



7:00-17:00 Speaker Ready Room • Room 524C

7:00-17:30 Registration • 517 Foyer

7:00-8:30 ICORS Board Meeting • Room 523

8:00-9:00 ICORS Workshop: ORS - Skeletal Adaptations to Pregnancy and Lactation • Room 524B

Moderators: Ryan Ross, US

Objectives:

1. Outline the unique endocrine and skeletal adaptations to pregnancy, lactation, and weaning.
2. Attendees can expect to leave with a solid fundamental understanding of how the mother responds to pregnancy and lactation as well as how this research is being translated to furthering our understanding of bone biology.

Speakers:

- Hormonal Regulation of Mineral Homeostasis During Pregnancy and Lactation - Christopher Kovacs, Canada
- Functional Adaptation of the Maternal Skeleton to Reproduction and Lactation - Xiaowei Sherry Liu, US
- Osteocyt-mediated Perilacunar/Canalicular Remodelling in Skeletal Homeostasis and Disease - Tamara Alliston, US
- A Novel Model for the Study of Matrix Maturation: Applications of Lactation-Induced Bone Remodelling - Ryan Ross, US

8:00-9:40 ICORS Paper Session: Bone 1 • Room 520AD

Moderators: X. Edward Guo, US; Gang Li, Hong Kong

28 - 8:00

Transformed MSCs for Enhanced Immunomodulation and Bone Healing

Stuart B. Goodman, US; Tzuhua Lin, US; Jukka Pajarinen, US; Zhenyu Yao, US



Thursday

29 - 8:06

DXA Region Free Analysis Could Enhance Fracture Prediction Beyond Neck BMD

J. Mark Wilkinson, UK; Mohsen Farzi, UK; Jose M. Pozo, UK; Eugene McCloskey, UK; Richard Eastell, UK; Alejandro Frangi, UK

30 - 8:12

MicroRNA-29a Mitigates Age-Induced Bone Mass and Mechanical Strength Loss Through Delaying Osteoblast Senescence

Huei-Jing Ke, Taiwan; Feng-Sheng Wang, Taiwan; Yi-Chih Sun, Taiwan

8:18 Discussion

31 - 8:30

Protein-A in Osteoblast Regulates Intramembranous Ossification and Endochondral Ossification During Skeletal Development
Liangyin Chou, Taiwan

32 - 8:36

The Role of Bone Volume Fraction in Creep-Recovery Behaviour of Human Trabecular Bone

Robert Wallace, UK; Shuqiao Xie, UK; Hamish Simpson, UK

33 - 8:42

RPTOR Counteracts Glucocorticoid-Induced Osteogenesis Loss and Osteoporosis by Sustaining Osteoblast Autophagy

Yushan Chen, Taiwan; Feng-Sheng Wang, Taiwan

8:48 Discussion

34 - 9:00

Absence of Sensory Neuropeptide α -Calcitonin Gene-Related Peptide Alters Bone Cell Metabolism Age-Dependent

Tanja Niedermair, Germany; Rainer Straub, Germany; Stephan Schirner, Germany; Raphael Seebröcker, Germany; Susanne Grässel, Germany

35 - 9:06

Low Frequency Electrical Stimulation Partially Mitigates Femoral Bone Loss in the Ovariectomized Rat

Akiv Jhirad, Canada; Gregory Wohl, Canada



Thursday

36 - 9:12

Skeletal or Mesenchymal Stem Cells: A Tale of Two Stem Cells
Daniel Coutu, Canada

9:18 Discussion

9:30 Keynote Speaker: Rizhi Wang, Canada

8:00-9:30 ICORS Paper Session: Hand and Wrist • Room 520CF

Moderator: Geoffrey G.H. Johnston, Canada

37 - 8:00

Does Supplemental Dorsal Plating Increase Stability of Distal Radius Fractures After Volar Plating?

Mariya Hadzhinikolova, Bulgaria; Boyko Gueorguiev, Switzerland; Ivan Zderic, Switzerland; Daniel Ciric, Switzerland; Dian Enchev, Bulgaria; Asen Baltov, Bulgaria; Lyubomir Rusimov, Bulgaria; Geoff Richards, Switzerland; Mihail Rashkov, Bulgaria

38 - 8:06

Comparison of Local Steroid Injection and Surgical Decompression in Treatment of Carpal Tunnel Syndrome

Rahman Rasool Akhtar, Pakistan; Junaid Khan, Pakistan

8:12 Discussion

39 - 8:20

Analysis of Three-Dimensional Anatomical Variance and Fit of the Distal Radius to Current Volar Locking Plate Designs

Madeline Perrin, Canada; Emily Lalone, Canada; Nina Suh, Canada; Armin Badre, Canada

40 - 8:26

Evaluation of Long-Term Effects of a Novel Surgical Implant and the Volar Locking Plate Using Adaptive Finite Element Modeling

Geoffrey G.H. Johnston, Canada; Nima Ashjaee, Canada; James Johnston, Canada

8:32 Discussion



Thursday

41 - 8:40

A Mechanical Comparison of a Novel Surgical Implant With the Volar Locking Plate to Stabilize Distal Radial Fractures

Geoffrey G.H. Johnston, Canada; Nima Ashjaee, Canada; James Johnston, Canada

42 - 8:46

Role of Anconeus in the Stability of a Lateral Ligament Deficient Elbow: An In Vitro Biomechanical Study

Armin Badre, Canada; David Axford, Canada; Sara Banayan, Canada; Jim Johnson, Canada; Graham J.W. King, Canada

43 - 8:52

Role of an Adjustable Hinged Elbow Orthosis in the Rehabilitation of a Lateral Collateral Ligament Deficient Elbow: An In Vitro Biomechanical Study

Armin Badre, Canada; Sara Banayan, Canada; David Axford, Canada; Jim Johnson, Canada; Graham J.W. King, Canada

8:58 Discussion

8:00-9:30 ICORS Paper Session: Infection • Room 521

Moderators: Masahiro Hasegawa, Japan; Gerald Atkins, Australia

44 - 8:00

The Osteocyte as a Target Cell and Disease Nidus in Human Periprosthetic Joint Infection

Gerald Atkins, Australia; Dongqing Yang, Australia; Asiri Wijenayaka, Australia; Stephen Kidd, Australia; Lucian Bogdan Solomon, Australia; Nicholas Gunn, Australia; David Findlay, Australia

45 - 8:06

Clostridium Difficile Infection: Incidence and Risk Factors in Revision Total Knee Arthroplasty Patients

Nequesha Mohamed, US; Iciar Dávila Castrodad, US; Jennifer Etcheson, US; Chukwuweike Gwam, US; Nicole George, US; Ronald Delanois, US; Avnish Jetty, US; Elana Roadcloud, US; Randa Elmallah, US

8:12 Discussion



Thursday

46 - 8:20

Antibiotic-Eluting Scaffolds Eliminate Infection and Facilitate Bone Tissue Regeneration in a Rabbit Model of Osteomyelitis

Eamon Sheehy, Ireland; Christian von Diemling, Switzerland; Fintan Moriarty, Switzerland; Fergal O'Brien, Ireland

47 - 8:26

In Vitro and In Vivo Testing of Antibiotic-Loaded DBM

Britt Wildemann, Germany; Nicole Bormann, Germany; Elisabeth Beuttel, Germany; Anne-Marie Pobloth, Germany; Georg N. Duda, Germany

8:32 Discussion

48 - 8:40

Effect of Low Intensity Pulsed Ultrasound on Staphylococcus Aureus Biofilms: A Metabolomics Approach

Jerry Tsang, UK; Peter Gwynne, UK; Maurice Gallagher, UK; Hamish Simpson, UK

49 - 8:46

Hypoalbuminemia as a Pre-operative Risk Factor for Infection Following Arthroscopic Surgery

Richard Nicolay, US; Ryan Selley, US; Daniel Johnson, US; Michael Terry, US; Vehniah Tjong, US

8:52 Discussion

8:00-9:30 ICORS Paper Session: Spine 2 • Room 520BE

Moderators: Mauro Alini, Switzerland; Fackson Mwale, Canada

50 - 8:00

Nano and Micro Biomechanical Alterations of Annulus Fibrosus After In-Situ Immobilization Revealed by Atomic Force Microscopy

Zongping Luo, China; Ting Liang, China

51 - 8:06

Sex Differences in the Interaction Between Biomechanical Properties of Rat Intervertebral Discs and Mechanical Pain Following Annular Puncture Injury

Grace Mosley, US; Philip Nasser, US; Alon Lai, US; Daniel Charen, US; Thomas Evashwick-Rogler, US; James Iatridis, US



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8:12 Discussion

52 - 8:24

Modeling Pressurization During Intradiscal Injection: Is Leakage Inevitable?

Arthur Michalek, US; Duc Nguyen, US; Lara Varden, US

53 - 8:30

Analysis of Internal Disc Strains During Simulation of Repetitive Lifting Motions

John Costi, Australia; Christina Moawad, Australia; Dhara Amin, Australia

8:36 Discussion

54 - 8:44

Mitochondrial Pathway Is Involved in Advanced Glycation End Products-Induced Rabbit Annulus Fibrosus Cell Apoptosis In Vitro

Wentian Wang, China; Liming Xiong, China; Yiqiang Hu, China; Fan Ding, China; Zengwu Shao, China; Guohui Liu, China; Xianyi Cai, China

55 - 8:50

Effect of Body Mass Index on Peri-operative Outcomes in Minimally Invasive Oblique Lateral Lumbar Interbody Fusion vs. Open Fusions: A Multivariant Analysis

Hamid Abbasi, US; Alex Grant, US

8:56 Discussion

9:04 Keynote Speaker: Daisuke Sakai, Japan

9:14 Discussion

9:15-10:45 ICORS Paper Session: Hip and Knee Arthroplasty 2

• Room 524B

Moderator: Robin Queen, US



Thursday

56 - 9:15

Oxidized UHMWPE Particles Induce More Inflammation Compared to Virgin UHMWPE Particles in a Murine Model

Victoria Teissier, France; Moussa Hamadouche, France; Morad Bensidhoum, France; Hervé Petite, France

57 - 9:21

The Effect of Anesthesia Type on Length of Stay and Complications Following Total Knee Arthroplasty

Lauren Nowak, Canada; Emil H. Schemitsch, Canada

Discussion 09:27

58 - 9:35

The Effect of SpinoPelvic Alignment on Total Knee Arthroplasty Outcomes

Amila Silva, Singapore; Seng Jin Yeo, Singapore; Joyce Suang Bee Koh, Singapore; Paul Chee Cheng Chang, Singapore; Tet Sen Howe, Singapore

59 - 9:41

Referencing the Substitute Anteroposterior Line of the Tibia Improves Rotational Alignment of the Components in Medial Unicompartmental Knee Arthroplasty

Ichiro Tsukamoto, Japan; Kotaro Yamagishi, Japan; Koichi Nakagawa, Japan; Shinji Inoue, Japan; Masao Akagi, Japan

9:47 Discussion

60 - 9:55

The Negative Role of NOD2 in Macrophage Induced Aseptic Joint Loosening Caused By Wear Particles In Vitro and In Vivo

Yue Ding, China; Shixun Li, China; Junxiong Qiu, China; Peng Peng, China; Guibin Fang, China; Changchuan Li, China; Sipeng Lin, China

61 - 10:01

Satisfaction After Total Knee Arthroplasty Surgery is Associated With Pre-Operative Gait Function but not With Improvement in Gait Function Due to Surgery

Janie Astephen Wilson, Canada; Jereme Outerleys, MA; David Wilson, Canada; Glen Richardson, Canada; Michael J. Dunbar, Canada



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62 - 10:07

Duration of Surgery Affects the Risk of Complications Following Total Hip Arthroplasty

Lauren Nowak, Canada; Emil H. Schemitsch, Canada

10:13 Discussion

10:25 Keynote Speaker: Yutaka Inaba, Japan

10:35 Discussion

9:45-10:45 ICORS Workshop: BORS - Pathways to Better Understanding Osteoarthritis Pathogenesis and Progression

• **Room 520BE**

Moderators: Harinderjit Gill, UK; J. Mark Wilkinson, UK

Objectives:

1. Feature a series instructional talks with floor discussion.
2. Attendees will have a better understanding of the role of these factors in OA initiation and progression, symptomatology and engineering solutions to disability associated with OA.

Speakers:

- What Does Genetics Tell Us About OA Pathogenesis? J. Mark Wilkinson, UK
- Pain Pathways in OA - Brigitte Scammell, UK
- What Can Motion Capture Tell Us About Osteoarthritis? Catherine Holt, UK
- Biomaterials Solutions in OA Management - Sabina Gheduzzi, UK

9:45-10:45 ICORS Workshop: Canadian ORS / ORS - Stability of MSK Systems Including Spine, Trunk, and Knee Joint • Room 521

Moderator: Marzieh Ardestani, US

Objectives:

1. Open a dialogue on the concept of stability among experts from different fields.
2. Provide an overview of current techniques to evaluate stability.
3. By concrete applications, demonstrate the association between stability, activity, functional performance and musculoskeletal injuries.



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Speakers:

- Stability of Human Trunk: Passive Tissues and Active Musculature - Saeed Shirazi-Adl, Canada
- Stability of Knee Joints and Parameters Affecting It - Masoud Sharifi, Canada
- Stability of Knee Joints in the Operating Room: Muscles, Ligaments and Beyond - Marzieh Ardestani, US

9:45-10:45 ICORS Workshop: Chinese ORS - The Issues in Cartilage Development & Degeneration • Room 520AD

Moderator: Xiaoling Zhang, China; Guozhi Xiao, China

Objectives:

1. Discuss the diagnosis and treatment progress of clinical cartilage related diseases.
2. Discuss the significance and problems of present cartilage research.
3. Put forward the direction and strategy of future basic and clinical research.

Speakers:

- Targeted and Molecular Therapy in Arthritis - Julio Fernandes, Canada
- A Novel Kindlin-2 Signaling in Articular Cartilage - Guozhi Xiao, China
- HNE as a Potential Therapeutic Target in Osteoarthritis - Mohamed Benderdour, Canada
- Injectable Composite Hydrogels with Articular Cartilage Stem Cells and Anhydrocartin-encapsulated Nanospheres for Tissue Engineering: A Novel Dual-sustained Release System - Xiaoling Zhang, China

9:45-10:45 ICORS Workshop: EORS - Wearable Sensors to Measure Movement Quality in Orthopaedic Disorders: From Lab to Clinic • Room 520CF

Moderator: Bernd Grimm, Germany

Objectives:

1. Experience current technology for measuring quality of movement in the field.
2. Demonstrate clinical applications.
3. Report initial findings using such sensors.



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4. Discuss gaps in scientific evidence on this matter, possible improvements and experience from the clinic.
5. At the end of the workshop participants should have a clear and up to date understanding of technology able to measure quality of movement in the field.

Speakers:

- Bernd Grimm, Germany
- Walter van der Weegen, Netherlands
- Pim van Duin, Netherlands

10:45-11:15 Break - Food and Beverage for Purchase in Exhibit Hall

11:15-12:15 ICORS Workshop: JOA - From Virtual to Real: Innovation of Imaging Techniques in MSK Disorders • Room 520AD

Moderators: Nobuhiro Tanaka, Japan; Eiichi Tsuda, Japan

Objectives:

1. Discuss the advantage of some novel imaging techniques.
2. Discuss its clinical application to diagnosis and evaluation of musculoskeletal disorders.

Speakers:

- Development of 3D Ultrasonography System and its Clinical Application in Orthopaedic Surgery - Ryuichi Nakahara, Japan
- Towards Robotic Knee Arthroscopy: A Feasibility Study of 4D Ultrasonography as Robotic Vision – Fumio Sasazawa, Japan
- Q-Space Imaging is a Novel Technique to Evaluate Intervertebral Disc Degeneration from Animal to Human Research- Daisuke Nakashima, Japan
- AI Imaging of Bone Tumors Using Deep Learning Approach - Tadahiko Kubo, Japan

11:15-12:15 ICORS Workshop: JOA - New Techniques in Osteosarcoma Treatment • Room 520BE

Moderators: Hiroyuki Futani, Japan; Jun Nishida, Japan

Objectives:

The current combination treatment, chemotherapy and surgery, has significantly improved the cure rate and the survival rate of primary bone osteosarcoma. The 5-year survival rate has increased in the last 30



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years from 10% to 70%. However, the treatment outcome of osteosarcoma was little growth in recent years. Therefore, the development of a novel therapeutic strategy is required. Here we introduce some basic and clinical researchers to develop a novel treatment strategy in Japan.

Speakers:

- The Effects of RANK-Fc Against Osteosarcoma is Provided by an Unparalleled Mechanism of not only Inhibiting Osteoclast Activities but also Reducing Tumorigenesis Directly - Toru Akiyama, Japan
- Clinical Genomic Sequencing Revealed Potentially Actionable Alterations in Osteosarcomas - Yoshiyuki Suehara, Japan
- Augmentation of Anti PD-1 Antibody Immunotherapy with Telomerase-Specific Oncolytic Virotherapy in Osteosarcoma - Joe Hasei, Japan
- The Role of Interleukin-6 Receptor Antibody in Osteosarcoma Cell Lines - Tomoki Nakamura, Japan

11:15-12:15 ICORS Workshop: ORS - Inflammation and Bone Healing • Room 524B

Moderators: Stuart B. Goodman, US; Ling Qin, Hong Kong

Objectives:

1. Review the basic concepts of bone healing.
2. Introduce new, evidence-based cutting edge biological approaches, technologies and materials that will lead to earlier and more vigorous bone healing.
3. Convene a panel discussion with audience participation regarding potential future innovations to accelerate bone healing.

Speakers:

- Basic Principles of Bone Healing. An Immunologic View - Michiaki Takagi, Japan
- Bone Healing: From Biomaterials to Scaffolds and More - Ling Qin, Hong Kong
- Biological Aspects of Bone Healing and Modulation - Gang Li, China
- Inflammation and Bone Healing: Translational Perspective - Enrique Gomez-Barrena, Spain



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11:15-12:30 ICORS Paper Session: Top Canadian Research

• Room 517D

Moderators: Rizhi Wang, Canada; Simon Kelley, Canada

63 - 11:15

BMP-2 Signalling Influences Tumour Biology in Preclinical Models of Osteosarcoma

Joseph Kendal, Canada; Arvind Singla, Canada; Asmaa Affan, Canada; Kurt Hildebrand, Canada; Abdullah Al-Ani, Canada; Doha Itani, Canada; Mark Ungrin, Canada; Michael Monument, Canada

64 - 11:23

Determining the Impact Hip Femoral Stem Design Has on Subsidence and Patient Activity for Patients Undergoing Primary Unilateral Total Hip Arthroplasty

Maxwell Perelgut, Canada; Matthew Teeter, Canada; Brent Lanting, Canada; Edward Vasarhelyi, Canada

11:31 Discussion

65 - 11:39

Delayed Hip Fracture Surgery Past 24 Hours Increases Complications: An Empirically-Derived Time-to-Surgery Threshold for Clinical Decision-Making and Policy

Daniel Pincus, Canada; Bheeshma Ravi, Canada; David Wasserstein, Canada; Richard Jenkinson, Canada; Hans Kreder, Canada; Avery Nathens, Canada; Walter Wodchis, Canada

66 - 11:47

Clinical Graft Laxity Relationship to Quality of Life Following Hamstring Autograft ACL Reconstruction

Allison Tucker, Canada; Sarah Kerlake, Canada; S. Mark Heard, Canada; Gregory M.L. Buchko, Canada; Laurie A. Hiemstra, Canada; Mark Lafave, Canada

11:55 Discussion

67 - 12:03

Mice Lacking the Nucleoside Transporter ENT1 – A Model of Diffuse Idiopathic Skeletal Hyperostosis (DISH) in Humans

Cheryle Séguin, Canada; S. Jeffrey Dixon, Canada; Kim Beaucage, Canada; Mayu Nagao, Canada; Gilles Lajoie, Canada; Matthew Veras,



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Canada; Dale Fournier, Canada; David Holdsworth, Canada; Christopher Bailey, Canada; James Hammond, Canada

68 - 12:11

Artificial Intelligence Distinguishes Surgical Skill Levels in a Virtual Reality Spinal Task

Vincent Bissonnette, Canada; Rolando F. Del Maestro, Canada; Nykan Mirchi, Canada; Alexander Winkler-Schwartz, Canada; Samaneh Siyar, Canada; Hamed Azarnoush, Canada; Bekir Karlik, Canada; M. Recai Yilmaz, Canada; Nicole Ledwos, Canada; Robin Sawaya, Canada; Fahad AlOtaibi, Canada; Abdulgadir Bugdadi, Canada; Khalid Bajunaid, Canada; Greg Berry, Canada; Ghusn Alsideiri, Canada

12:19 Discussion

12:15-13:30 Lunch - Food and Beverage for Purchase in Exhibit Hall

12:30-13:30 CORS Business Meeting • Room 521

13:30-14:30 ICORS Workshop: Canadian ORS - A Holistic Approach to the Assessment of FAI • Room 521

Moderators: Paul E. Beaulé, Canada; George Grammatopoulos, Canada

Objectives:

To bring together what the state-of the art holistic assessment of hip FAI should be. Four areas will be covered including:

1. Static and dynamic radiological assessments of the hip and pelvis.
2. Biomarkers staging disease progress.
3. Gait lab evaluations of muscle recruitment when performing various tasks.
4. How all the above should be incorporated in both clinical practice and research aiming to optimize operative and non-operative treatment algorithms.

Speakers:

- Radiologic Investigation of Femoracetabular Impingement - Kawan Rakhra, Canada
- Novel Imaging Modalities for the Young Adult Hip – Gerd Melkus, Canada
- Seeing Past the Static Assessments – How Can the Gait Lab Help in our Assessments? Mario Lamontagne, Canada



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- Surgical Considerations and Outcomes of Femoroacetabular Impingement – Paul E. Beaulé, Canada

13:30-14:30 ICORS Workshop: Canadian ORS/ORS - Fracture Non-unions: Clinical Etiology and Treatment Solutions • Room 524B

Moderators: Chelsea Bahney, US

Objectives:

1. Provide a tutorial on clinical etiology and diagnosis of fracture non-union, followed by a presentation of state-of-the-art in clinical management.
2. Look to the future in fracture care diagnosis and novel therapeutic strategies that aim to stimulate bone repair.
3. Provide bench-to-bedside insight into fracture non-union that will motivate clinical and basic research efforts aimed at improving outcomes for patients with recalcitrant healing.

Speakers:

- Clinical Diagnosis and Etiology of Fracture Non-Unions - Prism Schneider, Canada
- Principles of Non-Union Management: State of the Art Treatment Options - Aaron Nauth, Canada
- Building Innovative Therapies Based on New Mechanistic Insight into Fracture Repair - Chelsea Bahney, US

13:30-14:30 ICORS Workshop: ORS - Current Status of BMAC From a Basic Science and Clinical Perspective • Room 520AD

Moderators: Theodore Miclau, *ICORS President*, US; Suzanne Tabbaa, US

Objectives:

1. Describe the current understanding of bone marrow aspirate concentrate (BMAC), including:
 - basic science research findings
 - the status of harvesting
 - processing techniques and their effects on BMAC composition
2. Describe the current clinical data evaluating the efficacy of BMAC for bone regeneration.



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Speakers:

- BMAC: Basic Research Findings - Suzanne Tabbaa, US
- Harvesting and Processing Techniques and their Effects on BMAC Composition - Emil H. Schemitsch, Canada
- Clinical Efficacy of BMAC For Bone Repair - Aaron Nauth, Canada

13:30-14:30 ICORS Workshop: ICMRS - Osteoarthritis: Advances in Basic Understanding and Therapeutic Approaches • Room 520CF

Moderators: Di Chen, US; Hui (Herb) Sun, US

Objectives:

The presentations and discussion will highlight the most recent discoveries in mechanisms underlying the pathogenesis of Osteoarthritis (OA) that may lead to the development of novel therapeutic strategies to treat OA.

Speakers:

- The Role of MicroRNA in OA - Di Chen, US
- EGFR Signaling: Friend or Foe for Articular Cartilage? Lin Qin, US
- Cartilage and Subchondral Bone Changes in Osteoarthritis - X. Edward Guo, US

13:30-14:30 ICORS Workshop: TORS - Regenerated Medicine in Orthopaedics: Current Status in Taiwan • Room 520BE

Moderator: Chih-Hung Chang, Taiwan

Objectives:

1. Introduce the current regenerated medicine status in orthopaedics.
2. Introduce new policies related to regenerative medicine product and autologous cell therapy in Taiwan.
3. Information may provide the researchers a new thought on developing new medical therapies for orthopaedic disease.

Speakers:

- Hyaluronan Microenvironment Enhances Chondrogenic, but Prevents Osteogenic, Effects of Simvastatin in Adipose Derived Stem Cells - Je-Ken Chang, Taiwan
- A Vision on the Future in Cartilage Repair and Osteoarthritis Treatment - Chih Hwa Chen, Taiwan
- Development of a Device to Isolate and Select Adipose Derived Stem Cells for Immediate Clinical Use - Mei-Ling Ho, Taiwan



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- The Study of Applying Hyaluronan Microenvironmental Factor in Chondrogenic Induction of Adipose Derived Stem Cells for Articular Cartilage Tissue Engineering - Chung-Hwan Chen, Taiwan

14:30-15:30 Poster Session with Coffee • Exhibit Hall, Room 516

15:00-18:00 ORS Board Meeting • Room 523

**15:30-17:00 CORS Keynote and Research Award Presentations
• Room 517D**

Moderator: Paul E. Beaulé, Canada

Ian Macnab Lecture

25 Years of Spine Basic Research: Nothing New on The Clinical Horizon? Mauro Alini, Switzerland

J. Edouard Samson Award Presentation

The Prophylactic Antibiotic Regimens in Tumour Surgery (PARITY) Trial: Unprecedented international collaboration in orthopaedic oncology - Michelle Ghert, Canada

2018 Founders Award Presentation

Open MRI Measurements of Hip Kinematics - Sima Zakani, Canada

COF Research Awards

Carroll A. Laurin Award, recognizing excellence in clinical research
Periacetabular Osteotomy with and without Arthroscopic Management of Central Compartment Pathology - Geoffrey P. Wilkin, Canada

Robert B. Salter Award, recognizing excellence in basic science research

Determining the Optimal Bone-derived Stem Cell Source for Cartilage Regeneration in the Treatment of Osteoarthritis - Sasha Carsen, Canada; T. Mark Campbell, Canada; F. J. Dilworth, Canada

Cy Frank Award, recognizing excellence in innovation. This award is presented in conjunction with the Canadian Orthopaedic Research Society (CORS):

Soft-Tissue Quadriceps autograft ACL-Reconstruction in the Skeletally-Immature vs. Hamstrings (SQUASH): A Multi-Centre Pilot Randomized Controlled Trial - Darren L. de SA, Canada



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Canadian Orthopaedic Research Legacy (CORL) Grants

Developing a New Therapeutic Approach to Improve Treatment of Periprosthetic Joint Infections Using a Novel, and Clinically Representative Hip Replacement Rat Model - Hesham Abdelbary, Canada

Topicals for Osteoarthritis Pain in Knee Surgery (TOPIKS): A Pilot Randomized Controlled Trial - Anthony Adili, Canada

Randomized Control Trial of Ultrasound-Guided Erector Spinae Block (ESP) vs. Shoulder Periarticular Anesthetic Infiltration (PAI) for Pain Control After Arthroscopic Shoulder Surgery - Dr. Bashar Alolabi, Canada

Randomized Controlled Trial of Staged vs. Simultaneous Bilateral Knee Arthroplasty - Eric Bohm, Canada

Sting Activation as an Immunotherapy for Soft Tissue Sarcoma - Michael J. Monument, Canada

The Microbiome: Can it Influence Fracture Healing? - Diane Nam, Canada

The C3PO Trial Canadian Prospective Pragmatic Perilunate Outcomes Trial - Neil White, Canada

Community Innovation Awards

Smoking Cessation Prior to Elective Surgery: Quality Improvement in a Centralized Intake Clinic Model – Assessment to Implementation - James McInnes, Canada

Using Patient Reported Outcomes and Mobility Monitoring to Optimize Hospital Care for Patients Undergoing Knee Arthroplasty - Scott Wiens, Canada

The inaugural Robin Richards Award for Upper Extremity Research

ICORS President Keynote Address – Theodore Miclau, ICORS President, US



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