
karyotekk.com

Located at the University of Guelph, Karyotekk Inc. provides high-quality, cost-effective chromosome analysis. Our proven technology is used to diagnose chromosome abnormalities, variations, and instability in domestic animals, stem cells, and cell lines for livestock producers, veterinarians, and researchers. For further information contact info@karyotekk.com.

MORRIS ANIMAL FOUNDATION
morrisanimalfoundation.org

Morris Animal Foundation’s mission is to bridge science and resources to advance the health of animals. Founded by a veterinarian in 1948, we fund and conduct critical health studies for the benefit of all animals.
The Collaborative Graduate Program in Developmental Biology is one of only three in Canada and the only one to train students at the MSc level. Our scientists use model systems to understand early embryogenesis, organ development, and stem cell biology. We also have a strong group of researchers examining the effects of environment on embryo and fetal development and its implications on post-natal health.

The Comparative Orthopaedic Research Laboratory (CORL) is a multidisciplinary research group in the School of Veterinary Medicine, University of Wisconsin-Madison, focused on solving orthopaedic problems that affect animals and humans. One of the laboratory’s greatest attributes is the strong collaborative relationships that exist between the laboratory, the School of Medicine and the College of Engineering.
Arthrex IRAP ProEAS™ Device

Optimal Clotting, More Serum, and Fits Into ACP Swing-Out Rotor

Arthrex IRAP ProEAS System Contains:

- 0.22 µm filters
- Three syringe sizes: 60 mL for blood draw, 30 mL for serum aspiration, and 6 mL for serum dose application
- Luer lock caps and female-female transfer Luer
- Aspiration needle and blood draw needle

We’re working to build a vibrant future for Ontario’s Thoroughbred, Standardbred and Quarter Horse racing industry

FOR RACEHORSES:
- Investment in research • Post racing program • Equine health and welfare initiatives

FOR RACETRACKS:
- Government negotiations for industry funding • Setting race dates • Promoting track attendance

FOR HORSEPEOPLE:
- Financial incentives for breeders and owners • Stakes programs • Attracting new ownership

FOR RACE FANS:
- Developing a strong wagering product • Expanding the fan base • Fan communications

FOR THE INDUSTRY:
- Government engagement • Industry education • Stakeholder promotion • Economic impact research

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ANNOUNCING

THE 9TH NAHRMA CONFERENCE

We are pleased to announce that the next NAVRMA meeting will take place at the Translational Medicine Institute at Colorado State University: tmi.colostate.edu

Dates for the meeting will announced soon.

To learn more, please contact Dr. Tracy Webb at tracy.webb@colostate.edu
As an independent, nonprofit organization, NAVRMA encourages professional improvement and the exchange of knowledge and ideas among people interested in veterinary regenerative medicine. The organization seeks to achieve the following goals:

- Increase the knowledge of veterinary regenerative medicine through encouragement of basic and applied research
- Enhance the professional development of workers in this discipline
- Develop and exchange expertise in veterinary regenerative medicine through periodic meetings and publications
- Encourage and foster collaborative efforts and clinical trials in the field of veterinary regenerative medicine
- Help support research and clinical dissemination of information on veterinary regenerative medicine within North America and beyond
- Encourage training of young veterinarians and research scientists in veterinary regenerative medicine
- Consider and make recommendations on policies and regulations pertaining to veterinary regenerative medicine as necessary
- Interact in an appropriate manner with other scientific organizations as required