Breakthroughs
ORS ISFR Newsletter

ORS
INTERNATIONAL SECTION
FRACTURE REPAIR
Orthopaedic Research Society

Highlight Your Work

Do you or a colleague have recent achievements you would like highlighted in this newsletter? We want to hear from you! Fill out this form to share your ideas.

Presidential Note

Happy New Year!

With this New Year it is a wonderful time to reflect on the successes of the previous year and look forward to the next. In that spirit, with this Issue of the ISFR Breakthroughs we look back at some highlights from the 2022 Biennial Meeting and feature the upcoming program for the ORS ISFR Annual Meeting. Before we dive into that, I first wish to express gratitude for the **185 ISFR Members** and their commitment to advancing the science of bone biology, bone regeneration, fracture healing and trauma to improve patient care. Importantly, I hope you share in my feeling that the ISFR offers a community of friendship and tools to grow your research!

Next I wish to thank all that were able to attend the ISFR Biennial Meeting held at the historic University of Edinburgh as part of the 2022 Orthopaedic World Congress. A special thank you to the ISFR meeting co-chair **Dr. Hamish Simpson** who was an amazing local host and even donned his kilt for the special occasion. With over **100 attendees from 14 different countries** the meeting proved to be an excellent cross-disciplinary discussion that ranged from basic to translational to clinical science. 15 awards were given in recognition of the excellent science presented! The meeting will also be remembered in context of the historical timing and place with the passing of England's longest reigning monarch in Scotland during the World Congress.

As we look to 2023, I hope that you have marked your calendars for the ORS Annual Meeting February 10-14, 2023 in Dallas Texas USA. The **ISFR Annual Meeting** will be held on **Friday February 9th from 3-6pm** followed by a networking reception. This is the DAY PRIOR to the official start of the ORS Annual Meeting so please plan your travels accordingly. The theme of this year's meeting is the Mechanobiology of Fracture Healing and will feature 4 Keynote Speakers, 4 Emerging Leaders in ISFR, and the ISFR Lifetime Achievement Award. Thank you to the **ISFR Research & Education Committee** for putting

together the fantastic program! You can find the meeting agenda below under the ORS Annual Meeting Section.

Warm Wishes,

Chelsea S Bahney, PhD (she/her)

ORS Annual Meeting 2023... Renew your ORS ISFR Membership and Join the ISFR Annual Section Meeting!

We look forward to reuniting with our ISFR members at the 2023 ORS Annual Meeting in Dallas, TX! Please make sure you plan your travels in order to attend the ISFR Annual Section Meeting Friday February 10th from 3-7pm.

Due to technical difficulties, late registration will begin January 16, 2023. Fees will increase by $125 effective 6 PM CST. Consequently, you are encouraged to register before this date.

Register to Attend

Friday, February 10th, 2023
Hilton Anatole, Dallas, TX

3:00 PM – 3:05 PM
Welcome and Introduction
Katherine Hixon, PhD, Dartmouth College, ORS ISFR Research & Education Committee Chair

3:05 PM – 4:25 pm
ISFR Plenary Session: Mechanobiology of Fracture Healing
Moderators: **Katherine Hixon, PhD**, Dartmouth Engineering, ORS ISFR Research & Education Committee Chair. **Melanie Haffner-Luntzer, PhD**, Ulm University, ORS ISFR Research and Education Chair

The basic research perspective
Joel Boerkel, PhD, University of Pennsylvania

The engineering perspective
Martin Stoddart, PhD, AO Research Institute, Davos

The translational perspective
Lukas Engelhardt, PhD, CEO OSORA – Medical Fracture Analytics

The clinical perspective
Will Lack, MD, University of Washington

4:30 PM – 4:50 PM
ISFR Business Meeting
Chelsea Bahney, PhD, The Steadman Clinic & Steadman Philippon Research Institute and University of California San Francisco, OSR ISFR Chair
Hamish Simpson, MA (Cantab), BCh (Oxon), DM (Oxon), FRCS (Eng & Ed), University of Edinburgh, ORS ISFR Chair-Elect

4:50 PM – 5:00 PM
Meeting Break

5:00 PM – 5:45 PM
Emerging Research Leaders in ISFR

ISFR Biennial Meeting Podium Award Winner
Verena Fischer, PhD. *Post-Doctoral Fellow, Universitätsklinikum Ulm*

ISFR 3 Minute Research Pitch Winner
Torie Duke. *PhD Candidate, Oregon Health Science University (OHSU)*

ISFR Travel Award Winner
Benjamin Osipov, PhD. *Post-Doctoral Fellow, University of California, Davis*

ISFR Diversity Award Winner
Nafisa Elghazali. *PhD Candidate, University of California San Francisco*

5:45 PM – 6:00 PM
ORS ISFR Lifetime Achievement Award Recognition and Lecture

6:00 PM – 7:00 PM
ISFR Networking Event

There will also be an ORS Section Member Networking Reception held from 7-9pm on Saturday February 11th. This event is $40 for any ORS section member to attend.

View the Full Meeting Program

17th International Biennial Meeting Summary

The ISFR biennial meeting was long-awaited this year, as it was the first meeting in 4 years (since Kyoto, Japan) due to the COVID-19 pandemic and was attended by numerous scientist from around the globe. This biennial meeting co-hosted by Hamish Simpson, MA, BM, BCH, FRCS, DM and Chelsea Bahney, PhD took place at the University of Edinburgh and focused on "Transdisciplinary Science to Solve Unmet Needs in Fracture Repair".

For those arriving early to the meeting on September 5th, they were treated to walking tours of historic Edinburgh with Drs. Melanie-Haffner Luntzer and Jerry Tsang followed by an interdisciplinary networking and happy hour session at Brewhemia (the city's largest restaurant and bar).

The biennial meeting officially kicked off on September 6th with a presidential welcome and address by Dr. Chelsey Bahney followed by invited talks from research and clinical experts on bone mechanobiology, fracture fixation and technological innovation including Drs. Georg Duda, Peter Augat, John Keating, Viola Vogel, and Hannah Dailey. The day continued with podium and poster talks from top abstract award winners as well as a special session on new technologies and research for personalized regenerative therapy featuring speakers Drs. Sven Geissler, Anita Ignatius, Daniel Kelly, and Johnny Huard. The ISFR biennials attendees then had a special virtual keynote by renowned scientist Dr. Melanie Ott, who discussed how COVID-19 spurred rapid collaboration and scientific advancements. The scientific portion of day 1 of the meeting closed out with special sessions on scientific innovation and commercialization of orthobiologics and fracture technologies and how to pitch your research featuring innovators Drs. Marc Philippon, Joseph Langley, Emanuele Chisari, Roland Herzog, and Suzanne Tabbaa.

The ISFR banquet was graciously held at the New Club in Edinburgh (Scotland's oldest social club) that was principally supported by Prince Philip, Duke of Edinburgh until his passing. Day 2 of the meeting features a special clinical bridge day with the OTS and ICORS on managing open orthopedic fractures and minimizing bone loss and infections.

Biennial Meeting Awardees

Podium Awards

1. **Verena Fischer**, Ulm University
2. **Matt Silva**, Washington University in St. Louis

Poster Awards

1. Rald Groven, MERLN Institute
2. David Betrand, Polytechnique Montreal

Diversity Award

Nafisa Elghazali, University of California San Francisco & Steadman Philippon Research Institute

Travel Awards

Marc Philippon Jr., Steadman Philippon Research Institute
David Bertrand, McGill University
Anna-Laura Nelson, Steadman Philippon Research Institute & Colorado State University
Verena Fischer, Ulm University
Rald Groven, MERLN Institute
Daniela Dias, Charité Universitätsmedizin Berlin
Kyle Kavaseri, McGill University
Christian Bucher, Charité Universitätsmedizin Berlin
Melanie-Jasmin Ort, Charité Universitätsmedizin Berlin
Evan Buettman, Virginia Commonwealth University

OTA Annual Meeting and ORS ISFR Collaborative Workshop Summary

The ORS ISFR held a special collaborative workshop on Preclinical Models of Orthopaedic Trauma between the OTA and ORS ISFR at the OTA Annual Meeting 2022. The series of lectures were organized by Saam Morshed, MD & Chelsea Bahney, PhD and moderated by Saam Morshed, MD and Prism Schneider, MD, PhD. Program was highlighted by four speakers (below) over a range of topics followed by a lively audience and panel discussion. These talks were recorded and available to ORS ISFR members.

Speaker: Justin Haller, MD
Post-Traumatic OA: Current models and translational relevance

Speaker: Joseph Wenke, PhD
Fracture Related Infection: Preclinical models to assess emerging therapies

Speaker: Augustine Saiz Jr., MD
Animal models for non-union and delayed fracture healing after multiple trauma

Speaker: Thomas Schaer, VMD
From Mouse to Human: Choosing the correct animal model to facilitate clinical translation

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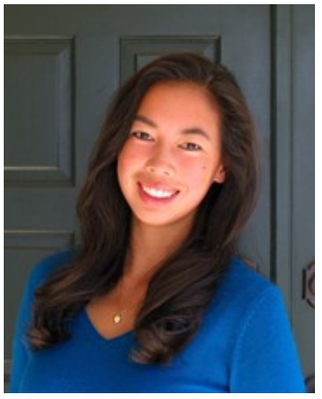
Virtual Scientific Sessions Recordings

The ORS maintains a library of recorded educational content! Pay special attention to the following, of particular interest to our members:

- Preclinical Models of Metaphyseal Fracture Healing
- Atypical Femoral Fractures: What's Typical and What's Topical?
- MedTech Innovation: From Unmet Clinical Need to Solutions

Explore the Video Library



Research Section Member Spotlight: Katherine Griffin

Name and Degree: Katherine Griffin, BS

Current Title and Department/Employer: DVM/PhD Candidate, Department of Orthopaedic Surgery at University of California, Davis

Undergraduate Degree, University: Microbiology at University of California, Davis

Who have been your mentors?
J. Kent Leach

What are your specific research areas and expertise, particularly related to fracture healing and bone regeneration?
Immunoengineering to both understand key immune events in fracture repair and modulate them to improve regeneration.

What are you currently working on?
I'm currently studying the role of the innate immune system in various bone processes from fracture healing to osteosarcoma biology. I'm particularly interested in macrophage polarization as it relates to MSC-mediated musculoskeletal regeneration.

What encouraged you to join the ORS and ISFR?
Kent Leach, my graduate school mentor and PI, introduced me to the ORS and ISFR communities. With a career goal to study equine musculoskeletal regeneration, I am excited by the training and network I will gain with ORS on my way to becoming a veterinary clinician scientist.

Call for Volunteers

The ORS ISFR will be recruiting a number of volunteer positions. In particular, the Communications Committee is looking for someone to spearhead the operation of the @isfrfractures Twitter account. If you are interested in making an impact on the section's

social media presence and enhancing members' experience of affiliated meetings, please reach out to Section Communications Chair Dan Youngstrom at dwyoungstrom@uchc.edu.

Recent Journal of Orthopaedic Research® Articles Related to Bone Trauma and Regeneration

Clark D, Doelling J, Hu D, Miclau T, Nakamura M, Marcucio R. Age-related decrease in periostin expression may be associated with attenuated fracture healing in old mice. J Orthop Res. 2022 Sep 4. doi: 10.1002/jor.25439. Epub ahead of print. PMID: 36058631.

Avin KG, Dominguez JM 2nd, Chen NX, Hato T, Myslinski JJ, Gao H, Liu Y, McKinley TO, Brown KM, Moe SM, Natoli RM. Single-cell RNAseq provides insight into altered immune cell populations in human fracture nonunions. J Orthop Res. 2022 Oct 6. doi: 10.1002/jor.25452. Epub ahead of print. PMID: 36200412

Li J, Yin P, Li J, Zhao Z, Zhao J, Cui X, Lyu H, Zhang L, Tang P. Novel slide compression anatomic plates of the femoral neck for treating unstable femoral neck fracture: A biomechanical study. J Orthop Res. 2022 Sep 18. doi: 10.1002/jor.25447. Epub ahead of print. PMID: 36116025.

Rezaie ES, Visser NJ, van den Berg C, Shin AY, Bishop AT. Vasculogenic gene therapy: No role for revitalization of structural bone allografts. J Orthop Res. 2022 Sep 4. doi: 10.1002/jor.25438. Epub ahead of print. PMID: 36058614.

Wee NKY, Novak S, Ghosh D, Root SH, Dickerson IM, Kalajzic I. Inhibition of CGRP signaling impairs fracture healing in mice. J Orthop Res. 2022 Oct 24. doi: 10.1002/jor.25474. Epub ahead of print. PMID: 36281531.

Demidov VV, Clark MA, Streeter SS, Sottosanti JS, Gitajn IL, Elliott JT. High-energy open-fracture model with initial experience of fluorescence-guided bone perfusion assessment. J Orthop Res. 2022 Oct 3. doi: 10.1002/jor.25443. Epub ahead of print. PMID: 36192829.

Inacio JV, Schwarzenberg P, Kantzos A, Malige A, Nwachuku CO, Dailey HL. Rethinking the 10% strain rule in fracture healing: A distal femur fracture case series. J Orthop Res. 2022 Sep 18. doi: 10.1002/jor.25446. Epub ahead of print. PMID: 36116021.

Invite a Colleague to Join

Do you have a student, post-graduate trainee, or colleague who is working in fracture repair or bone regeneration and is not a member of ORS ISFR yet?

Be sure to share this newsletter and tell them about the many benefits of ORS ISFR membership.

Our Section members have exclusive opportunities to compete for Section Member-only awards, get their work featured in our Newsletter, and participate in our many scientific and social events throughout the year at discounted rates.

Join the ORS today!

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