Join us in Phoenix, Arizona for the ORS 2020 Annual Meeting!

The ORS is the hub for biologists, engineers, clinicians, surgeon-scientists, orthopaedic surgeons, veterinarians, and those in the field of musculoskeletal science and orthopaedic care. The 2020 Annual Meeting will offer numerous opportunities to present your work, establish collaborations, and engage with colleagues.

The ORS Program Committee seeks abstracts from the following interests:

- Arthroplasty
- Biomaterials
- Biomaterials—Bioactive-Tissue Engineering
- Biomaterials—Bio inert
- Bone
- Bone Biology
- Bone Fracture
- Cancer, Tumors
- Cartilage, Synovium and Osteoarthritis
- Diagnostic Imaging
- Foot and Ankle
- Fracture
- Hand and Wrist
- Hip
- Hip and Knee Arthroplasty
- Infection
- Inflammatory Arthritis
- Knee
- Meniscus
- Muscle
- Nerve and Spinal Cord Injury
- Clinical
- Intervertebral Disc
- Regenerative Medicine
- Shoulder and Elbow
- Spine
- Spine Therapeutics
- Tendon/Ligament
- Trauma

Abstracts accepted for presentation will be considered for podium and poster presentations, as well as the newly introduced ePoster presentations.

The themes and sessions in the Annual Meeting scientific program directly represent abstract submissions. If you would like to see more of a certain topic, please encourage your colleagues in that area to submit to the ORS.

Deadline for Abstract Submission: Monday, August 26, 2019
AWARDS AND GRANTS AVAILABLE!

ORS provides awards and grants for the early career and established investigator based on high-quality abstracts. To be considered for an award or grant, the presenting author must be an ORS Member by the time of the abstract submission deadline.

Not a member? Visit the ORS website to join the ORS community.

Featured Highlights

SPOTLIGHT SPEAKERS

Spotlight Sessions are a dynamic part of the ORS Annual Meeting every year. Each session includes a featured speaker presenting state-of-the-field talks. These presentations are followed by several relevant shorter talks derived from peer-reviewed accepted abstracts.

The following Spotlight Speakers have been confirmed for the ORS 2020 Annual Meeting:

Hani Awad, PhD
University of Rochester
Emerging Paradigms in Tendon Healing

Frank Barry, PhD
National University of Ireland
Cellular Treatments for OA: Evidence, Mechanism and Value

John Bateman, PhD
Murdoch Children’s Research Institute
Modeling Cartilage Development and Disease Using Human Induced Pluripotent Stem Cells

Robert Brophy, MD
Washington University
The Response of the Knee Joint to Meniscal Injury: Mundane Mechanics or Byzantine Biology?

Nadeen Chahine, PhD
Columbia University
Biomarkers of Disc Disorders and Back Pain

Antonia F. Chen, MD, MBA
Brigham and Women’s Hospital
Role of Digital Technologies in the Future of Orthopaedics Surgery

Constance Chu, MD
Stanford University
Visualizing Pre-Osteoarthritis: Integrating MRI UTE-T2* With Mechanics and Biology to Combat Post-Traumatic Osteoarthritis

Ivo Kalajzic, MD, PhD
University of Connecticut Health Center
Murine Models and Genetic Approaches in Understanding Bone Healing

L. Andrew Koman, MD
Wake Forest School of Medicine
Musculoskeletal Uses of Botulinum Toxins: A 30-Year Translational Journey at Wake Forest School of Medicine

X. Sherry Liu, PhD
University of Pennsylvania
Understanding Functional Adaptation of Maternal Bone to Reproduction and Lactation

Kurt Spindler, MD
Cleveland Clinic
The Role of Cohort Data in Clinical Outcomes Research

Tonia Vincent, PhD
Oxford University
Is Osteoarthritis One or Several Diseases?
The ORS is pleased to welcome Dr. Robert Langer as this year’s keynote speaker! Dr. Langer is an Institute Professor at the Massachusetts Institute of Technology (MIT). He has written over 1,450 articles, which have been cited over 285,000 times and his h-index of 265 is the highest of any engineer in history. He has more than 1,350 issued and pending patents worldwide. His patents have licensed or sublicensed to over 350 companies. He served as Chairman of the FDA’s Science Board from 1999–2002. His over 220 awards include both the United States National Medal of Science and the United States National Medal of Technology and Innovation, the Charles Stark Draper Prize (considered the engineering Nobel Prize), Albany Medical Center Prize, the Wolf Prize for Chemistry, the Millennium Technology Prize, the Priestley Medal (highest award of the American Chemical Society), the Gairdner Prize and the Lemelson-MIT prize, for being “one of history’s most prolific inventors in medicine.” He holds 34 honorary doctorates, including honorary degrees from Harvard and Yale. Langer is one of the very few individuals ever elected to the National Academy of Medicine, the National Academy of Engineering, the National Academy of Sciences and the National Academy of Inventors.

Friday, February 7

The Art of Grantsmanship

Part II of our popular grant writing course! This interactive workshop includes a Specific Page Aims Lab providing participants with the opportunity to prepare and revise a specific aims page, the most important page of the grant application, with expert faculty. A subset of grants submitted by registrants will be reviewed during a LIVE Mock NIH Study Section. Don’t miss out on the networking and mentoring opportunities and the real time feedback you will receive from faculty and NIH officers.

We encourage you to take The Art of Grantsmanship Part I (online lectures) prior to participating in the Part II to ensure maximum success! Full grant proposals will be accepted for review only from registrants who have participated in Part I of this course.

Visit www.ors.org/learnors-grantsmanship for more information, registration is now open.

RESEARCH SECTION MEETINGS

Friday, February 7

ORS ISFR Scientific Meeting
ORS Preclinical Models Section Workshop: Planning, Preparing, Conducting & Reporting of Preclinical Studies

Saturday, February 8

ORS Orthopaedic Implants Section Scientific Meeting
ORS Spine Section Scientific Meeting
ORS Tendon Section Scientific Meeting

Monday, February 10

ORS Meniscus Section Scientific Meeting
ORS Preclinical Models Section Scientific Meeting
SCIENTIFIC WORKSHOPS

Mechanochemical Signaling in Bone: A Workshop in Honor of Dr. Christopher R. Jacobs
Organizers: Lidan You, PhD and Ronald Kwon, PhD

Through presentations encompassing diverse research areas, this workshop will explore means by which mechanical and chemical signals are integrated in bone under both physiological and pathological conditions. In addition to a focus on new data, speakers will highlight their past work with Dr. Chris Jacobs to honor his memory and scientific legacy.

Implementing Compression Models of OA in Mice and Rats
Organized by ORS Preclinical Models Section
Organizers: Blaine Christiansen, PhD and Deva Chan, PhD

There is emerging interest in compression models of OA that can non-invasively induce joint degeneration in mice and rats using externally-applied mechanical loads to injure the ACL or overload the articular cartilage. Utilizing the experience of the presenters, this workshop will provide insight to investigators who are using or are interested in using compression models of OA.

An Integrated ‘4M’ Platform for the Development of Personalized Medical Implant Technologies
Organized by Guest Nation – Australia
Organizers: David Ackland, PhD and Peter Lee, PhD

Recent advances in computer aided engineering and additive manufacturing are transforming treatment of bone and joint conditions through development of personalized implants and surgeries. This workshop will evaluate bottle-necks in current development and commercialization pathways for personalized implant technologies, determine the knowledge and technology required for rigorous development and evaluation of pre-clinical and clinical test methods, personalized medical implants and decision support tools, and establish a framework to support the use, and increase the rate of success, of personalized implant technologies.

Advances of Nanomedicine in Treating Musculoskeletal Diseases
Organizers: Bingyun Li, PhD and Jessica A. Jennings, PhD

Nanomedicine offers the potential for new and better treatments for various applications, and may revolutionize the way we detect and treat musculoskeletal diseases. This workshop will present the recent advances and breakthroughs of nanomedicine in treating musculoskeletal diseases.

From Osteoimmunology to Immunotherapy: A Progress Report
Organizers: Georg Duda, PhD and Katharina Schmidt-Bleek, PhD

The research field osteoimmunology has revealed a striking and essential interdependency between bone and immune cells. An in depth understanding of the interdependency of the immune and skeletal system can serve as a basis for the development of future immune modulatory treatment strategies.

Single Cell Omics for Musculoskeletal Research
Organized by The Big Data Workgroup of the IFMRS (International Federation of Musculoskeletal Research Societies)
Organizers: Jennifer Westendorf, PhD and Muhammad Farooq Rai, PhD

The ability to analyze individual cells within a tissue or cell population is transforming biology and medicine by allowing for the identification of new cell types and lineages that are present during normal and disease states. Speakers who are using cutting edge technologies to study the epigenome, transcriptome and/or proteome of musculoskeletal tissues at the single cell level will review the strengths and limitations of current single cell technologies (scRNA-seq, Cy-ToF, and sci-ATAC-seq) as compared to bulk technologies and summarize how these technologies are advancing our understanding of skeletal development and disease.
Good Laboratory Practices: Not Just For Industry?
Organized by ORS Industry Engagement Committee
Organizers: Lara Silverman, PhD and Judd Day, PhD
By bringing together aspects of academia, industry and regulatory requirements, this session seeks to identify best practices towards optimizing scientific studies and achieving approval for human clinical studies. Attendees will learn to understand the application of formal lab quality systems such as ISO 17025 or Good Laboratory Practices and explore how aspects of these systems can be applied to academic labs for studies that support regulatory filings and translational research.

Recent Advances in Intervertebral Disc Repair
Organized by International Combined Orthopaedic Research Societies (ICORS)
Organizers: Fackson Mwale, PhD and John Antoniou, MD, PhD
Intervertebral disc (IVD) degeneration begins early in adult life and may progress slowly for decades until becoming symptomatic and requiring medical intervention. There are currently no proven treatments to prevent, stop or even retard disc degeneration. Although fusion is currently the most common surgical treatment of symptomatic disc disease, radiographic follow-up studies have revealed that as many as 80% of patients may develop adjacent segment disc degeneration due to altered spine biomechanics.

Skeletal Muscle Homeostasis: Understanding the Genetic and Molecular Regulation of Muscle Function and Its Impact on Bone Health
Organizers: Ronald Neppl, PhD and Julia Charles, PhD
In healthy individuals, lean muscle accounts for 38 – 54% of total body mass in men, and 28 – 39% in women. This workshop will introduce recent advances in our understanding of muscle biology, including the genetic basis of muscular disease and the molecular regulation of muscle gene expression. Efforts to identify the underlying molecular programs responsible for the progression of muscle disease, as well as targeted molecular interventions, will be discussed.

A Debate for the Need for New Orthopaedic Biomaterials
Organized by ORS Orthopaedic Implants Section
Organizer: William Mihalko, MD, PhD
There have been several issues raised in the last two decades concerning our current and historically utilized biomaterials in orthopaedics. There is a current need to bring these issues to light so that they can be investigated and solved to further advance the treatments and outcomes for patients. To advance the education of attendees we will create a town hall discussion format after each side of a topic is presented to advance research in biomaterial science.

Osteoarthritis: Novel Molecular Determinants Revolutionize Our Understanding of the Disease Pathology
Organized by German Society for Orthopaedics and Trauma (DGOU) and ORS
Organizers: Susanne Graessel, PhD and Henning Madry, MD, PhD
Clinical symptoms of OA appear in more than 10% of the world population and affect almost everyone over the age of 65. This workshop will help to elucidate novel concepts and hypotheses regarding disease progression, which are relevant for understanding underlying molecular mechanisms as a prerequisite for future therapeutic approaches.

Digital Patient Outcomes using Sensors as Wearable Monitors: Opportunities, Methods and Applications
Collaboration of ANZOS, EORS and AO Foundation
Organizers: Bernd Grimm, PhD and Dominic Thewlis, PhD
Wearable and soon even implantable sensors allow the permanent, unobtrusive and objective assessment of patients to digitally transform outcome measurement in clinical trials, generate novel “digital biomarkers” for diagnostics or predictive and preventive screening, and empower patients by feedback and coaching advise in a patient-centric and personalized way. This is particularly relevant in orthopaedics where movement and physical activity behavior is directly affected by disease and treatment and can now be monitored with body-worn sensors.

ORS 2020 GUEST NATION

The ORS is thrilled to announce that Australia has been selected as the 2020 Guest Nation. The Guest Nation Program honors our colleagues in Australia and recognizes their contributions to the field of musculoskeletal research and orthopaedic care.
ORES Career Development—Mentoring and Training
Leveraging a Sabbatical to Invigorate Your Research Program
Organizer: Alayna Loiselle, PhD
This session will explore several topics related to successfully planning for and completing a sabbatical. The sabbatical is an important opportunity for mid-career and senior investigators to devote protected time to gain additional training, develop collaborations or pursue new research directions. Join us to learn how to successfully plan for and complete a sabbatical.

Understanding and Addressing our Own Implicit Biases
Organizers: Jennifer Woodell-May, PhD and Spencer Szczesny, PhD
No matter your gender, race, or ethnicity, we all perceive the world through a lens colored by our individual experiences. The major goals of this workshop are to learn how to recognize bias in oneself (and others) and how to effectively/constructively manage it. Through education and open discussions, we can highlight strategies for empathy, awareness, and inclusion to reduce prejudices and create a more open and inviting work environment.

Investor Perspectives on Innovation and Academic Technologies
Organizers: Suzanne M. Tabbaa, PhD and Farshid Guilak, PhD
The Business Innovation Competition (BIC) was founded as a program to provide academics, clinicians, and students the opportunity and educational resources to develop an understanding for commercialization and develop a community to foster innovation. This session will complement the 2020 BIC program and provide ORS members the opportunity to learn more about fundraising and investment for technologies they are looking to transition into the commercial space.

Get That Job! How to Successfully Interview for Your Dream Position
Organizers: Lara Silverman, PhD and Kyle Allen, PhD
The goal of this session is to discuss the interview process for first time academic and industry positions following graduation and strategies that successful candidates use during their job hunt. We will review strategies, tips and tricks for how to get an interview, prepare appropriately, and successfully navigate interview day.

Meet the NIH
Organizers: Ata Kiapour, PhD, MMSc and Kyle Allen, PhD
This NIH-Investigator Networking session will provide ORS meeting attendees with an opportunity to better understand NIH funding policy through one-on-one personal interaction with NIH staff. This session will allow the attendees to ask specific questions and participate in small group discussions with NIH grant review administrators and program officers.

Industry Connect: An Ongoing Discourse with the FDA
Organizers: Jeffrey Bischoff, PhD and Christopher Roche, MSBE
This session will focus on the international regulatory environment, featuring a review of current FDA pathways including De Novo and the status of the transition in Europe from the Medical Device Directive (MDD) to Medical Device Regulations (MDR). Participants will gain a better understanding of the most recent regulations and hot topics and have an opportunity to network with various ORS members from government, industry, and academia.

Clinical Research Forum
Organizer: ORS Clinical Research Committee
The Clinical Research Forum includes talks and discussions on impactful topics in clinical research in orthopedics and remains one of the most popular events during the Annual Meeting. Each year, experienced clinical researchers and methodologists give informative talks on topics in clinical research that provide knowledge to aid new investigators and established scientists in strengthening their clinical research programs.

JOR/ORS Workshop on Preprint Servers: Public Access and Peer-Review
Organizer: Linda Sandell, PhD, Editor in Chief, Journal of Orthopaedic Research®
Preprint servers are places where manuscripts and data can be made public on the internet. These sites are not peer-reviewed, but often stimulate discussion of the posted studies. This workshop will analyze the pros and cons of using preprint servers, review the policies of publishers and journals, and invite a lively discussion on the role of this new public access to data.

Visit ors.org/2020annualmeeting for more information!
Stay Connected! #ORS2020
Visit ors.org/2020annualmeeting for a complete listing of programs and events

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Stay Connected! #ORS2020