

ORS 2015 Annual Meeting

Accelerating the pace of discovery



MEETING ANNOUNCEMENT

MGM GRAND HOTEL | LAS VEGAS, NEVADA | MARCH 28 – 31

Collaborating in the Science of Patient Care

Friday, March 27 and Saturday, March 28
AAOS 2015 Annual Meeting
Venetian/Sands EXPO, Las Vegas, Nevada



Make plans to attend the AAOS 2015 Annual Meeting and its Specialty Day on Friday, March 27 and Specialty Day, Saturday, March 28. We invite all ORS Annual Meeting registrants to take advantage of the opportunity for orthopaedic surgeons and scientists to *collaborate in the science of patient care*.

Complimentary Programs:

Friday, March 27, 7:00 AM – 6:00 PM

- Symposia
- Paper Presentations
- Posters
- Scientific Exhibits
- Orthopaedic Video Theater

Friday, March 27, 9:00 AM – 4:00 PM

- Technical Exhibits
 - Ask an Expert
 - Electronic Skills Pavilion

Friday, March 27, 10:30 AM – 12:30 PM

- AAOS/ORS Combined Symposium –
Articulations in Total Joint Replacement: Have We
Lost Our Bearings?
William M. Mihalko, MD, PhD and
Stuart Goodman, MD, PhD

Saturday, March 28, 7:00 AM – 3:00 PM

- Posters
- Scientific Exhibits
- Orthopaedic Video Theater

HOW TO REGISTER:

A sticker on your badge is required to access the AAOS Annual Meeting on Friday, March 27 and Saturday March 28. For Specialty Day sessions on Saturday, March 28, attendees must register and pay the appropriate fees. To obtain a sticker or register for Specialty Day, please go to AAOS registration located at the Venetian/Sands Expo, Academy Hall G on Friday March 27 beginning at 7:00 AM. ORS attendees must have their ORS badge to receive a sticker.

Registration Required

ORS attendees may purchase tickets, with no additional registration fee, for the following sessions:

Friday Instructional Courses

For details go to www.aaos.org/ameducation

Saturday Specialty Day

ORS attendees may purchase tickets; fees apply.

For details go to www.aaos.org/amprograms

Programming is provided by:

- American Orthopaedic Foot & Ankle Society
- American Orthopaedic Society for Sports Medicine
- American Shoulder and Elbow Surgeons
- American Society for Surgery of the Hand/American Association for Hand Surgery
- Arthroscopy Association of North America
- Federation of Spine Associations
- The Hip Society/American Association of Hip and Knee Surgeons
- The Knee Society/American Association of Hip and Knee Surgeons
- Limb Lengthening and Reconstruction Society
- Musculoskeletal Tumor Society
- Orthopaedic Trauma Association
- Pediatric Orthopaedic Society of North America

For details about the AAOS 2015 Annual Meeting go to www.aaos.org/annual.

See you in Las Vegas!

ORS ANNUAL MEETING

FRIDAY, MARCH 27	
7:00 AM – 6:00 PM	ORS registration/satellite check-in at AAOS
6:00 PM – 8:00 PM	Ancillary Programs – Research Interest Groups – <i>See PG 9</i>
SATURDAY, MARCH 28	
8:00 AM – 10:30 AM	Ancillary Program - Research Interest Groups – <i>PG 9</i>
11:00 AM – 12:00 PM	ORS Mentoring Programs- <i>PG 8</i>
12:00 PM – 8:00 PM	Poster & Exhibit Hall Open
12:00 PM – 2:15 PM	Paper Presentations
2:00 PM – 6:00 PM	ORS/OREF Basic Science Course (Part I) – <i>PG 6</i>
3:00 PM – 4:30 PM	Workshops – <i>PG 7</i>
3:00 PM – 4:30 PM	Career Advancement: Winning the Uphill Battle for Research Funding – <i>PG 5</i>
4:45 PM – 5:45 PM	Welcome Session- Keynote Speaker, Patient Advocate, Guest Nation – <i>PG 4</i>
6:00 PM – 8:00 PM	ORS President's Welcome Reception – <i>PG 9</i>
SUNDAY, MARCH 29	
8:00 AM – 9:00 AM	Paper Presentations
8:00 AM – 11:15 AM	ORS/OREF Basic Science Course (Part II) – <i>PG 6</i>
9:00 AM – 6:00 PM	Poster & Exhibit Hall Open
9:15 AM – 12:30 PM	Paper Presentations
12:45 PM – 5:00 PM	ORS Clinical Research Forum – <i>PG 6</i>
12:45 PM – 1:45 PM	An Inside Look at Research Funding Opportunities with the National Institutes of Health(NIH) - <i>PG 8</i>
12:45 PM – 1:45 PM	ORS Translational Research Symposium: Cartilage Repair: Is it Possible? – <i>PG 7</i>
2:00 PM – 3:30 PM	Workshops – <i>PG 7</i>
2:00 PM – 3:30 PM	Finding a Partner in Research – <i>PG 5</i>
3:45 PM – 4:45 PM	Paper Presentations
4:45 PM – 6:00 PM	Poster Reception I (authors present) – <i>PG 9</i>
7:00 PM – 10:00 PM	ORS Awards Gala – <i>PG 9</i>
MONDAY, MARCH 30	
6:30 AM – 7:45 AM	Ancillary Program – Research Interest Group – <i>PG 9</i>
7:00 AM – 9:45 AM	Communications Workshop with Melissa Marshall – <i>PG 8</i>
8:00 AM – 9:00 AM	Paper Presentations
9:00 AM – 5:30 PM	Poster & Exhibit Hall Open
10:00 AM – 11:00 AM	General Session
11:15 AM – 12:15 PM	Paper Presentations
12:30 PM – 1:30 PM	ORS Mentoring Programs – <i>PG 8</i>
1:45 PM – 3:15 PM	Workshops – <i>PG 7</i>
1:45 PM – 3:15 PM	Rising to the Top: Leadership Success in Academics – <i>PG 5</i>
3:30 PM – 4:15 PM	General Session- Awards
4:15 PM – 5:30 PM	Poster Reception II (authors Present) – <i>PG 9</i>
7:30 PM – 10:00 PM	Women's Leadership Forum Reception – <i>PG 9</i>
TUESDAY, MARCH 31	
6:00 AM – 3:30 PM	Posters
8:00 AM – 9:00 AM	Paper Presentations
9:45 AM – 11:15 AM	Workshops – <i>PG 7</i>
12:45 PM – 1:45 PM	Paper Presentations
2:00 PM – 2:30 PM	Posters
2:30 PM – 3:30 PM	Paper Presentations

For over 60 years, the **ORS Annual Meeting** has been a place to **COMMUNICATE** the newest and most innovative research. Each year, over 3,000 biologists, engineers, clinicians and surgeons come together to **COMMUNICATE** their science, **COMMUNICATE** with each other and **COMMUNICATE** across the disciplines.

The 2015 Annual Meeting at the MGM Grand Hotel in Las Vegas will be no exception! This year, we are excited to welcome Melissa Marshall who is best known for her TEDtalk *Talk Nerdy to Me*. Through both her keynote address and workshop, Marshall will explore how effective communication is the foundation for advancing research while giving researchers a new skill set for communicating their science.

In addition, we are looking forward to offering the ORS Translational Research Symposium, the ORS/OREF Basic Science Course and the ORS Clinical Research Forum as well as a new workshop organized by *The Journal of Orthopaedic Research (JOR)* to help authors improve the quality of their journal manuscripts and increase their chances of getting published.

Don't miss your opportunity to collaborate, communicate and be inspired. Meet us in Las Vegas where we will continue **accelerating the pace of discovery!**



Mary B. Goldring, PhD
President



Mathias P.G. Bostrom, MD
1st Vice President
Annual Meeting Chair



Farshid Guilak, PhD
2nd Vice President
Annual Meeting
Program Chair

WELCOME SESSION

SATURDAY, MARCH 28, 4:45 PM – 5:45 PM

Presidential Guest Speakers



Melissa Marshall Penn State University
Science Not Communicated is Science Not Done

Important research often does not move forward because the significance of that research is not understood and appreciated by others. Given in an informative and engaging style, Melissa Marshall's address will motivate listeners on the importance of communication to the success and advancement of their research. She will explore how effective communication is the linchpin between research and those that are in a position to advance that research. Through engaging examples

and practical strategies, listeners will walk away with a renewed enthusiasm and skill set for communicating their science.

A Senior Lecturer member with the Department of Communication Arts & Sciences at Penn State, Marshall specializes in teaching communications skills to science and engineering students, so they can effectively share their work. She has lectured at Harvard Medical School, the New York Academy of Sciences, Cornell University and the Centers for Disease Control and Prevention (CDC) to name a few. Marshall is the co-founder and director for the Penn State Engineering Ambassadors, which is an award-winning science and engineering outreach program.

Pamela Schroeder
Patient Advocate

Pam is a dedicated advocate for orthopaedic surgery and advancements in musculoskeletal research. She has served on the AAOS Patient Advisory Board for five years and has advocated on Capitol Hill for musculoskeletal research funding.



Guest Nation – JAPAN – ORS



The ORS is happy to announce that Japan has been selected as the inaugural Guest Nation to be honored at the ORS 2015 Annual Meeting. The Guest Nation Program honors our colleagues in Japan, recognizes their contribution to the field of musculoskeletal research, and celebrates our longstanding partnership with the Japanese Orthopaedic Association.

SPOTLIGHT SESSIONS



Howard S. An, MD
Rush University Medical Center
*Intervertebral Disc Degeneration:
Pathogenesis and Treatment Strategies*



Donald D. Anderson, PhD
University of Iowa
*Progress Toward Better Understanding,
Predicting, and Preventing Post-Traumatic OA*



Suneel S. Apte, MBBS, DPhil
Cleveland Clinic
*Extracellular Matrix: Assembly, Proteolytic
Turnover and its Contributions to
Degenerative and Inflammatory Disorders*



Per Aspenberg, MD, PhD
Linköping University
*NSAIDs and Healing: Different Effect
in Different Situations*



David E. Birk, PhD
University of South Florida
*Regulated Assembly of the Hierarchical
Structure of Tendons and Ligaments*



Edward J. Harvey, MD, FRCSC
McGill University
*AVN of the Hip: New Approaches
Bring New Ideas*



Anne-Marie Malfait, MD, PhD
Rush University Medical Center
Pain Pathways in Experimental Osteoarthritis



Elise F. Morgan, PhD
Boston University
*Image Assessments of the Biomechanics
and Biology of Bone Healing*

PROFESSIONAL ADVANCEMENT SERIES

Career Advancement:

Winning the Uphill Battle for Research Funding

SATURDAY, MARCH 28, 3:00 PM – 4:30 PM

Organized by the ORS New Investigator Mentoring Committee

Moderator: Jinxi Wang, MD, PhD

Acquiring funding for research is more competitive than ever. Budget cuts have been a threat to individual researchers and research programs and affect musculoskeletal basic scientists and physician scientists at all stages. Whether you are a postdoctoral fellow, new investigator, mid-career investigator, or established investigator, this Professional Advancement Session will provide you with the tools to meet these challenges and to streamline career advancement strategies in today's competitive funding environment. This PAS includes brief presentations and ample discussions with the panel members who have experience with submitting grants and serving on study sections. Topics include: What to do when you submit but don't get funded? What to do when you submit and do get funded? What to do if you are stuck after completing a small grant project? What to do if your grant is not renewed as you expected? What to do if your tenure review is approaching but your NIH grant application is still pending?

Panel members: Henry J. Donahue, PhD, Penn State University College of Medicine, James C. Iatridis, PhD, Icahn School of Medicine at Mount Sinai, Lynn Snyder-Mackler, PT, ScD, FAPTA, STAR University of Delaware and Mary B. Goldring, PhD, Hospital for Special Surgery and Weill Cornell Medical College

Finding a Partner in Research

SUNDAY, MARCH 29, 2:00 PM – 3:30 PM

Organized by the ORS Corporate Affairs Committee

Moderators: Jeremy Rawlinson, PhD and Michael S. Ominsky, PhD

Collaboration is one hallmark of good research and research is strengthened when it is collaborative. Most challenging research problems are multi-disciplinary and multi-factorial. This requires researchers to reach outside their core expertise to make common connections. Why is it important to collaborate? What are the best ways to find a partner in research? These and other questions will be considered in this workshop. Participants will learn about modern tools that assist in the collaborative process, understand the impact of collaboration on advancing science and obtaining grant funding, and compare collaborative approaches from both academic and industrial perspectives.

Importance of Collaboration in Academia

Jeffrey C. Lotz, PhD, University of California, San Francisco

The ORS and its Role in Encouraging Collaboration

Tammy L. Haut Donahue, PhD, Colorado State University

Collaboration Between Industry and Academia: Guidelines for a Successful Relationship

Richard R. Tarr, MS, Kannapolis

Rising to the Top:

Leadership Success in Academics

MONDAY, MARCH 30, 1:45 PM – 3:15 PM

Organized by the ORS Women's Leadership Forum

Moderator: Karen B. King, PhD

Many individuals aspire to higher leadership roles within academics. The Women's Leadership Forum (WLF) Committee will engage ORS members who are in high-level academic positions to discuss how to navigate academic medicine and rise to leadership in the clinical, basic science and engineering arenas. The speakers will discuss how they balance academic leadership with their active research programs as well as provide practical advice for those who are interested in obtaining similar leadership roles. An open panel discussion will follow the presentations. Open to meeting attendees at any career stage, this session will explore the challenges and successes of academic leadership while illustrating the importance of career-long mentorship and sponsorship from a leadership position.

Making an Impact in the Dean's Office

Clare M. Rimnac, PhD, Associate Dean of Research, Case Western Reserve University (ORS Past President)

Servant Leadership

Joshua J. Jacobs, MD, Chair, Department of Orthopedic Surgery, Rush University; Director, Section of Biomaterials; Chair, Scientific Leadership Council for the RTSC (ORS Past President, AAOS Past President)

It Takes a Village to Make a Dean

Barbara D. Boyan, PhD, Dean, School of Engineering, Virginia Commonwealth University

My American Dream: from Immigration to Leadership

Susanna G. Chubinskaya, PhD, Associate Provost, Academic Affairs, Rush University; The Ciba-Geigy Professor of Biochemistry with conjoint appointments at the Departments of Orthopedic Surgery & Medicine (Section of Rheumatology)

SPOTLIGHT SESSIONS CONTINUED



Ichiro Sekiya, MD, PhD
Tokyo Medical and Dental University
Synovial Mesenchymal Stem Cells to
Repair/Reverse Knee OA: From Bench to Clinic



Deepak Vashishth, PhD
Rensselaer Polytechnic Institute
Biomolecular Aspects of Bone Quality:
Strategies for Prediction and Prophylactic
Treatment of Fragility Fractures



Carl S. Winalski, MD
Cleveland Clinic
Imaging Approaches to
Articular Cartilage Evaluation



Marian F. Young, PhD
National Institute of Dental and
Craniofacial Research
The Role of Biglycan in Skeletal Healing

ORS/OREF BASIC SCIENCE COURSE

PART I:

SATURDAY MARCH 28, 2:00 PM – 6:00 PM

PART II:

SUNDAY, MARCH 29, 8:00 AM – 11:15 AM

Organizers: Richard L. Lieber, PhD, Rehabilitation Institute of Chicago, Marjolein C. van der Meulen, PhD, Cornell University and Theodore Miclau, MD, Orthopaedic Trauma Institute

The ORS/OREF Basic Science Course will provide attendees with the tools to explain the functions and limitations of the science behind the decisions, treatments and procedures that are performed in practice every day. The course content has been derived from the *Orthopaedic Basic Science: Foundations of Clinical Practice* textbook developed in partnership with the AAOS and ORS. Covered topics will include principles of orthopaedic surgery basic science, musculoskeletal tissue biology, and musculoskeletal pathophysiology. Course attendees will also receive a copy of the textbook as part of the registration fee. The knowledge of the concepts learned in this course is evaluated through the Orthopaedic In-Training Examination and the American Board of Orthopaedic Surgery Part I and Recertification Examinations.

The course will benefit anyone currently in the field or entering the field of orthopaedics including: Orthopaedic residents and fellows, practicing orthopaedic surgeons, and musculoskeletal researchers.

Pre-registration required | All fees include *Orthopaedic Basic Science: Foundations of Clinical Practice* textbook

\$145 Residents/Students/Associates | \$195 ORS and/or AAOS Members | \$295 Non-Members

ORS CLINICAL RESEARCH FORUM: THE BASIS FOR CLINICAL DECISION MAKING IN ORTHOPAEDICS

SUNDAY, MARCH 29, 12:45 PM – 5:00 PM

Organized by the ORS Clinical Research Committee
Kurt Spindler, MD, Chair

The ORS Clinical Research Forum will bring together key clinical research leaders to discuss the design, evaluation and reporting of clinical studies. Furthermore, they will discuss comparative effectiveness research and explore the emerging field of economic analysis.

Part I: Principles of Orthopaedic Surgery Basic Science

<i>Welcome and Introduction</i>	Richard L. Lieber, PhD, Rehabilitation Institute of Chicago
<i>Molecular and Cellular Biology</i>	Tamara Alliston, PhD, University of California, San Francisco
<i>Musculoskeletal Development and Genetic Diseases</i>	Karen M. Lyons, PhD, University of California, Los Angeles
<i>Principles of Biomechanics</i>	Marjolein C. van der Meulen, PhD, Cornell University
<i>Orthopaedic Biomaterials</i>	Kenneth A. Mann, PhD, SUNY Upstate Medical University
<i>Kinesiology</i>	Samuel R. Ward, PhD, University of California, San Diego

Musculoskeletal Tissue Physiology and Function

<i>Bone</i>	Karl J. Jepsen, PhD, University of Michigan
<i>Skeletal Muscle and Nerve</i>	Richard L. Lieber, PhD, Rehabilitation Institute of Chicago
<i>Tendon and Ligament</i>	Louis J. Soslowsky, PhD, University of Pennsylvania
<i>Cartilage</i>	Suzanne A. Maher, PhD, Hospital for Special Surgery
<i>Meniscus and Intervertebral Disc</i>	Robert L. Mauck, PhD, University of Pennsylvania

Part II: Musculoskeletal Pathophysiology

<i>Tissue Engineering in Orthopaedics</i>	Michael J. Yaszemski, MD, PhD, Mayo Medical Center
<i>Bone Injury, Regeneration and Repair</i>	Ralph Marcucio, PhD, University of California, San Francisco
<i>Molecular Basis of Cancer</i>	R. Lor Randall, MD, Huntsman Cancer Institute
<i>Orthopaedic Infections</i>	Joseph C. Wenke, PhD, United States Army Institute of Surgical Research
<i>Inflammation in the Musculoskeletal System</i>	Regis J. O'Keefe, MD, PhD, Washington University in St. Louis
<i>Osteoporosis/Metabolic Bone</i>	Susan V. Bukata, MD, University of California, Los Angeles
<i>Post-Traumatic Osteoarthritis</i>	William Bugbee, MD, Scripps Clinic
<i>Implant Wear and Inflammatory Response</i>	Darryl D. D'Lima, MD, PhD, Scripps Clinic
<i>Thromboembolic Disease and Fat Embolism Syndrome</i>	TBD

Session I: Design, Evaluation, and Reporting of Clinical Studies

Moderator: Roy K. Aaron, MD, The Warren Alpert Medical School of Brown University

<i>Principals of Observational Studies</i>	Kurt P. Spindler, MD, Cleveland Clinic
<i>Design, Strengths, and Limitations of Observational Trials</i>	Paul Tornetta, MD, Boston Medical Center
<i>Structure of Randomized, Controlled Studies</i>	Marc F. Swiontkowski, MD, University of Minnesota Medical Center
<i>Sources of Uncertainty in Randomized Controlled Studies</i>	Roy K. Aaron, MD, The Warren Alpert Medical School of Brown University

Session II: Comparative Effectiveness Research

Moderator: Kristy Weber, MD, University of Pennsylvania

<i>What is Comparative Effectiveness Research?</i>	James O. Sanders, MD, University of Rochester
<i>A Practical Approach to Determining Effectiveness in Treating Hip and Knee Arthritis</i>	David S. Jevsevar, MD, Intermountain Zion Orthopaedics & Sports Medicine
<i>From Gaps in Knowledge to Translation of Effectiveness to Patients with ACL Injuries</i>	Kevin G. Shea, MD, St. Luke's Clinic

Session III: Economic Analysis

Moderators: Saam Morshed, MD, University of California and Kurt Spindler, MD, Cleveland Clinic Foundation

<i>Defining Effectiveness Evaluation, Comparative Effectiveness and Economic Analysis of Clinical Literature and Practice</i>	James Slover, MD, MS, NYU Hospital for Joint Diseases
<i>Basic and Definitions</i>	TBD
<i>Putting it All Together – the MOON experience</i>	Richard C. Mather, MD, Duke University

WORKSHOPS

SATURDAY, MARCH 28, 3:00 PM – 4:30 PM

Hot Topics in Regulatory Challenges within Orthopaedics

Presented by the ORS Corporate Affairs Committee
Organizers: David W. Schroeder, MBA, Biomet, Inc. and Jacob L. Cartner, MS, Smith & Nephew

ORS/The HIP Society Biological Aspects of Modular Implant Tribocorrosion New Horizon Workshop

Organizers: Harry E. Rubash, MD, Massachusetts General Hospital and Mathias P.G. Bostrom, MD, Hospital for Special Surgery



Trials, Tribulations and Triumphs of Conducting Prospective Clinical Research Studies: The How and Why

Presented by: the ORS Women's Leadership Forum
Organizers: Robin M. Queen, PhD, Duke University and Karen B. King, PhD, University of Colorado at Denver and Health Sciences Center Orthopaedics - Bioengineering

Quantitative MR Imaging: Research Applications and Clinical Translation

Organizer: Hollis G. Potter, MD, Hospital for Special Surgery

SUNDAY, MARCH 29, 2:00 PM – 3:30 PM

ORS/OTA Systemic Inflammation and Organ Dysfunction in Multiple Injury Patients New Horizon Workshop

Organizer: Todd McKinley, MD, Indiana University Methodist



ORS/SOMOS How an Integrated Orthosis and Rehabilitation Initiative has Improved Outcomes for Lower Extremity Limb Salvage Patients

Organizers: Chad A. Krueger, MD, United States Army and Benjamin K. Potter, MD, Walter Reed National Military Medical Center



Improving the Translational Success of Cell-Based Therapies

Organizers: Jennifer J. Bara, PhD, AO Research Institute, Marietta Herrmann, PhD, AO Research Institute and Geoff Richards, PhD, AO Research Institute

ORS TRANSLATIONAL RESEARCH SYMPOSIUM: CARTILAGE REPAIR: IS IT POSSIBLE?

SUNDAY, MARCH 29, 12:45 PM – 1:45 PM

Organized by the ORS New Initiatives Committee
Moderator: George R. Dodge, PhD

This innovative program brings together speakers to present different views on the topic while inspiring attendees to continue the discussion and apply new ideas to their own research. This year, the topic of cartilage repair will be discussed from the point of view of an orthopaedic surgeon and a bioengineer. Both presentations will focus on innovative approaches to this perplexing clinical problem.

Pre-registration required

MONDAY, MARCH 30, 1:45 PM – 3:15 PM

ORS/POSNA Key Concepts of Musculoskeletal Infection

Organizer: Jonathan G. Schoenacker, MD, PhD, Vanderbilt University



Animal Welfare in Orthopaedic Research: Focus on Refinement and Reduction

Organizers: Timothy E. Cooney, MS, UPMC Hamot Medical Center and Laurie R. Goodrich, DVM, PhD, Colorado State University

The Realities of Commercializing Orthopaedic Technologies: Business Strategies, Funding, Partnerships, and Juggling Academic & Corporate Roles

Organizer: Suzanne A. Maher, PhD, Hospital for Special Surgery

Acute Cartilage Injury: AO Foundation Collaborative Research Project

Organizers: Martin Stoddart, PhD, AO Research Institute and George R. Dodge, PhD, University of Pennsylvania

Publications Workshop: Improve Your Chances of Getting Published

Meet with JOR® Editor-in-Chief Linda Sandell, PhD at this year's Publications Workshop. You'll learn how to improve the quality of your journal manuscripts, what JOR® is looking for and how to increase your chances of getting published. Wiley staff will also update you on maximizing visibility for your paper, navigating the submission process and timeline, and taking advantage of the latest technology. Whether you're a new author considering submitting a paper or a seasoned journal contributor, don't miss this unique opportunity to hear directly from and interact with JOR®'s editor!

TUESDAY, MARCH 31, 9:45 AM – 11:15 AM

ORS/MSTS The Osteoclast and Bone Diseases

Organizers: Richard K. Terek, MD, FACS, Brown University and Regis J. O'Keefe, MD, PhD, Washington University in St. Louis



The Intervertebral Disc: From Development to Regeneration

Organizers: Rita Kandel, MD, Mount Sinai Hospital and Makrand V. Risbud, PhD, Thomas Jefferson University

Functional Imaging of Articular Cartilage by MRI

Organizers: Yang Xia, PhD, Oakland University and Louis E. DeFrate, PhD, Duke University Medical Center

Hip Evo Devo: Adaptation of the Hip in Phylogeny and Ontogeny

Organizer: Sandra Shefelbine, PhD, Northeastern University



Kevin R. Stone, MD
The Stone Clinic



Gordana Vunjak-Novakovic, PhD
Columbia University

MENTOR CONNECT

SATURDAY, MARCH 28, 11:00 AM – 12:00 PM

Organized by the ORS New Investigator Mentoring Committee

This is an informal and interactive session between mentors and mentees. Mentees will be able to choose their mentor from a select group of ORS members who have demonstrated success in their career. The mentors and mentees will have the opportunity to discuss career establishment and how to balance competing demands in the academic and corporate environments. The discussions may also cover topics such as the importance of identifying mentors and describing the roles and functions of a mentor. This is an excellent opportunity to network with senior ORS members and ask questions of the mentors in an informal, small group environment. The Women's Leadership Forum will host two tables for interaction and mentorship with female ORS leaders.

Pre-registration required

INDUSTRY CONNECT

MONDAY, MARCH 30, 12:30 PM – 1:30 PM

Organized by the ORS Corporate Affairs Committee

The ORS Corporate Affairs Committee (CAC) believes that collaboration between industry and academic or medical research institutions plays a critical role in furthering research efforts and accelerating innovative patient care. Industry Connect is an excellent opportunity for ORS attendees currently affiliated with industry, directly through employment or indirectly through joint research programs, to network and discuss opportunities to advance the development of partnerships in orthopaedic research. In addition, attendees will have the opportunity to give the CAC feedback on how the ORS can better meet their needs as industry representatives.

Pre-registration required

HOST AN ANCILLARY EVENT!

ORS has made time and space available at the MGM Grand Hotel for Ancillary Events that do not compete or conflict with the official scientific program of the ORS Annual Meeting.

Ancillary event applications must be submitted by February 9, 2015. Please visit www.ORS.org/2015AncillaryEvents/ for more details.

NEW INVESTIGATOR NETWORKING SESSIONS

SATURDAY, MARCH 28, 11:00 AM – 12:00 PM

Position Yourself for a Successful Career: Strategic Lab and Time Management

SUNDAY, MARCH 29, 12:45 PM – 1:45 PM

An Inside Look at Research Funding Opportunities with the National Institutes of Health (NIH)

MONDAY, MARCH 30, 12:30 PM – 1:30 PM

Position Yourself for a Successful Career: Setting Foundational Early Career Goals

Pre-registration required for all
New Investigator Networking Sessions

THE CRAFT OF SCIENTIFIC PRESENTATIONS WORKSHOP

MONDAY, MARCH 30, 7:00 AM – 9:45 AM

Melissa Marshall, Penn State University

This workshop has three goals: (1) to teach participants effective strategies for structuring their research presentations; (2) to have participants completely rethink the design of presentation slides; and (3) to have participants analyze what would be their best delivery style. These goals are reached through lecture, discussion, analysis of filmed presentations, and exercises. In addition, workshop attendees will learn effective strategies for making an "elevator pitch" (a 1 – 2 minute summary) about their research. Video examples of effective elevator pitches will be shown and analyzed.

\$20 ORS Members /\$25 Non-Members
Pre-registration required

REGISTRATION CATEGORY

ADVANCE REGISTRATION

Oct. 8, 2014 – Feb. 9, 2015

ONLINE ONLY

Feb. 10 – March 13, 2015

ON-SITE

March 27 – 31, 2015

ORS Active Member &
ORS Affiliate Member

\$335

\$410

\$485

ORS Associate Member

\$185

\$260

\$335

Non-Member

\$635

\$710

\$785

Resident, Fellow, Student &
PhD Candidate (non-members)

\$235

\$310

\$385

**Become an
ORS member
and save on
your meeting
registration!**

Join the ORS community of experts and be eligible for other ORS member benefits throughout the year. For more information, visit www.ORS.org/membership

ANCILLARY PROGRAMS

Research Interest Groups (RIGs)

Research Interest Groups offer the opportunity to engage in lively discussions with colleagues in your area of musculoskeletal research. RIGs foster the thoughtful exchange of ideas and forge collaborative partnerships. This year's confirmed RIGs include:

FRIDAY, MARCH 27, 6:00 PM – 8:00 PM

Bone Regeneration

Organizer: Chelsea Bahney, PhD, Orthopaedic Trauma Institute

SATURDAY, MARCH 28, 8:00 AM – 10:30 AM

Growth Factors and Musculoskeletal Repair

Organizers: Lawrence J. Bonassar, PhD, Cornell University and Johnny Huard, PhD, University of Pittsburgh

Mechanobiology and Inflammation in Cartilage

Organizers: Christopher T. Chen, PhD, University of Texas Southwestern Medical Center and Alan J. Grodzinsky, ScD, Massachusetts Institute of Technology

Spine Research Community

Organizers: Fackson Mwale, PhD, McGill University, Makarand V. Risbud, PhD, Thomas Jefferson University, Daisuke Sakai, MD, PhD, University of California, San Diego, James C. Iatridis, PhD, Icahn School of Medicine at Mount Sinai, Sibylle Grad, PhD, AO Research Institute and Rita Kandel, MD, Mount Sinai Hospital

The Orthopaedic Evidence and Outcomes Education Organization

Organizer: Michael P. Dohm, MD, University of Arizona

MONDAY, MARCH 30, 6:30 AM – 7:45 AM

Good and Bad Animal Models for Orthopaedic Research: Scientific and Ethical Considerations

Organizer: Stephan Zeiter, PhD, AO Research Institute

Check www.ORS.org for updated Ancillary Program Information.

POSTER RECEPTIONS ARE BACK!

ORS is hosting two poster receptions during the 2015 Meeting.

Poster Reception I:

SUNDAY, MARCH 29, 4:45 PM – 6:00 PM

Poster Reception II:

MONDAY, MARCH 30, 4:15 PM – 5:30 PM

Poster presenters should be available at their posters during their respective reception to answer questions.

SOCIAL EVENTS

ORS President's Welcome Reception

SATURDAY, MARCH 28, 6:00 PM – 8:00 PM

Don't miss the excitement of the ORS Annual Meeting's largest social event! Enjoy food and drinks while meeting new people and catching up with old friends and colleagues. All ORS Meeting Attendees are welcome to attend this kick-off reception. Registered meeting attendees will receive 2 drink tickets for this event.

SPECIAL EVENTS

ORS Awards Gala

SUNDAY, MARCH 29, 7:00 PM – 10:00 PM

Join us for an elegant evening honoring these outstanding leaders in the Orthopaedic Research Community: The recipients of the William Harris Award, Marshall Urist Award, Alfred Shands Award, Kappa Delta Research Awards, CORR® ORS Richard A. Brand Award, ORS/OREF Distinguished Investigator Award, ORS Video Outreach Competition Awards, and the ORS Women's Leadership Award.

Pre-registration required

\$115 ORS Members/\$125 Non-Members/\$1,000 for a table of 10

ORS Women's Leadership Forum Reception

MONDAY, MARCH 30, 7:30 PM – 10:00 PM

Join the members of the ORS Women's Leadership Forum (WLF) at this event celebrating women in science.

This reception is an excellent opportunity to discuss the challenges facing today's female scientists.

The 2015 Women's Leadership Forum Award Winner and will be honored for her role as an outstanding mentor to fellow female scientists. The ORS/RJOS Young Female Investigator Travel Grant recipient will also be recognized.

Pre-registration required

\$60 ORS Members/\$65 Non-Members

CONTINUING MEDICAL EDUCATION (CME) CREDIT

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the American Academy of Orthopaedic Surgeons and the Orthopaedic Research Society.

The American Academy of Orthopaedic Surgeons is accredited by the ACCME to sponsor continuing medical education for physicians.

The American Academy of Orthopaedic Surgeons designates this educational activity for a maximum of 33.25 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity.



Hotel Registration

We are excited to host the 2015 Annual Meeting at the **MGM Grand Hotel** in Las Vegas, Nevada.

The MGM Grand Hotel was selected for a number of reasons:

- Free wi-fi for attendees staying on the property
- Abundant natural light in our meeting space
- Ability to host our entire program on one floor
- Beautifully renovated hotel rooms
- A variety of dining options (ranging from fast-food to fine dining)
- A very short walk is required through the casino area

The MGM Grand Hotel also offers a number of amenities that allow you to make the most of your time in Las Vegas: Las Vegas Monorail, world class restaurants, grand pools, shopping, gaming, and much more!

For the convenience of our registrants attending both the AAOS and ORS Annual Meetings, our rate will be honored prior to the official start of the ORS Annual Meeting based upon availability-so book early.

Visit www.ORS.org/2015-hotel/ for booking information.

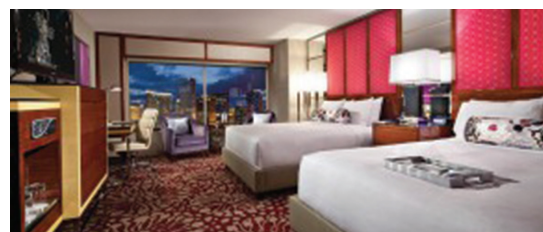
To make your reservations by phone please call: **800-929-1111** and mention the ORS Annual Meeting.

ORS has negotiated great room rates, starting at just \$159 (excluding tax and resort fees) in an effort to keep the costs down for our attendees.

A daily resort fee of \$28 (subject to change) plus the current Clark County room tax of 12% (subject to change), will be charged in addition to the room rate set forth above.

The daily resort fee includes:

- Complimentary resort-wide wi-fi
- Daily newspaper available for pick up
- Unlimited local and toll free calls
- Complimentary access to the Cardio Room



DONATE TO THE ORS/OREF GRANTS CAMPAIGN

To support ORS members pursuing careers in orthopaedic research, ORS and OREF have collaborated to create the ORS/OREF Resident Research Project Grant and the ORS/OREF Post-Doctoral Fellowship Grant (MD, PhD, DVM, or DO). By donating to these grants, you are enabling orthopaedic residents and post-doctoral ORS members to pursue important research that may one day translate into innovative new treatments and therapies that help patients recover their mobility and enjoy improved quality of life.

When you make a donation between October 8, 2014 – February 9, 2015 you will receive a special “thank you” at the ORS 2015 Annual Meeting:

Donors must be present at the ORS 2015 Annual Meeting to redeem their thank you gift.

Donations over \$25: entered into a raffle for FREE registration for the ORS 2016 Annual Meeting in Orlando, FL. (One drawing for ORS Active Members, Affiliate Members, and Non-Members. A second drawing will be for Associates, PhD Candidates, Residents, and Fellows)

Donations \$25 – \$49: a drink voucher to be used during one of the two Poster Receptions.

Donate over \$50: an ORS fleece jacket.

Donations can be made on the **Advance Annual Meeting Registration Form** or at www.ORS.org/support-the-ors/

Advance Registration Form

ORS 2015 ANNUAL MEETING



☐ Check if ADA
(Americans with Disabilities Act)
is required.

MARCH 28-31, 2015 • MGM GRAND • LAS VEGAS, NEVADA

Advance Registration closes **February 9, 2015** • Register online at www.ORS.org/2015AnnualMeeting

CONTACT INFORMATION

Your ORS ID # _____

Full Name _____

Institute/Company _____

Department _____

Address _____

City _____ State/Province _____ Zip _____ Country _____

Phone _____

Email _____

Degree: ☐ MD ☐ PhD ☐ DVM ☐ MS ☐ BS ☐ Other _____ I am a: ☐ Male ☐ Female

I am a (*please check one*) ☐ Biologist ☐ Bioengineer ☐ Clinician ☐ Orthopaedic Surgeon ☐ Other

Primary Affiliation (*please check one*) ☐ Academic ☐ Industry ☐ Government ☐ Other

Research Interests (*please check all that apply*):

- | | | |
|---|---|---|
| ☐ Biomaterials (Bioinert) | ☐ Arthroplasty | ☐ Hand and Wrist |
| ☐ Biomaterials (Bioactive) | ☐ Knee | ☐ Foot and Ankle |
| ☐ Cartilage, Synovium & Osteoarthritis | ☐ Hip | ☐ Infection |
| ☐ Meniscus Tendon/Ligament | ☐ Spine | ☐ Trauma |
| ☐ Muscle | ☐ Nerve Spinal Cord | ☐ Cancer, Tumors |
| ☐ Bone/ Bone Biology | ☐ Spine Therapeutics | ☐ Diagnostic Imaging |
| ☐ Fracture (Bone) | ☐ Shoulder and Elbow | |

Secondary Specialization ☐ Applied Science ☐ Basic Science Clinical ☐ General/Administrative

*Resident/Fellow/PhD Student/Student: You must have a signature of your Chief of Staff or Department Head below to qualify for the reduced registration fee. If this form is not signed you will be charged the non-member registration fee.

Department: _____

Chief of Staff or Department Head Name (Print): _____

Chief of Staff or Department Head Signature: _____

SELECT APPROPRIATE CATEGORY	ACTIVE	AFFILIATE	ASSOCIATE	EMERITUS	NON-MEMBER	RESIDENT, FELLOW, STUDENT, PHD CANDIDATE*
Advance Registration Fees:	☐ \$335	☐ \$335	☐ \$185	No Fee	☐ \$635	☐ \$235

PROGRAMS AND EVENTS	ORS MEMBER	NON-MEMBER
FRIDAY, MARCH 27		
AAOS Annual Meeting – Collaborating in the Science of Patient Care. Details online at www.ORS.org/2015aaoscollab/	☐ \$0	☐ \$0
SATURDAY, MARCH 28		
Position Yourself for a Successful Career: Strategic Lab and Time Management 11:00 AM – 12:00 PM (<i>lunch on own</i>)	☐ \$0	☐ \$0
Mentor Connect 11:00 AM – 12:00 PM (<i>lunch on own</i>)	☐ \$0	☐ \$0
ORS/OREF Basic Science Course: Part I & Part II Part I: Saturday, March 28 2:00PM – 6:00 PM Part II: Sunday, March 29 8:00 AM – 11:15 AM	Assoc./Res/Student ☐ \$145	ORS/AAOS Member ☐ \$195 Non-Member ☐ \$295
I would like to purchase a Flash Drive of the 2015 ORS Abstracts	☐ \$15	
I would like to donate to the ORS/OREF Research Grants Campaign	☐ \$25 ☐ \$50 ☐ \$100 ☐ \$150	

PROGRAMS AND EVENTS	ORS MEMBER	NON-MEMBER
SUNDAY, MARCH 29		
An inside look at Research Funding Opportunities with the National Institutes of Health (NIH) 12:45 PM – 1:45 PM (<i>lunch on own</i>)	☐ \$0	☐ \$0
ORS TRANSLATIONAL RESEARCH SYMPOSIUM Cartilage Repair: Is it Possible? 12:45 PM – 1:45 PM (<i>lunch on own</i>)	☐ \$0	☐ \$0
ORS Awards Gala 7:00 PM – 10:00 PM	☐ \$115	☐ \$125
MONDAY, MARCH 30		
The Craft of Scientific Presentations Workshop with Melissa Marshall 7:00 AM – 9:45 AM	☐ \$20	☐ \$25
Position Yourself for a Successful Career: Setting Foundational Early Career Goals 12:30 PM – 1:30 PM (<i>lunch on own</i>)	☐ \$0	☐ \$0
Industry Connect 12:30 PM – 1:30 PM (<i>lunch on own</i>)	☐ \$0	☐ \$0
ORS Women's Leadership Forum Reception 7:30 PM – 10:00 PM	☐ \$60	☐ \$65

GRAND TOTAL = \$ _____

PAYMENT INFORMATION

☐ MasterCard ☐ VISA ☐ AMEX
☐ Check (*Payable to ORS in US funds, drawn on US bank - Registrant is responsible for all bank charges.*)

Card # _____ CVV Code _____ Exp. Date _____

Name on Card _____ Billing Zip Code _____

Signature _____

SUBMIT APPLICATION WITH PAYMENT BY FEBRUARY 9, 2015

MAIL 6640 Eagle Way **FAX** 847-823-5772
Chicago, IL 60678

Advanced Registration closes February 9, 2015. Register online at www.ORS.org/2015AnnualMeeting

Guest Badges will be sold on site for \$50 and will only allow admittance to the Welcome Reception on Saturday, and Poster Receptions on Sunday and Monday.

CANCELLATIONS Refunds will be issued if received in writing by March 13, 2015. All refunds will be issued after the Annual Meeting less a \$75 cancellation fee. Program and Event fees are non-refundable.



Orthopaedic Research Society
6300 North River Road, Suite 602
Rosemont, IL 60018
Tel: (847) 823-5770 • Fax: (847) 823-5772
Email: ors@ors.org • www.ors.org

ORS 2015 Annual Meeting

Register today at www.ORS.org

Meeting Announcement

MGM GRAND HOTEL | **Las Vegas**, Nevada
March 28 –31

