

2016 Annual Meeting



PROGRAM BOOK

March 5–8, 2016 | Disney's Coronado Springs Resort | Orlando, Florida



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Thank you to our 2016 New Investigator Recognition Awards (NIRA) Supporters

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WELCOME TO THE ORS 2016 ANNUAL MEETING

March 5 – March 8, 2016

Disney's Coronado Springs Resort | Orlando, FL

Dear Fellow ORS Members, Colleagues, and Guests,

On behalf of the Orthopaedic Research Society's Board of Directors, I would like to welcome you to the ORS 2016 Annual Meeting – our 62nd Annual Meeting.

The ORS Annual Meeting serves as the home to all of us that are in the field of musculoskeletal research; whether we are surgeons, biologists, engineers, veterinarians, research administrators, etc. we all share a passion for research.

Recently, the ORS Board of Directors established ORS 2020, which outlines our strategic mission for the next five years. Serving our members and the field in general is key, and the ORS Annual Meeting helps us to accomplish our mission. Many of the innovations introduced in the field of orthopaedics were once presented at the ORS Annual Meeting, where we have presented approximately 64,000 scientific abstracts since 1955.

We congratulate those of you who will be presenting your work at this meeting, and encourage you to seek collaborations with others here at this meeting. The ORS Annual Meeting provides many opportunities for us to network, to learn, and to be inspired.

Thank you to all of our many dedicated volunteers and to our members. The success of the society and of the Annual Meeting would not be possible without your support! We hope that you find many opportunities to collaborate, communicate, and be inspired at this year's meeting. Enjoy your time in Orlando!

Mathias P.G. Bostrom, MD
President, Orthopaedic Research Society

SCHEDULE

INNOVATION CENTRAL (POSTER AND EXHIBIT HALL)

Veracruz Exhibit Hall – Innovation Theater, Charging Stations, Seating, Refreshment Breaks

Saturday, March 5	8:00 AM – 7:00 PM
Sunday, March 6	9:00 AM – 6:30 PM
Monday, March 7	8:00 AM – 7:15 PM
Tuesday, March 8	7:30 AM – 1:30 PM (no exhibits)

SPEAKER READY ROOM

Coronado B-D

Friday, March 4	2:00 PM – 6:00 PM
Saturday, March 5	7:00 AM – 5:00 PM
Sunday, March 6	7:00 AM – 5:00 PM
Monday, March 7	7:00 AM – 5:00 PM
Tuesday, March 8	7:00 AM – 1:30 PM

CHECK-IN AND REGISTRATION

Coronado Ballroom Pre-Function Area

Friday, March 4	Check-in only	7:30 AM – 12:00 PM
	Check-in & registration	2:00 PM – 7:00 PM
Saturday, March 5		7:00 AM – 6:00 PM
Sunday, March 6		7:00 AM – 6:00 PM
Monday, March 7		7:00 AM – 6:00 PM
Tuesday, March 8		7:00 AM – 1:30 PM

SUPPORT ORTHOPAEDIC RESEARCH!

By donating to the ORS/OREF Grants Campaign, 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.

Give Today! Please visit the ORS Member Center in Innovation Central to make your donation and receive your gift.

All donors will receive a special thank you from the ORS.

All donations over \$25 will be entered into a raffle for one (1) complimentary registration for the ORS 2017 Annual Meeting in San Diego, California.

Donate \$25 – \$49 and receive one (1) complimentary beverage voucher to be used during one of the Poster Receptions.

Donate over \$50 and receive a complimentary ORS fleece jacket.

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TOPIC CHAIRS

TISSUE-BASED TOPICS

Biomaterials—Fergal J. O'Brien, PhD
Bone—Glen Niebur, PhD and Vicki Rosen, PhD
Bone Fracture—Zijun Zhang, MD, PhD
Cartilage, Synovium and Osteoporosis— Laurie Goodrich, DVM, PhD; Timothy Griffin, PhD and Stephen B. Trippel, MD
Meniscus—Lutz Dürselen, PhD
Muscle—Sameer B. Shah, PhD
Tendon/Ligament—Hani Awad, PhD and Braden Fleming, PhD

ANATOMIC TOPICS

Cancer, Tumors—Richard M. Terek, MD
Diagnostic Imaging—Xiaojuan Li, PhD
Foot and Ankle—Samuel B. Adams, MD
Hand, Wrist and Elbow—Aaron Daluiski, MD
Hip—Lee E. Rubin, MD
Hip and Knee Arthroplasty—John DesJardins, PhD and Douglas D. Robertson, Jr., MD, PhD
Infection and Inflammation—Weiping Ren, MD, PhD
Knee—Guoan Li, PhD
Shoulder—C. Benjamin Ma, MD
Spine—Ashish D. Diwan, MD; Keita Ito, MD and Jackson Mwale, PhD
Trauma—David J. Hak, MD

“We’re developing a system that would enable physicians to make a quick and reliable analysis of a patient’s fracture risk.”

**ORS member
Ara Nazarian, DrSc**



Dr. Nazarian (left) and research assistant Shohreh Behrouzi
Photo courtesy of Mr. Ohan Manoukian

Calculating fracture risk

Ara Nazarian, DrSc, co-principal investigator Brian Snyder, MD, PhD, and their colleagues are using the principles of beam theory—a calculation that factors in both geometric and material properties to determine rigidity—to design a computerized tomography (CT)-based rigidity analysis that can determine the risk of fractures in bones with metastasized lesions.

An OREF Prospective Clinical Research Grant gave Dr. Nazarian and his colleagues the funding they needed to conduct a multicenter study assessing the utility of the CT-based rigidity analysis. Read more at www.oref.org/AraNazarian.

Every gift makes a difference

Since 1955, ORS and OREF have worked together to expand funding for clinically relevant research and increase opportunities for new investigators. Now, the two organizations have collaborated to create the ORS/OREF Resident Research Grant and Post-Doctoral Fellowship Grant Fund.

Gifts to this fund:

- Enable post-doctoral ORS members to devote their time and resources to research that may one day translate into innovative new treatments and therapies.
- Assist ORS resident members who are exploring careers in research.
- Support ORS and OREF missions to advance orthopaedic research.

Make your gift today at www.oref.org/orsgrant.

For more information, please contact:

Edward F. Hoover, VP, Development
(847) 430-5105 | hoover@oref.org

Collaborating in the Science of Patient Care

Friday, March 4 and Saturday, March 5

AAOS 2016 Annual Meeting

Orange County Convention Center, West Building, Orlando, Florida

AAOS

AMERICAN ACADEMY OF
ORTHOPAEDIC SURGEONS

Attend the AAOS 2016 Annual Meeting and its Specialty Day on Friday, March 4 and Saturday, March 5 when 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 4, 7:00 AM – 6:00 PM

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

Friday, March 4, 9:00 AM – 4:00 PM

- Technical Exhibits
 - Ask an Expert
 - Technology Theater

Friday, March 4, 4:00 PM – 6:00 PM

- AAOS/ORS Co-branded Symposium
The Regulatory Process: How Do I Get My Invention into Patients
Barbara D. Boyan, PhD

Saturday, March 5, 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 4 and Saturday, March 5. For Friday's Instructional Course and Saturday's Specialty Day sessions, attendees must register and pay the appropriate fees. To obtain a sticker and/or register, please go to AAOS registration located at the Orange County Convention Center, West Building, Academy Hall C on Friday, March 4 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

GETTING THERE

ORS will provide complimentary transportation to the Orange County Convention Center on Friday, March 4 and Saturday, March 5 for all ORS Annual Meeting registrants.

For details about the AAOS 2016 Annual Meeting go to www.aaos.org/annual.



JOIN US | AUGUST 7–10, 2016
SUN VALLEY, IDAHO

46TH INTERNATIONAL

Sun Valley Workshop: Musculoskeletal Biology

Solving Problems, Suggesting Solutions

PROGRAM HIGHLIGHTS

- How Do We Treat Muscle and Bone in Hypophosphatasia?
- New Materials-Based and Ligand-Based Strategies to Stimulate Self-Repair of Tendons and Ligaments
- Is Osteoporosis Overdiagnosed?
- How Can Bone and Muscle Health Be Maintained in Cancer Survivors?
- How Do We Advance Cell Culture Data on Signaling Between Bone and Skeletal Muscle Cells into *In Vivo* Translational Models?
- How Can We Improve Reproducibility in Pre-Clinical Models: Mouse Models?

Career Development Workshop for Young Investigators

*Awards available to
offset travel expenses
for young and
under-represented
minority investigators*

www.ors.org/sunvalley

EARLY CAREER/NEW INVESTIGATOR PROGRAMS 2016 ORS ANNUAL MEETING**FRIDAY, MARCH 4**

8:00 AM – 5:00 PM
ORS/OREF Grant Writing Course

SATURDAY, MARCH 5

8:00 AM – 9:30 AM
Professional Advancement Session: Pathways to Promotion:
Clinical, Research and Industry

11:30 AM – 12:30 PM
NIH New Investigator Networking Session: Discuss Your
Grant Submissions with NIH Staff

5:15 PM – 6:45 PM
ORS President's Welcome Poster Reception

7:00 PM – 9:00 PM
Early Career After-Party (Associate Members, Students and
Early Career attendees only)

SUNDAY, MARCH 6

8:00 AM – 9:30 AM
Professional Advancement Session: Healthcare Economics in
Orthopaedics—What You Need to Know

12:30 PM – 1:30 PM
New Investigator Networking & Mentoring Session: Successfully
Competing for a Faculty Position

MONDAY, MARCH 7

8:00 AM – 9:30 AM
Professional Advancement Session: Advocating for Funding and
Beyond: Tips and Tricks on How to Champion Orthopaedic Research

11:30 AM – 12:30 PM
New Investigator Networking & Mentoring Session: How to Lead
and Motivate a Successful Team

TUESDAY, MARCH 8

8:45 AM – 10:15 AM
Professional Advancement Session: What Does Your CV/Resume
Say About You?

.....

**ORS/OREF/AAOS NEW INVESTIGATOR RESEARCH FUNDING WORKSHOP
MAY 13 – 14, 2016, JACKSONVILLE, FLORIDA**

WORKSHOP CHAIRS: James Iatridis, PhD and Kurt Spindler, MD

FACULTY: Hicham Drissi, PhD; Ranjan Gupta, MD; Karl Jepsen, PhD; Melissa Kacena, PhD; Rajiv Kumar, PhD; Francis Lee, MD, PhD;
Elise Morgan, PhD; Fei Wang, PhD; Kurt Weiss, PhD

- Essential & Practical Information for Early Career Development
- Grant Writing Strategy & Skills, Networking for Collaboration
- Real Time Feedback at the Mock Study Section
- Face-to-Face Meetings with Faculty Reviewers & NIH Officers
- Tips for writing a successful grant application

The workshop takes a step beyond “grant writing basics” by offering a mixture of didactic lectures, interactive workshops, individualized mentoring, and networking for professional development. Faculty are senior investigators who manage highly successful research programs funded by the NIH, DOD, VA, and private foundations, and who have served on NIH study section.

Experts will offer practical insight on designing impactful studies and effectively communicating their significance and innovation to the study section. In addition to learning more about the elements of a successful grant application, attendees will learn strategies for foundation and federal grants, and differences among NIH mechanisms (i.e. R03, R21, K08/K01/K23, R01) and their success rates and pay lines. There will also be a session that will discuss clinical trials.

Most importantly, provisional grants provided by the participants will be reviewed by faculty members at the Mock Study Section. The Mock Study Section will be chaired by Dr. James Iatridis who served as Study Section Chair at the NIH Skeletal Biology, Structure, and Regeneration Study Section and is an NIH Scientific Review Officer (SRO). The program is open to junior faculty, post-doctoral researchers, clinical fellows, and residents with a commitment to pursuing an academic research career. Basic science and clinical investigators (PhD, MD, MS, DVM) with or without training awards are invited to attend.

All attendees will draft a Specific Aims Page prior to the meeting and work with faculty and peers to apply concepts from this workshop to improve it. Attendees who elect to submit a draft proposal have the opportunity for individualized critical review and mentorship by an experienced musculoskeletal researcher.

To date, participants of the ORS/OREF/AAOS New Investigator Research Funding Workshop have received
78 NIH Grants totaling \$85,206,153.

**Apply today!! <http://www.ors.org/orsorefaaos-new-investigator-workshop/>
Deadline to apply is March 15, 2016**

2016 ORS GUEST NATION GERMANY

The ORS welcomes Germany, the second Guest Nation to be honored at an ORS Annual Meeting. The 2016 Guest Nation Program honors our colleagues in Germany, recognizes their contribution to the field of musculoskeletal research, and celebrates our established partnership and collaborations with the German Society for Trauma Surgery (DGU), the German Society for Orthopaedics and Trauma (DGOU), the German Society for Orthopaedics and Orthopaedic Surgery (DGOOC), and the Occupational Union of Orthopedic and Trauma Surgeons (BVOU).



DGOU



BVOU
Berufsverband für
Orthopädie und Unfallchirurgie

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WATCH us on YouTube



ORS SPINE SECTION CELEBRATES 1 YEAR!

JOIN THE ORS SPINE SECTION
RESEARCH COMMUNITY TODAY!

The ORS Spine Section is celebrating its first year anniversary as the first ORS Section! The Section launched last March at the ORS 2015 Annual Meeting in Las Vegas, Nevada by the Spine RIG organizers and ORS. The Spine Section now has over 150 members from all around the world in various sub specialties of spine.

The Spine Section's mission is to advance spine research and related sciences as to improve patient care through basic, translational, and clinical research. The Spine Section is also committed to providing leadership by representing researchers in the ORS!

ORS Spine Section dues are \$50 for current ORS members*. ORS Spine Section dues are in addition to ORS annual membership dues.

Visit the ORS Spine Section website, www.ors.org/spinesection, to join today and for more information!



NEW ORS MENISCUS SECTION

JOIN THE ORS MENISCUS SECTION
RESEARCH COMMUNITY TODAY!

The ORS Meniscus Section is the second ORS Section to launch in 2015 by the Meniscus RIG organizers and ORS. The immediate goal of the Meniscus Section is to support professionals specializing in meniscus research and sciences, and to provide a forum for education and research on many initiatives.

ORS Meniscus Section dues are \$50 for current ORS members*. ORS Meniscus Section dues are in addition to ORS annual membership dues.

Visit the ORS Meniscus Section website, www.ors.org/meniscus, to join today and find out more information!

Stop by the ORS Member Center in Innovation Central to find out more information on how to join the ORS Spine and Meniscus Section research communities! **Questions? Email membership@ors.org**
**Not an ORS member? Interested in joining ORS? Ask us how to join today or visit ors.org for more information.*

TRANSPORTATION

ORS will provide complimentary shuttle service between Disney's Coronado Springs Resort and the Orange County Convention Center on Friday, March 4 and Saturday, March 5. **Bus seating is on a first come, first served basis.**

FRIDAY, MARCH 4

7:00 AM First bus departs Disney's Coronado Springs Resort for the Orange County Convention Center

Bus to depart Disney's Coronado Springs Resort for the Orange County Convention Center every hour on the hour

Bus to depart the Orange County Convention Center every hour on the ½ hour

5:00 PM Last shuttle departs Disney's Coronado Springs Resort

5:30 PM Last shuttle departs the Orange County Convention Center

SATURDAY, MARCH 5

7:00 AM First bus departs Disney's Coronado Springs Resort for the Orange County Convention Center

Bus to depart Disney's Coronado Springs Resort for the Orange County Convention Center every hour on the hour

Bus to depart the Orange County Convention Center every hour on the ½ hour

5:00 PM Last shuttle departs Disney's Coronado Springs Resort

5:30 PM Last shuttle departs the Orange County Convention Center

FUTURE

ORS ANNUAL MEETINGS

GENERAL INFORMATION

ORS 2017 Annual Meeting

Sunday, March 19—
Wednesday, March 22, 2017

San Diego, California



ORS 2018 Annual Meeting

Saturday, March 10—
Tuesday, March 13, 2018

New Orleans, Louisiana



IMPORTANT DETAILS

CONTINUING MEDICAL EDUCATION

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American Academy of Orthopaedic Surgeons and the Orthopaedic Research Society. The American Academy of Orthopaedic Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

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

Attendees will be able to claim CME from the ORS 2016 Annual Meeting by completing the CME form on the ORS website following the meeting in Orlando.

SAFETY TIPS

DO:

- ✓ Travel with only the credit card and ID cards you will use.
- ✓ Check that the lock works and that the door closes securely in your hotel room. Put the chain or deadbolt on the door after entering the room.
- ✓ Walk with another person. Single targets are the most likely victims of crime.

DON'T:

- ⊘ Wear your badges or carry conference bags outside.
- ⊘ Walk in dark, isolated areas, such as closed plazas.

MEETING OBJECTIVES

- To present the best and most innovative research from all disciplines of musculoskeletal research.
- To promote the exchange of ideas and encourage collaborations in orthopaedic research.
- To encourage promising and emerging areas in musculoskeletal research including basic science education, and research strategies by use of forums, workshops, special sessions and special interest meetings.

FDA

All drugs and medical devices used in the United States are administered in accordance with Food and Drug Administration (FDA) regulations. These regulations vary depending on the risks associated with the drug or medical device, the similarity of the drug or medical device to products already on the market, and the quality and scope of clinical data available. Some drugs or

medical devices demonstrated at this 2016 Annual Meeting of the Orthopaedic Research Society may have not been cleared by the FDA or have been cleared by the FDA for specific purposes only. The FDA stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice. Orthopaedic Research Society policy provides that "off label" uses of a drug or medical device may be described in the Orthopaedic Research Society's CME activities so long as the "off label" use of the drug or medical device is also specifically disclosed (i.e., it must be disclosed that the FDA has not cleared the drug or device for the described purpose). Any drug or medical device is being used "off label" if the described use is not set forth on the product's approved label.

DISCLAIMER

The materials presented at the ORS 2016 Annual Meeting have been made available by the Orthopaedic Research Society for educational purposes only. The material is not intended to represent the only, nor necessarily best, method or procedure appropriate for the medical situations discussed, but rather is intended to present an approach, view, statement or opinion of the faculty, which may be helpful to others who face similar situations. The Orthopaedic Research Society disclaims any and all liability for injury or other damages resulting to any individual attending the meeting and for all claims, which may arise out of the use of the techniques demonstrated therein by such individuals, whether these claims shall be asserted by physician or any other person. No reproduction of any kind, including audiotapes and videotape, may be used in any portion of the ORS Annual Meeting. The ORS reserves all of its rights to such material, and commercial reproduction is specifically prohibited.

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By attending the ORS 2016 Annual Meeting you give your consent, unless you notify us otherwise, to use your image captured during the conference through video, photographs, or digital imagery, to be used by the ORS in promotional materials, publications, and web site and waive any and all rights to these images.

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The photography or recording of any kind (cell phone, camera, video recorder, etc.) of a scientific presentation, educational program, workshop, posters, or meetings of the ORS is strictly forbidden without prior approval in writing by the ORS. This policy will be strictly enforced.

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FRIDAY | MEETING HIGHLIGHTS | FRIDAY, MARCH 4, 2016

7:00 AM — 6:00 PM

AAOS ANNUAL MEETING

Orange County Convention Center

8:00 AM — 5:00 PM

ORS/OREF GRANT WRITING COURSE

Coronado E—G

1:30 PM — 4:30 PM

RESEARCH INTEREST GROUP:

Biomaterials, Biomechanics and Bio-Imaging in Orthopaedics

Monterrey 1

2:30 PM — 6:30 PM

ORS MENISCUS SECTION MEETING

Coronado M

4:00 PM — 6:30 PM

ORS SPINE SECTION MEETING

Fiesta 5

4:30 PM — 5:30 PM

RESEARCH INTEREST GROUP:

Practical Bone Histomorphometry in Rodents

Durango 1—2

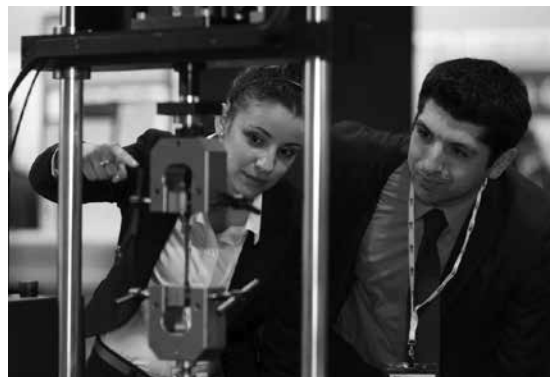
6:00 PM — 8:00 PM

RESEARCH INTEREST GROUP:

Bone Regeneration

Durango 1—2

FRIDAY



FRIDAY | PROGRAM DETAILS | FRIDAY, MARCH 4, 2016

FRIDAY

8:00 AM — 5:00 PM

ORS/OREF GRANT WRITING COURSE

Coronado E–G

This popular introductory course is the first in a sequence of opportunities offered by ORS and OREF for new investigators to learn the art of grant writing. This course is ideal for investigators who are in the process of writing their first grant proposals. Experts will offer strategies for writing a compelling Aims Page, developing a strong approach to test an exciting hypothesis, and using preliminary data and supporting documents to present a cohesive final grant proposal. A mock study section provides a first-hand look at what is involved in NIH peer review. Coffee in the morning, lunch, and a post-course networking reception are included in the registration fee.

\$125/PERSON

1:30 PM — 4:30 PM

RESEARCH INTEREST GROUP:

Biomaterials, Biomechanics and Bio-Imaging in Orthopaedics

Monterrey 1

ORGANIZERS: Matt Dietz, MD, West Virginia University; Stuart B. Goodman, MD, PhD, Stanford University; Lynne C. Jones, PhD, Johns Hopkins University; Bingyun Li, PhD, West Virginia University; Guoan Li, PhD, Massachusetts General Hospital, Harvard Medical School; Tolou Shokuhfar, PhD, Michigan Technological University; Timmie Topoleski, PhD, University of Maryland, Baltimore County

OBJECTIVES: This inaugural meeting aims to develop and strengthen collaborative research, to support young investigators, to establish international networks, and to engage clinicians and industry experts. The theme for this year's RIG is *Approaches to Collaboration: Team Science*. Our invited speakers will include researchers and clinicians in biomaterials/bioengineering, bioimaging, biomechanics, biology, representing medical practice, academics, government, and industry. Anyone with interest in orthopaedic biomaterials, bioimaging, biomechanics, and bioengineering is welcome to attend.

2:30 PM — 6:30 PM

ORS MENISCUS SECTION MEETING

Coronado M

If you are interested in meniscus research or technology development and evaluation, join us for an interactive discussion of the goals of the new section. Included in our agenda is a scientific presentation on animal models for meniscal studies, and a review of how section members are writing ASTM guidance documentation for meniscus reparative technologies. We will have open discussion about funding mechanisms and future directions. Have your voice heard as we form a strategy for section growth.

4:00 PM — 6:30 PM

ORS SPINE SECTION MEETING

Fiesta 5

ORGANIZERS: James C. Iatridis, PhD, Icahn School of Medicine at Mount Sinai; Judith Hoyland, PhD, University of Manchester; Christine Le Maitre, PhD, Sheffield Hallam University; Jeffrey Lotz, PhD, University of California; Makarand Risbud, PhD, Thomas Jefferson University; Nam Vo, PhD, University of Pittsburgh

OBJECTIVES: The ORS Spine Section meeting aims to disseminate cutting edge information on focus topics of interest, to develop and strengthen collaborative research networks, to support young investigators, and to engage clinicians & industry experts. The theme for the 2016 meeting is Spine Research for Functional Translation with scientific symposia on animal models and imaging followed by a reception. Invited speakers include spine researchers and clinicians representing academics, government, and industry. Anyone interested in spine research is welcome to attend.



4:30 PM – 5:30 PM

RESEARCH INTEREST GROUP:

Practical Bone Histomorphometry in Rodents

Durango 1–2

ORGANIZER: Thomas Wronski, PhD, University of Florida

OBJECTIVE: Bone histomorphometry is an essential technique for skeletal phenotyping of genetically-altered mice and for evaluating bone changes in response to drugs, hormones, and mechanical forces. Recommendations for practical bone histomorphometry in rodents will be presented, including plastic embedding of undecalcified bone, identification of bone cells in stained histologic sections, optimal regimens for fluorochrome labeling of bone forming surfaces in young and aged rodents, standardization of sample sites for data collection in cancellous and cortical bone, and the most important measurements for determining the effects of an experimental manipulation on bone structure, formation, and resorption.

6:00 PM – 8:00 PM

RESEARCH INTEREST GROUP:

Bone Regeneration

Durango 1–2

ORGANIZER: Chelsea Bahney, PhD, Orthopaedic Trauma Institute

OBJECTIVE: This is the 4th annual Bone Regeneration RIG held at the ORS Annual Meeting. Our mission is to provide new insights into important topics in bone repair by leading experts in the field in a 1-hour panel seminar, followed by an opportunity for networking. The theme for this year's RIG is ***Soluble Factors Mediating Bone Regeneration***. Last year we discussed how mechanical factors influence bone repair. This year our panel will discuss extrinsic soluble factors that can mediate healing.

SATURDAY | MEETING HIGHLIGHTS | SATURDAY, MARCH 5, 2016

8:00 AM — 7:00 PM

INNOVATION CENTRAL OPEN

Veracruz Exhibit Hall

8:00 AM — 9:00 AM

NIRA PRESENTATIONS:

Osteoarthritis and Cartilage Repair

Coronado H—J

SESSIONS:

Disc Mechanics

Coronado L

POSTER TEASER I

Fiesta 5

8:00 AM — 9:30 AM

NEW FRONTIERS IN TENDON RESEARCH

Monterrey 1—3

WORKSHOP:

Clinical and Biological Challenges in Understanding Implant- Related Infection

Coronado K

PROFESSIONAL ADVANCEMENT SESSION:

Pathways to Promotion: Clinical, Research and Industry

Fiesta 6

9:45 AM — 10:45 AM

SPOTLIGHT SESSION:

Disc Degeneration and Repair

Coronado L

SESSIONS:

Chondroprogenitors and Chondrogenesis

Coronado H—J

Biomaterials Bone

Coronado K

Tendon and Ligament: Repair and Regeneration

Fiesta 5

Meniscus Mechanics

Fiesta 6

10:45 AM — 11:45 AM

Poster Viewing (Poster Session I)

*Innovation Central

11:00 AM — 11:30 AM

INNOVATION THEATER:

Micro Photonics

*Innovation Central

11:15 AM — 12:15 PM

INDUSTRY CONNECT

Coronado L

11:30 AM — 12:30 PM

NIH NEW INVESTIGATOR NETWORKING SESSION: Discuss Your Grant Submissions with NIH Staff

Durango 1—2

12:00 PM — 12:15 PM

INNOVATION THEATER:

MED Institute

*Innovation Central

12:00 PM — 4:00 PM

ORS/OREF Basic Science Course, Part I

Monterrey 1—3

12:30 PM — 1:30 PM

SPOTLIGHT SESSION:

Aggrecan and Extracellular Matrix

Coronado H—J

SESSIONS:

Bone Tissue Engineering

Coronado K

Spine Biomechanics

Coronado L

Tendon Disease Process

Fiesta 5

Knee Kinematics and Gait

Fiesta 6

1:45 PM — 2:45 PM

SPOTLIGHT SESSION:

Tendon and Ligament: Mechanics

Fiesta 5

NIRA PRESENTATIONS:

Cartilage and Joint Mechanics

Fiesta 6

SESSIONS:

Joint Repair and Gene Therapy

Coronado H—J

Fracture Healing Biology: Innovative Therapies

Coronado K

Scoliosis

Coronado L

3:00 PM — 4:00 PM

SESSIONS:

Post-Traumatic Osteoarthritis

Coronado H—J

Bone Regeneration for Fracture Repair

Coronado K

Tendon and Ligament: Repair and Imaging

Fiesta 5

Meniscus Healing

Fiesta 6

Spine Peripheral Nerve and Spinal Cord Injury

Coronado L

4:15 PM — 5:15 PM

ORS WELCOME SESSION

Coronado H—J

5:15 PM — 6:45 PM

ORS PRESIDENT'S WELCOME POSTER RECEPTION

*Innovation Central

7:00 PM — 9:00 PM

EARLY CAREER AFTER-PARTY

Monterrey 1—3

*Innovation Central/Veracruz Exhibit Hall

SATURDAY | PROGRAM DETAILS | SATURDAY, MARCH 5, 2016

8:00 AM – 9:30 AM

NEW FRONTIERS IN TENDON RESEARCH:

Multiscale Considerations for the Study of Tendon

Monterrey 1–3

Tendon is a hierarchical material with fibrillar structures from the molecular through tissue levels. At the nanoscale, collagen molecules pack together in a quarter-stagger array to form microfibrils. Neighboring microfibrils interdigitate, imposing order upon a mildly twisted lattice that forms the next level structure termed a fibril. At the next level of structural hierarchy, fibrils close-pack into larger structures to form fibers ~5 µm in diameter. The fibers then combine to form fascicles, which organize in the characteristic “crimp” pattern seen histologically. Finally, fascicles are bundled together through a fascicular membrane to form milli- to centi-meter scale tendon tissue. This highly ordered multiscale structure dictates the mechanical behavior of the tendon and the response of the resident cells. In order to better understand tendon behavior and pathology, careful consideration should be given to each hierarchical level and to the links between length scales. This workshop will describe the multiscale nature of tendon and the tools available for studying tendon at various length scales.

8:00 AM – 9:30 AM

WORKSHOPS:

Clinical and Biological Challenges in Understanding Implant-Related Infection*

Coronado K

Organized by the ORS Industry Engagement Committee

ORGANIZERS: Jeremy Rawlinson, PhD, Medtronic PLC;
Michael Lehmick, MS, Depuy-Synthes

Diagnosis, treatment, and eradication of infection in the setting of orthopaedic implants continues to be challenging. The challenge varies with the orthopaedic procedure, the multiple organisms responsible for infection, their potential resistance, and patient-specific factors. Solutions range from continuous improvement in clinical and surgical practice to implant and pharmaceutical innovations. The basic science further focuses on the key mechanisms for microbial proliferation, attachment, biofilm formation, emigration and recolonization; and techniques to disrupt these mechanisms of pathogenesis and persistence. This workshop will present these challenges across the clinical and biological spectrum to better address the treatment or mitigation of infection.

Managing Infection in Orthopaedic Trauma:

Everything I’ve Done Wrong

Samir Mehta, MD, Penn Orthopaedics

The Basic Science of Infection; Biofilm Formation and Persistence during Chronic *S. Aureus* Osteomyelitis

Edward Schwarz, PhD, University of Rochester Medical Center

Clinical Practice – How Can One Mitigate and Treat Infection?

Mathias P.G. Bostrom, MD, Hospital for Special Surgery

*This workshop does not qualify for CME credit.

PROFESSIONAL ADVANCEMENT SESSION:

Pathways to Promotion: Clinical, Research and Industry

Fiesta 6

Organized by the ORS Women’s Leadership Forum and the ORS New Investigators Mentoring Committee

ORGANIZERS: Robin M. Queen, PhD, Virginia Tech; Tammy Haut Donahue, PhD, Colorado State University; Diana Glaser, PhD, University of California San Diego

This is a program that will explore and examine the similarities and differences in the promotion and advancement process between clinical academics, research tracks within academics and then finally industry. The speakers will discuss the different pathways that can be used to advance in each of these areas of academics and industry, how to identify the right individuals to serve as mentors in each of these areas and finally will discuss the best ways to network and any biases that exist within each of these areas. Each speaker will provide examples of how to best manage career challenges and successes, and how to advance in each of these areas.

Navigating Career Advancement and Academic Development from a Clinical Practice Platform

Regis J. O’Keefe, MD, PhD, Washington University, St. Louis

Keys to a Successful Career in Industry

Sally LiArno, PhD, Stryker Orthopaedics

Promotion and Advancement from a Basic Science Department

Rick Sumner, PhD, Rush University Medical Center

SATURDAY | PROGRAM DETAILS | SATURDAY, MARCH 5, 2016

11:00 AM – 11:30 AM

INNOVATION THEATER:

Innovation Central

MICRO PHOTONICS

Innovations in Micro-Computed Tomography: From Ultrafast Scanning to Submicron Imaging

Micro Photonics is the leading source of advanced instrumentation for orthopaedic research. Thousands of clients rely on us for innovative solutions, technically superior products, and our comprehensive MicroCT laboratory contract testing services. Our ex-vivo Bruker Skyscan MicroCT systems can be found in various orthopaedic and life science laboratories across the country.

11:15 AM – 12:15 PM

INDUSTRY CONNECT

Coronado L

Organized by the ORS Industry Engagement Committee

Successful development of new medical technology requires a detailed understanding of the possible regulatory pathways and the current standards and regulations necessary to market innovative medical devices that are safe and effective for their intended use. This workshop will include presentations from the FDA and from industry, and permit discussion of timely regulatory topics relevant to orthopaedic product development. 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.

11:30 AM – 12:30 PM

NIH NEW INVESTIGATOR NETWORKING SESSION:

Discuss Your Grant Submissions with NIH (National Institutes of Health) Staff

Durango 1–2

Organized by the ORS New Investigator Mentoring Committee

ORGANIZERS: Jinxi Wang, MD, PhD, University of Kansas Medical Center, Member, ORS New Investigator Mentoring Committee; Lucas Lu, PhD, University of Delaware, Incoming Chair, ORS New Investigator Mentoring Committee

Don't want to travel to Washington DC or talk to NIH staff over the phone? Here is a chance to meet face-to-face in a small group setting with NIH members from different Institutes and Centers. This lunchtime NIH-Investigator Networking Session will provide ORS meeting attendees with an opportunity to better understand the current NIH funding policy through one-on-one personal interaction with NIH staff. The session will allow attendees to participate in small group discussions with NIH grant review administrators and program officers. Get your specific questions answered and learn what funding opportunities are available and which grant mechanisms are right for you. ***Seats are limited; pre-registration (lunch included) is required.***

NIH Participants:

- Representatives from NIAMS
- Representatives from NIA
- Representatives from NIDCR
- Representatives from NIH CSR

12:00 PM – 12:15 PM

INNOVATION THEATER:

Innovation Central

MED INSTITUTE

MR Safety Evaluation of Orthopaedic Devices: Why It's Important and How to Select Test Device Configuration

The number of MRI scans in the US increased every year from 9M in 1995 to 35M in 2014. The growing popularity is increasing expectations for medical device MR safety from both patients and regulators, and meeting the expectation can be challenging with customizable devices such as orthopaedics. This presentation utilizes examples to establish the importance of MR safety in orthopaedics and discuss the scientific basis for effective test article selection for each MR hazard

SATURDAY | PROGRAM DETAILS | SATURDAY, MARCH 5, 2016

12:00 PM – 4:00 PM

ORS/OREF BASIC SCIENCE COURSE PART I

Part I: Saturday, March 5, 12:00 PM – 4:00 PM

Part II: Sunday, March 6, 8:00 AM – 11:30 AM

Monterrey 1–3

Residents/Students/Associates: \$145; ORS and/or

AAOS registrants: \$195; Non-Members: \$295

All fees include *Orthopaedic Basic Science: Foundations of Clinical Practice* textbook

ORGANIZERS: Richard L. Lieber, PhD, Rehabilitation Institute of Chicago; Marjolein C. van der Meulen, PhD, Cornell University; 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.

Welcome and Introduction

Richard L. Lieber, PhD, Rehabilitation Institute of Chicago

PRINCIPLES OF ORTHOPAEDIC SURGERY BASIC SCIENCE

Molecular and Cellular Biology

Mitra Lavasani, PhD, Rehabilitation Institute of Chicago

Musculoskeletal Development and Genetic Diseases

Elizabeth Bradley, PhD, Mayo Clinic

Principles of Biomechanics

Marjolein C. van der Meulen, PhD, Cornell University

Orthopaedic Biomaterials

Kenneth A. Mann, PhD, SUNY Upstate Medical University

Kinesiology

Samuel R. Ward, PhD, University of California, San Diego

MUSCULOSKELETAL TISSUE PHYSIOLOGY AND FUNCTION

Bone

Karl J. Jepsen, PhD, University of Michigan

Skeletal Muscle and Nerve

Richard L. Lieber, PhD, Rehabilitation Institute of Chicago

Tendon and Ligament

Louis J. Soslowsky, PhD, University of Pennsylvania

Cartilage

Suzanne A. Maher, PhD, Hospital for Special Surgery

Meniscus and Intervertebral Disc

Robert L. Mauck, PhD, University of Pennsylvania

SATURDAY | PROGRAM DETAILS | SATURDAY, MARCH 5, 2016

4:15 PM – 5:15 PM

WELCOME | ORS 2016 ANNUAL MEETING

Coronado H–J

- INTERNATIONAL COMBINED ORTHOPAEDIC RESEARCH SOCIETIES
- ICORS 2016 – XI'AN, CHINA
- HONORING THE 2016 GUEST NATION – GERMANY



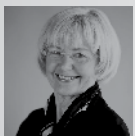
DGOJ



BVOU
Berufsverband für
Orthopädie und Unfallchirurgie



Joan E. Bechtold, PhD
**ORS Women's Leadership
Forum Award**



Linda J. Sandell, PhD
**ORS/OREF Distinguished
Investigator Award**



Louis J. Soslowsky, PhD
ORS Mentoring Award



Mathias P.G. Bostrom, MD
**ORS Presidential Address
Title of Presidential Address to Come**

5:15 PM – 6:45 PM

ORS PRESIDENT'S WELCOME POSTER RECEPTION

Innovation Central

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

7:00 PM – 9:00 PM

EARLY CAREER AFTER-PARTY |

ASSOCIATE MEMBERS AND NEW INVESTIGATORS

Monterrey 1 – 3

Based on the success of last year's event, ORS is holding an exclusive Associate Member networking event following the ORS Welcome Session. Keep the fun going at an after-party exclusively for Resident, Fellow, Student & PhD Candidate attendees. This is a great opportunity to meet ORS members, engage in conversation and learn about how you can become involved in the ORS community.

SATURDAY | SESSIONS 8:00 AM – 9:00 AM | SATURDAY, MARCH 5, 2016

TIME	NIRA PRESENTATION SESSION 1 Osteoarthritis and Cartilage Repair	SESSION 2 Disc Mechanics
ROOM	Coronado H-J	Coronado L

Moderators James Ryaby, PhD and Lei Wei, PhD

Alicia Jackson, PhD and Francesco Travascio, PhD

8:00 AM	Paper No. 0001 Targeted Genome Engineering to Create Designer Stem Cells with Autonomously Regulated Anti-cytokine Therapy for Musculoskeletal Regenerative Medicine Jonathan M. Brunger, Ananya Zutshi, Vincent P. Willard, Sameer D. Chervu, David S. Pisetsky, Charles A. Gersbach, Farshid Guilak	8:00 AM	Paper No. 0009 Longitudinal Characterization of Degenerative Changes to the Vertebral Motion Segment Following Puncture of the Annulus Fibrosus Tristan Maerz, Abigail Davidson, Michael D Newton, Michael Planalp, Kevin Baker
8:07 AM	Paper No. 0002 Depletion of Gangliosides Accelerated the Articular Cartilage Repair Through Indian Hedgehog Pathway Masatake Matsuoka, Tomohiro Onodera, Fumio Sasazawa, Daisuke Momma, Rikiya Baba, Kazutoshi Hontani, Zenta Joutoku, Shinji Matsubara, Kentaro Homan, Norimasa Iwasaki	8:10 AM	Paper No. 0010 Correlations Between Quantitative T2 and T1p MRI Parameters and Mechanics and Biochemical Content in a Rabbit Intervertebral Disc Degeneration Model Sarah E Gullbrand, Beth G Ashinsky, John T Martin, Stephen Pickup, Lachlan J Smith, Robert L Mauck, Harvey E Smith
8:14 AM	Paper No. 0003 A Novel Bone Marrow Stimulation Technique Augmented by Administration of Ultrapurified Alginate Gel Enhances Osteochondral Repair in a Rabbit Model Rikiya Baba, Tomohiro Onodera, Daisuke Momma, Masatake Matsuoka, Kazutoshi Hontani, Sameh Elmorsy, Kaori Endo, Masahiro Todoh, Shigeru Tadano, Norimasa Iwasaki	8:20 AM	Paper No. 0011 Dependence of Regional Variations in Vertebral Endplate Density and Intervertebral Disc Pressure on Disc Degeneration Paul M. Fein, Alexander DelMonaco, Tim Jackman, Ali Guerazzi, Cameron Curtiss, Elise F. Morgan
8:21 AM	Paper No. 0004 Anchorage of Double-Network Hydrogel Artificial Cartilage to Underlying Bone Using a Surface Osteoconductive Approach: In Vivo Evaluation of the Bonding Behavior Susumu Wada, Nobuto Kitamura, Takayuki Nonoyama, Ryuji Kiyama, Takayuki Kurokawa, Jian Ping Gong, Kazunori Yasuda	8:30 AM	Paper No. 0012 In-vivo Characterization of Human Lumbar Intervertebral Discs by Magnetic Resonance Elastography: Diurnal Changes in Shear Stiffness and Relationship with Degeneration Benjamin A. Walter, Prasath Magewaran, Daniel Boulter, Luciano Prevedello, Xuan V Nguyen, Brian Raterman, William S. Marras, Arunark Kolipaka
8:28 AM	Paper No. 0005 Lipid Nanoparticle (LNP) – RNAi Delivery System, a Novel Therapeutic Strategy for Cartilage Diseases Shaowei Wang, Xiaochun Wei, Jingming Zhou, Chongwei Chen, Yang Zhang, Pengcui Li, Guoqing Du, Ge Zhang, Heng Wu, Lei Wei	8:40 AM	Paper No. 0013 Effect of Annulus Fibrosus Collagen Orientation on Intervertebral Disc Torsional Mechanical Behavior Bo Yang, Grace D. O'Connell
8:35 AM	Paper No. 0006 Epidermal Growth Factor Receptor (EGFR) Signaling in Cartilage Prevents Osteoarthritis Progression Haoruo Jia, Xiaoyuan Ma, Basak Doyran, Wei Tong, Xianrong Zhang, Motomi Enomoto-Iwamoto, Lin Han, Ling Qin	8:50 AM	Paper No. 0014 ENucleotomy Alters Internal Strain Distribution of the Human Lumbar Intervertebral Disc Amy A. Claeson, Brent L. Showalter, Edward J. Vresilovic, Alexander C. Wright, James C. Gee, Neil R. Malhotra, Dawn M. Elliott
8:42 AM	Paper No. 0007 WITHDRAWN		
8:49 AM	Paper No. 0008 Cartilage-Specific Knockout of the Mechanosensory Ion Channel TRPV4 Inhibits Age-Related Osteoarthritis Christopher J. O'Connor, Hari Ramalingam, Nicole Zelenski, Halei C. Benefield, Isaura Rigo, Dianne Little, Chia-Lung Wu, Di Chen, Wolfgang Liedtke, Amy L. McNulty, Farshid Guilak		

SATURDAY | POSTER TEASER SESSION 8:00 AM – 9:00 AM

SATURDAY, MARCH 5, 2016

SESSION 3 — POSTER TEASER

Room: Fiesta 5

Moderators Sibylle Grad, PhD and Chris Hernandez, PhD

8:00 AM Paper No. 0015

Nanopiece: A Nontoxic RNA Delivery Vehicle into Articular Cartilage and Joint Tissues
Brandon Vorrius, Hongchuan Yu, Liangran Guo, Wei Lu, Qian Chen, Yupeng Chen

8:20 AM Paper No. 0025

In Vivo Biofilm Has Different Minimum Biofilm Eradication Concentration Than In Vitro Biofilm
Paulo Castaneda, Alexander C. McLaren, Derek Overstreet

8:40 AM Paper No. 0035

Osteogenic And Osteoinductive Potency of Osteophytes – Autologous Bone Graft Source
Kohei Ishihara, Ken Okazaki, Takenori Akiyama, Yukihide Iwamoto

8:02 AM Paper No. 0016

Hypoxia Promotes Stable Chondrocyte Differentiation of Articular Cartilage Progenitor Cells
Devon Anderson, Brandon Markway, Derek Bond, Helen McCarthy, Brian Johnstone

8:22 AM Paper No. 0026

Pathological Changes In Bone and Joints Associated with Chikungunya Virus Infection
Brad A. Goupil, Matthew J. Martin, Christopher N. Mores, Margaret A. McNulty

8:42 AM Paper No. 0036

In Vivo Elongation of the Anterolateral Ligament and Related Extra-Articular Reconstructions
Samuel K. Van de Velde, William A. Kernkamp, Ali Hosseini, Robert F. LaPrade, Ewoud R. Van Arkel, Guoan Li

8:04 AM Paper No. 0017

High Affinity Binding of Matrilin-3 Binds to Epidermal Growth Factor Receptor with High-Affinity and Modulates Downstream Pathway Signaling
Nicholas J. Lemme, Chathuraka Teekshana Jayasuriya, Qian Chen, Brian Johnstone

8:24 AM Paper No. 0027

Post-Flight Recovery from Cervical and Lumbar Paraspinal Muscle Deconditioning Following Long-Term Spaceflight
Robert M. Healey, Jacquelyn A. Holt, Brandon R. Macias, Douglas G. Chang, Alexander J. Snyder, Jeffrey C. Lotz, Alan R. Hargens

8:44 AM Paper No. 0037

Knees Exhibiting High and Low Levels of Rotatory Laxity Exhibit Different Loading Patterns in the Anterior Cruciate and Anterolateral Ligaments
Robert N. Kent, James Boorman-Padgett, Ran Thein, Thomas Wickiewicz, Andrew Pearle, Carl Imhauser

8:06 AM Paper No. 0018

Fiber Formation in Tissue Engineered Meniscus Using Mesenchymal Stem Cells and Fibrochondrocytes
Mary Clare McCorry, Lawrence Bonassar

8:26 AM Paper No. 0028

Advanced Marker-Model Techniques to Salvage Clinical RSA Data
Sara Parashin, Trevor Charles Gascoyne, Thomas Turgeon

8:46 AM Paper No. 0038

The Kinematics of Two Superficial Medial Collateral Ligament Reconstructions with Single-Bundle Anterior Cruciate Ligament Reconstruction
Jiangtao D. Dong, Junjun Zhu, Brandon Marshall, Monica Linde, Patrick Smolinski, Freddie Fu

8:08 AM Paper No. 0019

Creating Nanometer-Resolution, Cell-to-Organ Navigable Maps of the Human Hip
André F. Pereira, Daniel Hageman, Tomasz Garbowski, Christof Riedesel, Ulf Knothe, Dirk Zeidler, Melissa Knothe Tate

8:28 AM Paper No. 0029

Pre-Operative Planning with a Shoulder Biomechanical Model Can Increase the Available Range of Motion in Reverse Shoulder Arthroplasty – a Cadaveric Validation
Andreas Kontaxis, Julien Berhouet, Daniel Choi, Xiang Chen, David Dines, Edward Craig, Russell Warren, Lawrence Gulotta

8:48 AM Paper No. 0039

Which Time Interval Should be Used for Measuring Co-contraction Index for Osteoarthritic Subjects: Stance Phase or Gait Cycle?
Aseel Ghazwan, Cathy A. Holt, Chris Wilson, Gemma M. Whitting

8:10 AM Paper No. 0020

Verification and Validation of an Algorithm for Automatically Generating FE Models of the Lumbar Spine
Julius Q. Campbell, Paul Rullkoetter, Anthony Petrella

8:30 AM Paper No. 0030

The Effect of Neck-Shaft Angle on Joint Loads and Contact Mechanics in Reverse Total Shoulder Arthroplasty
Irfan Abdulla, G. Daniel G. Langohr, George S. Athwal, James A. Johnson

8:50 AM Paper No. 0040

Tension Increases Teriparatide-Induced Bone Formation More Than Compression in the Human Femoral Neck
Amanda M. Rooney, Mathias Bostrom, David W. Dempster, Jeri W. Nieves, Hua Zhou, Marsha Zion, Catherine Roimisher, Yvonne Houle, Felicia Cosman

8:12 AM Paper No. 0021

Axial-Torsion Behavior of Human Lumbar Intervertebral Discs under Physiological Compressive Loads
Semih E. Bezi, Grace D. O'Connell

8:32 AM Paper No. 0031

A Novel Ceramic Coating for Reduced Metal Ion Release in Metal-on-Metal Hip Surgery
Gordon W. Blunn, Roberta Ferro De Godoy, Jay Meswania, Philippa Tyler, Rikin Hargunani, Hannah Wilson, Imran Khan, Melanie J. Coathup

8:52 AM Paper No. 0041

Osteocytes In Vivo Modulate β 3 Integrins And P2x7r in Their Mechanoreceptor Complex in Response to Hindlimb Unloading and Reambulation
Amanda M. Rooney, Mathias Bostrom, Damien Laudier, Robert J. Majeska, Jayant S. Sankaran, Stefan Juxek, Mitchell Schaffler

8:14 AM Paper No. 0022

Small Molecule Diffusion Within Intervertebral Disc After Low Intensity Pulsed Ultrasound (LIPUS) Stimulation
Po-Chao Chen, Po-Chun Yen, Mao-Wei Huang, Chun-Feng Lai, Ya-Cheng Chu, Jaw-Lin Wang

8:34 AM Paper No. 0032

Hip Joint Stresses Due to the Cam Deformity and Femoral Neck-Shaft Angle During Level-Walking
Geoffrey Ng, Giulia Mantovani, Mario Lamontagne, Michel R. Labrosse, Paul E. Beaulé

8:54 AM Paper No. 0042

Are Two Trans-Sacral Screws Necessary for Biomechanical Stabilization of Comminuted Zone II Sacral Fractures? A "Floating Hip Model" Cadaveric Investigation
Ehsan Jazini, Noelle F. Klocke, Oliver Tannous, Herman Johal, John C. Hao, Robert O'Toole, Brandon Bucklen, Steven Ludwig

8:16 AM Paper No. 0023

Canal Volume Changes in Sub-Axial Cervical Spine During In Vivo Dynamic Flexion-Extension
Haiping Mao, Sean Driscoll, Jing-Sheng Li, Guoan Li, Kirkham B. Wood, Thomas D. Cha

8:36 AM Paper No. 0033

A Murine Model of Abductor Insufficiency Accelerates the Development of Hip Osteoarthritis
Michael B. Geary, Caitlin A. Orner, Michael J. Zuscik, Alayna E. Loiselle, Brian Giordano

8:56 AM Paper No. 0043

Bioactivity of Sol-Gel-Derived TiO2 Coating on PEEK: In Vitro and In Vivo Studies
Takayoshi Shimizu, Shunsuke Fujibayashi, Bungo Otsuki, Seiji Yamaguchi, Tomiharu Matsushita, Tadashi Kokubo, Shuichi Matsuda

8:18 AM Paper No. 0024

Vertebral Growth Plate Hypertrophic Zone and Cell Heights in Severe Scoliosis: Comparisons to Human Controls and Quadrupedal Models
Donita I. Bylski-Austrow, Mosep Okonny, David L. Glos, Keith F. Stringer, Eric J. Wall, Alvin H. Crawford


8:38 AM Paper No. 0034

Patellofemoral Thickness Influences Patellar Kinematics and Extensor Efficiency
Sami Shalhoub, Fallon Fitzwater, Chadd Clary, Lorin Maletsky


8:58 AM Paper No. 0044

PTH Partially and Transiently Preserves Mineral Properties and Attenuates Collagen Matrix Damage in Irradiated Bone
Bo Gong, Megan Elizabeth Oest, Karen Esmonde-White, Kenneth A. Mann, Nicholas D. Zimmerman, Timothy A. Damron, Michael D. Morris, Shuichi Matsuda

SATURDAY | SESSIONS 9:45 AM – 10:45 AM | SATURDAY, MARCH 5, 2016

TIME	SESSION 4 Chondroprogenitors and Chondrogenesis	SESSION 5 Biomaterials Bone	SPOTLIGHT SESSION 6 Disc Degeneration and Repair	SESSION 7 Tendon and Ligament: Repair and Regeneration	SESSION 8 Meniscus Mechanics
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5	Fiesta 6
Moderators	Brian Johnstone, PhD and Martin Stoddart, PhD	Ciara Murphy, PhD and Fergal O'Brien, PhD	Benjamin Gantenbein-Ritter, PhD and Rita Kandel, MD	Nathaniel Dymont, PhD and Chang H. Lee, PhD	Lutz Duerksen, PhD and Suzanne Maher, PhD
9:45 AM	Paper No. 0045 TET-Mediated Stable Shmc Deposition, But Not TDG Function, Is Required for Chondrogenic Differentiation Fiorella C. Grandi, Sarah E.B. Taylor, Ye Henry Li, Piera Smeriglio, Wing H. Wong, Nidhi Bhutani	Paper No. 0051 Expansion of Mesenchymal Stem Cells on Nanofibrous Scaffolds Preserves Their "Naïve" Mechanobiologic State Su-Jin Heo, Spencer E. Szczesny, Kamiel S. Saleh, Robert L. Mauck		Paper No. 0060 Genetic Lineage Tracing Reveals Divergent Cellular Mechanisms Between Neonatal and Adult Tendon Healing Kristen Howell, Alice H. Huang	Paper No. 0066 In Vivo Cartilage Strains in Regions of Cartilage-to-Cartilage Contact and Cartilage-to- Meniscus Contact Betty Liu, Nimit K. Lad, Amber T. Collins, Pramodh K. Ganapathy, Gangadhar Utturkar, Amy McNulty, Charles E. Spritzer, Claude T. Moorman, William E. Garrett, Louis E. DeFrate
9:55 AM	Paper No. 0046 RNAseq Reveals a Crucial Long Noncoding RNA as a Regulator of Chondrogenesis of Human Mesenchymal Stem Cells Nguyen P.T. Huynh, Jonathan M. Brunger, Britta Anderson, Audrey McAlinden, Farshid Guilak	Paper No. 0052 Biocompatibility of Bone Allograft Toughened with a Novel Irradiation-Driven Sterilization Method for Large Segmental Defects: An In Vivo Rabbit Study Sam Si-Hyeon Park, Peter Salat, Kate Banks, Thomas Willett, Marc Grynpas	SPOTLIGHT SPEAKER James D. Kang, MD Disc Biology: Pathomechanisms and Potential Therapies for Disc Degeneration	Paper No. 0061 Uncorrelated ECM and Systemic Response to Injury Suggests Tissue-Driven Scarless Tendon Healing in MRL/MpJ David A. Shioyitz, Corey Suraci, Rebecca Bell, Damien Laudier, Nelly Andarawis-Puri	Paper No. 0067 Insight into Meniscus Tie Fiber Function: Disorganized Layers Within an Aligned Fibrous Network Preserve Bulk Mechanics and Promote Strain Reconstitution in the Context of a Radial Tear Sonia Bansal, Feini Qu, Alexander L. Neuwirth, Niobra M. Keah, Spencer E. Szczesny, Robert L. Mauck, Miltiadis H. Zgonis
10:05 AM	Paper No. 0047 Long Noncoding RNAs: Differential Expression During Chondrogenesis in Human Mesenchymal Stem Cells, Osteochondral-Progenitor Cells, and Chondroprogenitor Cells Jing Li, Chathuraka Teekshana Jayasuriya, Qian Chen	Paper No. 0053 Inhibition of Angiogenesis via Click Hydrogel Impairs Bone Healing in Cranial Defects Ilyia Kajan, Sharon L. Hyzy, Devon Mason, Kelsey A. Lawrence, Christopher D. Hermann, David J. Cohen, Rene Olivares-Navarrete, Zvi Schwartz, Barbara D. Boyan		Paper No. 0062 Low-Intensity Pulsed Ultrasound Accelerates Bone-Tendon Junction Healing in a Rabbit Model Hongbin Lu, Jianzhong Hu, Feifei Liu	Paper No. 0068 Site-Specific Variation in the Structural Molecules of Human Meniscus – Relationship with Mechanical Properties Elvis K. Danso, Simo Saarakkala, Juha Töyräs, Rami Korhonen
10:15 AM	Paper No. 0048 Temporal Dynamics of Nascent ECM Production by Chondrocytes and MSCs via Multi-Color Protein Labeling Claire M. McLeod, Robert L. Mauck	Paper No. 0054 Microribbon-Based Hydrogels Induced Robust Osteogenesis of Mesenchymal Stem Cells and Bone Regeneration with Enhanced Mechanical Strength Bogdan Conrad, Li-Hsin Han, Xinming Tong, Zhibin Wang, Fan Yang	Paper No. 0057 Advanced Glycation End-Products Mediates Degeneration and Inflammation of the Intervertebral Disc Adam Abraham, Jennifer W. Liu, Simon Y. Tang	Paper No. 0063 Effect of Mechanical Loading on Matrix Alignment and Tenogenic Differentiation of Adipose- Derived Stem Cells Encapsulated Within a Three-Dimensional Collagen Construct Gayathri Subramanian, Mostafa S. Elsaadany, Eda Yildirim-Ayan	Paper No. 0069 In Vivo Knee Joint Contact Stress in Patients Before and After Meniscal Allograft Transplantation Hongsheng Wang, Russell Warren, Donald Fowler, Matthew F. Koff, Suzanne Maher, Scott Rodeo
10:25 AM	Paper No. 0049 Effects of Dynamic Culture and Periodic Compression on Human Mesenchymal Stem Cell Proliferation and Chondrogenic Differentiation Ting Guo, Li Yu, Casey G. Lim, Addison S. Goodley, Xuan Xiao, Jesse K. Placone, Kimberly M. Ferlin, Bao-Ngoc B. Nguyen, Adam H. Hsieh, John P. Fisher	Paper No. 0055 Osseointegration of EBM Textured and Threaded Implants Through Whole Body Vibration David Ruppert, Ola Harrysson, Denis Marcellin-Little, Laurence Dahners, Paul Weinhold	Paper No. 0058 Annular Repair Using Fibrochondrocytes Seeded in a High Density Collagen Gel: In Vivo Outcome in a Rodent Model Yu Moriguchi, Brandon Borde, Brenton Pennicooke, Connor Berlin, Peter Grunert, Tamina Khair, Lawrence Bonassar, Roger Hatl	Paper No. 0064 Mesenchymal Stromal Cell-Engineered Sheets in Flexor Tendon Repair Hua Shen, Ioannis Korpapakis, Stephen W. Linderman, Shelly Sakiyama-Elbert, Matthew Silva, Richard H. Gelberman, Stavros Thomopoulos	Paper No. 0070 High-Resolution Strain Mapping of the Meniscal Entheses Alexander J. Boys, Corinne R. Henak, Itai Cohen, Lara A. Estroff, Lawrence J. Bonassar
10:35 AM	Paper No. 0050 Establishment and Characterization of Chondroprogenitor and Osteochondral-Progenitor Cell Lines from Human Adult Osteoarthritic Articular Cartilage Chathuraka Teekshana Jayasuriya, Nicholas Lemme, Richard Terek, Qian Chen	Paper No. 0056 The Macrophage Response to a Biological Scaffold Is Not Conducive to Canonical Muscle Tissue Regeneration Amit Aurora, Benjamin Corona, Thomas Walters	Paper No. 0059 Injectable Hyaluronic Acid Down-Regulates Interferon Signaling and Increases the Disc Height in Injured Rat Tail Annulus Fibrosus Zepur Kazezian, Zhen Li, Daisuke Sakai, Mauro Alini, Sibylle Grad, Abhay Pandit	Paper No. 0065 Spatiotemporal Delivery of Multiple Growth Factors in 3D Printed Scaffolds for Engineering Integrated Soft Tissue-to-Bone Interfaces from Stem/ Progenitor Cells Solaiman Tarafder, John A. Brito, Yena Jun, Chang Lee	Paper No. 0071 Meniscal Tissue Modulus in Combination with BMI Significantly Affects Knee Joint Mechanics During Gait Hongqiang Guo, Thomas J. Santner, Po-Hsu Chen, Amy L. Lerner, Suzanne A. Maher

SATURDAY | SESSIONS 12:30 PM – 1:30 PM | SATURDAY, MARCH 5, 2016

TIME	SPOTLIGHT SESSION 9 Aggrecan and Extracellular Matrix	SESSION 10 Bone Tissue Engineering	SESSION 11 Spine Biomechanics	SESSION 12 Tendon Disease Process	SESSION 13 Knee Kinematics and Gait
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5	Fiesta 6
Moderators	Howard Hillstrom, PhD and Shuilang Shi, PhD	Robert Guldberg, PhD and Elizabeth Lobo, PhD	Ruth Ochia, PhD and Grace O'Connell, PhD	Hyun-Min Kim, MD and Li Yue, PhD	Yifei Dai, PhD and Helen Kambic, PhD
12:30 PM	 <p>SPOTLIGHT SPEAKER Peter J. Roughley, PhD The Life of Aggrecan</p>	<p>Paper No. 0075 Organic-Inorganic Macroporous Cryogel Carrier for Bone Tissue Engineering Deepak B. Raina, Riya Dhar, Lars Lidgren, Hanna Isaksson, Magnus Tägil, Ashok Kumar</p>	<p>Paper No. 0081 Spinal Fatigue Strength Gerd Huber, Katrin Nagel, Daniel M. Skrzypiec, Anke Klein, Klaus Püschel, Michael M. Morlock</p>	<p>Paper No. 0087 Sex Differences Are Present in Uninjured Achilles Tendon and Muscle Adam Michael Pades, Benjamin R. Freedman, George Fryhofer, Nabeel Salka, Pankti Bhatt, Louis Soslowsky</p>	<p>Paper No. 0093 In Vivo Characterization of Acute Localized Tibial Cartilage Strains as a Function of Walk Duration Chinmay S. Paranjape, Gangadhar Utturkar, Amber T. Collins, Daniel Schmitt, William E. Garrett, Charles E. Spritzer, Louis E. DeFrate</p>
12:40 PM		<p>Paper No. 0076 Controlled Heparin Microparticle Deposition on Polycaprolactone Nanofiber Meshes for Spatial Control of Bone Morphogenetic Protein-2 (BMP-2) Induced Bone Regeneration Marian H. Hettiaratchi, Catherine Chou, Nicholas Servies, Nikhil Gupta, Johnna S. Temenoff, Todd C. McDevitt, Robert E. Guldberg, Laxminarayanan Krishnan</p>	<p>Paper No. 0082 Reduced Rate of Proximal Junctional Fractures Above Long-Segment Instrumented Constructs Utilizing a Tapered Dose of Bone Cement for Prophylactic Vertebroplasty – A Biomechanical Investigation Anoli Shah, Joseph Zavatsky, Robert McGuire, Hassan Serhan, Amey Kelkar, Manoj Kodigudla, Vijay Goel</p>	<p>Paper No. 0088 Tendon Protease Activity and Humeral Head Cartilage Changes During Supraspinatus Tendon Overuse Akia N. Parks, Jennifer McFaline-Figueroa, Robert Guldberg, Manu O. Platt, Johnna S. Temenoff</p>	<p>Paper No. 0094 Effect of Injury Prevention Training Program on Kinematics of Drop Jump Tasks: Evaluation with Landing Error Scoring System and Three-Dimensional Kinematic Analysis Takatoshi Morooka, Hiroshi Nakayama, Kaori Kashiwa, Makiko Okuno, Shunichiro Kambara, Tomoya Iseki, Takeo Nagura, Shinichi Yoshiya</p>
12:50 PM		<p>Paper No. 0077 Local Co-Application of Zoledronate Has Efficacy for Long-Term Maintenance of New Bone Formation Induced by Bone Morphogenetic Protein 2 Koichi Ichikawa, Yoichi Ohta, Kenji Mamoto, Shigekazu Mizokawa, Yukihide Minoda, Yuuki Imai, Kunio Takaoka, Hiroaki Nakamura</p>	<p>Paper No. 0083 Validating a Patient-Specific Normal Sagittal Spinal Contour Prediction Model – How to Know What “Normal” Sagittal Spinal Alignment Is for Each Patient Peter O. Newton, Fredrick G. Reighard, Tracey Bastrom, Joshua D. Doan, Christine L. Farnsworth</p>	<p>Paper No. 0089 HMGB1 Induces Sterile Inflammation in Rodent Tendons Subject to Excessive Mechanical Loading Guangyi Zhao, Yiqin Zhou, James Wang</p>	<p>Paper No. 0095 High-Flexion Lunging and Sit-to-Stand In-Vivo Knee Kinematics Analysis in Patients with Bi-Cruciate Retaining Total Knee Arthroplasty Tsung-Yuan Tsai, Jing-Sheng Li, Dimitris Dimitriou, Ali Hosseini, Ming Han Lincoln Liow, Guoan Li, Young-Min Kwon</p>
1:00 PM	<p>Paper No. 0072 Hyperspectral Raman Imaging as a Novel Tool for Quantifying the Distribution of Biochemical Constituents in Native and Engineered Cartilage Michael B. Albro, Mads S. Bergholt, Jean-Philippe St-Pierre, Hannah Zlotnick, Alvaro Medina Rivas, Molly M. Stevens</p>	<p>Paper No. 0078 In Vivo Imaging Revascularization of Autologous and Allogeneic Bone Grafts via Multiphoton Laser Scanning Microscopy Xinping Zhang, Tao Wang</p>	<p>Paper No. 0084 Long-Duration Spaceflight Affects Passive and Active Lumbar Stabilization and Health: An Imaging Study on NASA Crew Jeannie F. Bailey, Stephanie L. Miller, Robert Healey, Debra G. Coughlin, Alan R. Hargens, Jeffrey C. Lotz</p>	<p>Paper No. 0090 Effect of High Glucose Condition on Rat Tenocytes and Achilles Tendon Yasuhiro Ueda, Atsuyuki Inui, Takeshi Kokubu, Yutaka Mifune, Ryosuke Sakata, Yoshifumi Harada, Fumiaki Takase, Takeshi Kataoka, Masahiro Kurosaka</p>	<p>Paper No. 0096 Anterior Cruciate Ligament Elongation During Gait and Running Is Influenced by Force More Than Knee Flexion Angle Yuichiro Nishizawa, Eric Thorauer, James J. Irrgang, Freddie H. Fu, Scott Tashman</p>
1:10 PM	<p>Paper No. 0073 Collagen Self-Assembly Is Modulated by Biomimetic Proteoglycans Kathryn Wofford, Tao Yang, Parm Kaur, Carli Moorehead, Joseph Sincavage, Katsiaryna Prudnikova, Adrian Shieh, Michele Marcolongo</p>	<p>Paper No. 0079 Effects of Platelet-Derived Growth Factor and Dynamic Culture on Endothelial Cell Vascularization of Engineered Bone Tissue Bao-Ngoc B. Nguyen, Julie M. Etheridge, Rebecca A. Moriarty, Timur B. Kamaliddinov, John P. Fisher</p>	<p>Paper No. 0085 Vertebral Level- and Gender-Related Growth of the Pediatric Lumbar Spine James Peters, Sanjana Narayanan, Sriram Balasubramanian</p>	<p>Paper No. 0091 A Murine Model of Type II Diabetes Mellitus Compromises Biomechanics and Gliding Function of Flexor Tendons Melissa Glasner, Alayna Loisel</p>	<p>Paper No. 0097 Determination of Knee Contact Centers and Contact Forces During Gait: Evaluation of Existing Techniques H. Marouane, A. Shirazi-Adl, Malek Adouni</p>
1:20 PM	<p>Paper No. 0074 TGFβ1 Blocks Chondrocyte Hypertrophy and Increases Cell Viability in Cultured Cartilage Explants but Does Not Protect Against Proteoglycan Loss Arjan P. Van Caam, Wojciech Madej, Henk M. Van Beuningen, Esmeralda N. Blaney Davidson, Peter M. Van der Kraan</p>	<p>Paper No. 0080 A NanoComposite Scaffold for Bone Tissue Engineering Treena Arinze, Svetlana Schussler, Sangeeta Subramanian, Sheldon Lin</p>	<p>Paper No. 0086 Dimensional Changes of the Neuroforamen in Sub-Axial Cervical Spine During In Vivo Dynamic Flexion-Extension Haiping Mao, Sean Driscoll, Jing-Sheng Li, Weiye Zhong, Guoan Li, Kirkham B. Wood, Thomas D. Cha</p>	<p>Paper No. 0092 Human Muscle Architectural Adaptations After Rotator Cuff Tendon Tears and Repairs Michael C. Gibbons, Eugene J. Sato, Damien Bachasson, Timothy T. Cheng, Hassan Azimi, Simon Schenk, Adam J. Engler, Anshuman Singh, Samuel R. Ward</p>	<p>Paper No. 0098 Differences in Total-Knee-Arthroplasty Joint Kinematics During Treadmill and Overground Walking Revealed by Mobile Biplane X-ray Imaging Marcus G. Pandey, Shanyuan Guan, Anthony G. Schache, Julian Feller, Richard De Steiger, Hans A. Gray</p>

SATURDAY | SESSIONS 1:45 PM – 2:45 PM | SATURDAY, MARCH 5, 2016

TIME	SESSION 14 Joint Repair and Gene Therapy	SESSION 15 Fracture Healing Biology: Innovative Therapies	SESSION 16 Scoliosis	SPOTLIGHT SESSION 17 Tendon and Ligament: Mechanics
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5
Moderators	Cecilia Pascual-Garrido, MD and Gun-Il Im, MD	Bryan Margulies, PhD and Kevin McHugh, PhD	David Nuckley, PhD and Jaw-Lin Wang, PhD	Sebastian Kopf, MD and Jason Shearn, PhD
1:45 PM	Paper No. 0099 Anatomically-Shaped Tissue-Engineered Cartilage with Tunable And Inducible Anti-Cytokine Delivery for Biological Joint Resurfacing Franklin Moutos, Katherine A. Glass, Sarah Compton, Alison Ross, Charles Gersbach, Farshid Guilak, Bradley Estes	Paper No. 0105 The Effects of Systemic Hedgehog Pathway Activation on Fracture Healing Jennifer A. McKenzie, Evan G. Buettmann, Matthew J. Silva, Michael J. Gardner	Paper No. 0111 Abnormal Trabecular Plate and Rod Structure in Adolescent Idiopathic Scoliosis – a Study with Individual Trabecula Segmentation (ITS) Ka Yee Cheuk, Ji Wang, Fiona W.P. Yu, Wayne Y.W. Lee, Tsz Ping Lam, X. Edward Guo, Jack C.Y. Cheng	
1:55 PM	Paper No. 0100 scAAV1-1ra Gene Therapy in an Equine Osteochondral Fragment Model of Osteoarthritis Laurie R. Goodrich, Joshua C. Grieger, Jennifer N. Phillips, Natasha Werpy, Virginia Krauss, C. Wayne McIlwraith, R. Jude Samulski, David D. Frisbie	Paper No. 0106 Atrophic Nonunion Tissue Contains Stromal Cells with Potential to Perform Ossification In Vitro and In Vivo Frederico C. Vallim	Paper No. 0112 Vertebral Asymmetry Correction in Lenke-types 1, 2 and 5 Two Years Following Spinal Fusion Surgery James Peters, Melissa Morgano, Robert Ryan, Sriram Balasubramanian	SPOTLIGHT SPEAKER Jeffrey A. Weiss, PhD Structure of Ligaments and Tendons and Implications for Load Transfer, Damage and Failure Structure of Ligaments and Tendons and Implications for Load Transfer, Damage and Failure
2:05 PM	Paper No. 0101 Hyalgan Modulates Cell Homing in Cartilage and Promotes Synovial Healing in a Rabbit Model of Osteoarthritis Giovanna Desando, Isabella Bartolotti, Carola Cavallo, Antonella Schiavinato, Elizaveta Kon, Giuseppe Filardo, Brunella Grigolo	Paper No. 0107 Impaired Inflammatory Responses in Ovariectomy-Induced Osteoporotic Fracture in a Rat Model Simon K.H. Chow, Ning Tang, Wing Hoi Cheung, Kwok Sui Leung	Paper No. 0113 Spine Growth Modulation by Titanium Clip-Screw Device: Two Year Results Eric J. Wall, Joseph E. Reynolds, Viral V. Jain, Donita I. Bylski-Austrow, George H. Thompson, Paul J. Samuels, Sean J. Barnett, Alvin H. Crawford	
2:15 PM	Paper No. 0102 Osteochondral Regeneration by Novel Injectable Smart Chitosan Hydrogel with Endothelial Progenitor Cell, Adipose Synovium Cell and Platelet-Rich Plasma in an Animal Model Po-han Chu, Tzu-Hsiang Lin, Meng-Chian Wu, Horng-Chaung Hsu, Ming-Long Yeh	Paper No. 0108 Designer Chimeric BMPs Optimized for Efficacy in Humans Stephen Berasi, Christopher Brown, Eric Vanderploeg, Christopher Wilson, Robert Martinez, John Wozney, Howard Seeherman	Paper No. 0114 Costo-Vertebral Tethers as an Alternate for the Fusionless Treatment of Pediatric Scoliosis: Does It Work? Carl-Éric Aubin, Julien Clin, Jeremy J. Rawlinson	Paper No. 0117 Aggressive Rehabilitation with Non-surgical Treatment Demonstrates Improved Fatigue Mechanics and Functional Outcomes Following Achilles Tendon Rupture in an Animal Model Benjamin R. Freedman, Tyler Morris, Courtney Nuss, Corinne N. Riggins, Nabeel Salka, Joshua Gordon, Arica Shen, Daniel Farber, Louis Soslowsky
2:25 PM	Paper No. 0103 Comparison of Hydroxyapatite and Beta-Tricalcium Phosphate for Osteochondral Repair Using the Hybrid Implant of Artificial Bone with a Scaffold-Free Tissue Engineered Construct Derived from Mesenchymal Stem Cells Kazunori Shimomura, Yu Moriguchi, Wataru Ando, Ryosuke Nansai, Hiromichi Fujie, Shuji Horibe, Hideki Yoshikawa, Norimasa Nakamura	Paper No. 0109 Influence of Mast Cells on Fracture Healing in Mice Jochen S. Kroner, Anna Kovtun, Joanna Messmann, Gudrun Strauss, Sebastian Seitz, Thorsten Schinke, Anne Dudeck, Anita Ignatius	Paper No. 0115 Differential Proteome Analysis of Serums from Adolescent Idiopathic Scoliosis Patients Hirotaki Makino, Shoji Seki, Yoshiharu Kawaguchi, Makiko Nogami, Yasuhito Yahara, Kenta Watanabe, Tomoatsu Kimura	Paper No. 0118 NIR Spectroscopic Assessment of Ligament Composition Provides Insight into Regional Differences in Mechanical Properties Mugdha V. Padalkar, Snehal S. Shetye, Michael Hast, Louis J. Soslowsky, Nancy Pleshko
2:35 PM	Paper No. 0104 Directed Osteogenesis and Chondrogenesis in a Multi-Layered Osteochondral Scaffold Facilitates Joint Regeneration in a Goat Model Using Both Cell-Free and Cell-Seeded Approaches Tanya J. Levingstone, Conor Moran, Robert T. Brady, Pieter A.J. Brama, Daniel Kelly, John M. O'Byrne, Fergal J. O'Brien	Paper No. 0110 Polarized Macrophages Transiently Inhibit Mesenchymal Stem Cell Differentiation Early in Osteogenesis Laura Y. Lu, Florence Loi, Luis Cordova, Emmanuel Gibon, Akira Nabeshima, Tzu-hua Lin, Zhenyu Yao, Stuart B. Goodman	Paper No. 0116 Effect of Melatonin on the Chondrogenic Differentiation In Vitro Hironori Tanabe, Ken Kumagai, Yoichi Aota, Sousuke Imai, Yasuteru Yamaguchi, Tomoyuki Saito	Paper No. 0119 The Contribution of Elastin to the Region-Specific Multiscale Mechanics of Human Supraspinatus Tendon in Shear Fei Fang, Spencer Park Lake

NIRA PRESENTATION SESSION 18 Cartilage and Joint Mechanics
Fiesta 6

Mathew T. Mathew, PhD and Brian Snyder, MD, PhD

1:45 PM
Paper No. 0120
In Vivo 3D Measurement of Time-Dependent Human Knee Joint Compression and Cartilage Strain During Static Weight-Bearing
Jang-Hwan Choi, Emily J. McWalter, Sanjit Datta, Kerstin Mueller, Andreas Maier, Garry Gold, Marc Levenston, Rebecca Fahrig

1:52 PM
Paper No. 0121
Assessment of Stiffness in Intact Human Cartilage Using Contrast-Enhanced Computed Tomography (CECT)
Reza Nickmanesh, Rachel Stewart, Brian Snyder, Mark Grinstaff, David Wilson

1:59 PM
Paper No. 0122
Higher Step Frequency and More Steps Down in Unicompartmental vs. Total Knee Arthroplasty Patients Measured with Wearable Activity Monitors
Maikel Moonen, Matthijs Lipperts, Ide C. Heyligers, Bernd Grimm

2:06 PM
Paper No. 0123
Is the Hip a Ball-and-Socket Joint? Dynamic Dual Fluoroscopy Tests the Validity of an Age-Old Paradigm
Niccolo M. Fiorentino, Penny R. Atkins, Michael J. Kutschke, Kenneth B. Foreman, Ashley L. Kapron, Andrew E. Anderson

2:13 PM
Paper No. 0124
In-Vivo Elongation of Anterior and Posterior Cruciate Ligament in Patients with Bi-Cruciate Retaining Total Knee Arthroplasty During Sit-to-Stand
Tsung-Yuan Tsai, Jing-Sheng Li, Ali Hosseini, Ming Han Lincoln Liow, Guoan Li, Young-Min Kwon

2:20 PM
Paper No. 0125
Effects of Ligament Remnant Tissue Preservation on the Tendon Graft After Anterior Cruciate Ligament Reconstruction: Biomechanical and Immunohistological Evaluations with a Sheep Model
Tsuneaki Takahashi, Eiji Kondo, Yasuyuki Kawaguchi, Jun Onodera, Shin Miyatake, Norimasa Iwasaki, Kazunori Yasuda

2:27 PM
Paper No. 0126
In-Situ Forces in the Anterolateral Capsule Resulting from a Simulated Pivot Shift Test
Kevin M. Bell, Ata A. Rahnama-Azar, Sebastian Iranrazaval, Daniel Guenther, Freddie H. Fu, Volker Musahl, Richard E. Debski

2:35 PM
Paper No. 0127
Effect of Hypercholesterolemia on Fatty Infiltration and Healing in a Rabbit Model of a Chronic Rotator Cuff Tear
Joo Han Oh, Seok Won Chung, HaeBong Park, Jieun Kwon, Jong Pil Yoon, Ghee Young Choe

SATURDAY | SESSIONS 3:00 PM – 4:00 PM | SATURDAY, MARCH 5, 2016

TIME	SESSION 19 Post-Traumatic Osteoarthritis	SESSION 20 Bone Regeneration for Fracture Repair	SESSION 21 Spine Peripheral Nerve and Spinal Cord Injury	SESSION 22 Tendon and Ligament: Repair and Imaging	SESSION 23 Meniscus Healing
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5	Fiesta 6
Moderators	Dominik Haudenschild, PhD and Margaret McNulty, PhD	Christopher Evans, PhD and Sophie Verrier, PhD	Anita Signh, PhD and Beth Winkelstein, PhD	Scott Rodeo, MD and Hua Shen, PhD	James Cook, DVM, PhD and Lin Han, PhD
3:00 PM	Paper No. 0128 Real-Time In Situ Quantification and Localization of MMP-13 mRNA Expression in Mouse Knee Joints Revealed Two Distinctive Stages of Post-Traumatic Osteoarthritis Pathogenesis Hongchuan Yu, Yupeng Chen, Brandon Vorrius, Qian Chen	Paper No. 0134 Oct4 and Sox2 Expressing Chondrocytes Give Rise to Bone and Bone Lining Cells During Fracture Healing Diane P. Hu, Frank Yang, Theodore Mclau, Ralph Marcucio, Chelsea S. Bahney	Paper No. 0140 Lentivirus-Mediated PGC-1α Overexpression Protects Against Contusive Spinal Cord Injury Hongbin Lu, Jianzhong Hu, Ye Lang, Yong Cao	Paper No. 0146 Pre-Exercise Enhances Wound Healing in Aging Rat Tendons via TSC and Senescence-Related Mechanisms Jianying Zhang, Ting Yuan, Yiqin Zhou, Manoj Narava, James Wang	Paper No. 0152 Formation and Maturation of the Murine Meniscus Laura Gamer, Lin Xiang, Qing Li, Lin Han, Vicki Rosen
3:10 PM	Paper No. 0129 Alpha 5 Integrin Mediates Osteoarthritic Changes in Mouse Knee Joints Maria E. Candela, Chao Wang, Aruni T. Gunawardena, Kairui Zhang, Leslie Cantley, Ling Qin, Lin Han, Motomi Enomoto-Iwamoto	Paper No. 0135 Mechanical Regulation of Stem Cell-Mediated Endochondral Bone Defect Regeneration Anna McDermott, Samuel Herberg, Devon Mason, Eben Alsberg, Joel Boerckel	Paper No. 0141 Acute Hyperglycemia Is a Preventable Risk Factor for Spinal Cord Injury – Translational Research from Animals to Humans Kazu Kobayakawa, Seiji Okada, Kensuke Kubota, Kazuya Yokota, Yasuyuki Ohkawa, Saito Takeyuki, Masamitsu Hara, Ken Kijima, Ryosuke Ideta, Keiichiro Shiba, Yukihide Iwamoto	Paper No. 0147 Nanoparticle-Mediated Gene Silencing of Serpine1 Increases Protease Activity in Injured Mouse Flexor Tendons Margaret A.T. Freeberg, Dominic Malcolm, Anas Easa, John C. Elfar, Danielle S.W. Benoit, Hani Awad	Paper No. 0153 Matrix Degradation Enhances Cell Mobility in Dense Connective Tissues Feini Qu, Miltiadis H. Zgonis, John L. Esterhai, Robert L. Mauck
3:20 PM	Paper No. 0130 The Effect of Inhibitors of Brd4 and CDK9 on Post-Traumatic Osteoarthritis Tomoaki Fukui, Jasper Yik, Jack Davis, Iannis E. Adamopoulos, Dominik R. Haudenschild	Paper No. 0136 Combination Therapy with BMP-2 and a Systemic RANKL Inhibitor Enhances Bone Healing In a Mouse Critical-Sized Femoral Defect Sofia Bougiouklis, Ashish Jain, Osamu Sugiyama, Brian A. Tinsley, Amy Tang, Matthew H. Tan, Douglas J. Adams, Paul J. Kostenuik, Jay Lieberman	Paper No. 0142 Degenerative IVDs Sensitize Sensory Neurons to Heat Stimuli via IL-6/AKAP/TRPV1 Pathway Joshua D. Stover, Brandon Lawrence, Robby D. Bowles	Paper No. 0148 Injured Tendons Increase Lactate Synthesis and Pharmacological Inhibition of Lactate Synthesis Improves Tendon Repair Motomi Enomoto-Iwamoto, Kairui Zhang, Michael W. Hast, Leslie Cantley, Masahiro Iwamoto, Louis Soslowsky	Paper No. 0154 Seamless Healing of Avascular Meniscus Tears by Stem Cell Recruitment Solaiman Tarafder, Hamdi T. Yener, Elif Candas, Chang H. Lee
3:30 PM	Paper No. 0131 The Effect of Conditional Macrophage Depletion on the Development of Injury-Induced Knee OA in Obese Transgenic MAFIA Mice Chia-Lung Wu, Jenna McNeill, Kelsey Goon, Dianne Little, Kelly A. Kimmerling, Janet Huebner, Virginia B. Kraus, Farshid Guilak	Paper No. 0137 Endochondral Priming Enhances the Angiogenic and Mineralisation Potential of MSC Aggregates Implanted In Vivo Fiona E. Freeman, Ashley Allen, Hazel Y. Stevens, Robert E. Goldberg, Laoise M. McNamara	Paper No. 0143 Evaluation of Alloteneic Immunological Response in Human IPS Cell-Derived Neural Stem/Progenitor Cells Transplantation Therapy for Spinal Cord Injury Using Mixed Lymphocyte Reaction Masahiro Ozaki, Akio Iwanami, Jun Kohyama, Go Itakura, Hiroki Iwai, Morio Matsumoto, Hideyuki Okano, Masaya Nakamura	Paper No. 0149 Anterior Cruciate Ligament Reconstruction with a New Cell-Free Biodegradable Synthetic Artificial Ligament in a Rat Model Yohei Kawakami, Makoto Kobayashi, Kazuhiro Nonaka, Antonio D'Amore, Tomoyuki Matsumoto, James H. Cummins, Ryosuke Kuroda, Masahiro Kurosaka, William R. Wagner, Freddie H. Fu, Johnny Huard	Paper No. 0155 Characterization of Meniscus-Derived Matrix and Evaluation for Repair of the Meniscus Jacob C. Ruprecht, Taylor D. Waanders, Christopher R. Rowland, Katherine A. Glass, J. Brice Weinberg, Farshid Guilak, Amy L. McNulty
3:40 PM	Paper No. 0132 Atsttrin, an Engineered Protein Derived from Progranulin Growth Factor, Is Therapeutic in Osteoarthritis Jianlu Wei, Brendon Richbourgh, Qingyun Tian, Chuanju Liu	Paper No. 0138 Altered Expression of SDF-1 and CXCR4 During Fracture Healing in Diabetes Mellitus Michio Arakura, Sang Yang Lee, Takahiro Niikura, Takashi Iwakura, Takahiro Waki, Shunsuke Takahara, Masahiro Kurosaka	Paper No. 0144 Dose-Dependent Nerve Inflammatory Response to rhBMP-2 in a Novel Rodent Spinal Nerve Model Glen Z.Q. Liao, Raymond W.M. Lam, Tao Hu, Tuo Soo Yeh, Hee-Kit Wong	Paper No. 0150 In Vivo Ultrasound Elasticity Imaging Differentiates Healthy from Diseased Tendons L. Daniel Latt, Liang Gao, Mihra S. Taljanovic, John A. Szivek, Jorge D. Guerra, Jacob A. Klewer, Russell S. Witte	Paper No. 0156 Local Administration of Simvastatin Stimulates Avascular Meniscal Healing in a Rabbit Meniscal Defect Model Shurong Zhang, Takehiko Matsushita, Ryosuke Kuroda, Kyohei Nishida, Tokio Matsuzaki, Tomoyuki Matsumoto, Koji Takayama, Kanto Nagai, Shinya Oka, Kouki Nagamune, Shougo Kawaguchi, Yasuhiko Tabata, Masahiro Kurosaka
3:50 PM	Paper No. 0133 Potential Trade-Off Between Pain Reduction and Instability-Induced Osteoarthritis Pathology in Trpa1-Deficient Mice Erika Barboza, Joanna Hudson, Tyler Grubb, Timothy Griffin	Paper No. 0139 Syndecan-1 Deficient Bone Cells Show an Impaired Molecular Communication Leading to Alteration in Callus Remodeling During Fracture Healing Melanie Timmen, Heriburg Hidding, Thomas Pap, Martin Goette, Michael Raschke, Richard Stange	Paper No. 0145 Axonal Regeneration and Hindlimb-Functional Recovery by Transplantation of Bone Marrow Mesenchymal Stromal Cell Sheet After Completely Transected Spinal Cord Injury In Rats Akinori Okuda, Noriko Hayashi-Horri, Hideki Shigematsu, Eiichiro Iwata, Takamasa Shimizu, Yasuhiko Morimoto, Keisuke Masuda, Manabu Akahane, Mayumi Nishi, Yasuhito Tanaka	Paper No. 0151 Comparison of MRI vs. Ultrasound for Gap Assessment After Flexor Tendon Repair: A Cadaveric Study Patricia Drace, Kevin Renfree, Karan Patel, Mark Kransdorf, Nirvikar Dahiya, Ryan McLemore	Paper No. 0157 Distribution of Macrophages and α-Smooth Muscle Actin+ Cells During Meniscal Healing in a Rat Parabolic Model Shozaburo Terai, Yusuke Hashimoto, Shinya Yamasaki, Takanori Teraoka, Yohei Nishida, Hiroaki Nakamura

SUNDAY | MEETING HIGHLIGHTS | SUNDAY, MARCH 6, 2016

6:00 AM – 8:00 AM

RESEARCH INTEREST GROUP:

Growth Factors

Coronado M–Q

8:00 AM – 9:00 AM

NIRA PRESENTATIONS:

Tendon and Intervertebral Disc

Fiesta 6

8:00 AM – 9:30 AM

WORKSHOPS:

Building Better Bone: The Weaving of Biologic and Engineering Strategies for Managing Bone Loss

Coronado H–J

Strategies to Improve Total Knee Arthroplasty

Fiesta 5

How to Accelerate Basic Discoveries to Patient Benefit

Coronado L

PROFESSIONAL ADVANCEMENT

SESSION: Healthcare Economics in Orthopaedics—What You Need to Know

Coronado K

8:00 AM – 11:30 AM

ORS/OREF BASIC SCIENCE COURSE PART II

Monterrey 1–3

9:00 AM – 6:30 PM

INNOVATION CENTRAL OPEN

Veracruz Exhibit Hall

10:00 AM – 11:00 AM

SPOTLIGHT SESSION:

Rotator Cuff Disease

Coronado H–J

SESSIONS:

Bone Progenitors and Fracture Healing

Coronado K

Spine Therapeutics Clinical

Coronado L

Clinical Outcomes in Total Joint Replacement

Fiesta 5

Knee Diseases and Repair

Fiesta 6

10:00 AM – 2:30 PM

ORS CLINICAL RESEARCH FORUM:

Clinical Trials from Early Stage to Large Datasets and Fundamental Challenges

Durango 1–2

11:15 AM – 12:15 PM

SPOTLIGHT SESSION:

Joint Arthroplasty and Implant Wear

Coronado H–J

NIRA PRESENTATIONS:

Bone Repair and Trauma

Fiesta 6

SESSIONS:

Bone Mechanobiology and Biomechanics

Coronado K

Disc Tissue Engineering

Coronado L

Hip Disease Processes

Fiesta 5

12:30 PM – 1:00 PM

INNOVATION THEATER:

AMTI

Innovation Central

12:30 PM – 1:30 PM

NETWORKING AND MENTORING

SESSION: Successfully Competing for a Faculty Position

Coronado K

1:00 PM – 2:00 PM

POSTER VIEWING (Poster Session I)

Innovation Central

1:15 PM – 1:30 PM

INNOVATION THEATER:

Glenbrook Technologies

Innovation Central

2:15 PM – 3:15 PM

SESSIONS:

Osteoarthritis Treatment:

Basic Science

Coronado H–J

Foot and Ankle

Coronado L

Trauma Pathophysiology

Fiesta 5

Knee: Computational Modeling

Fiesta 6

3:30 PM – 5:00 PM

ORS Excellence in Orthopaedics

Awards Session

Coronado H–J

5:00 PM – 6:30 PM

POSTER RECEPTION (Poster Session I),

Authors will be at posters.

Innovation Central

6:00 PM – 6:30 PM

TECHNIQUES WORKSHOP:

Bone Histomorphometry

Innovation Central/Veracruz Exhibit Hall

7:30 PM – 10:00 PM

ORS AWARDS GALA

The Atlantic Dance Hall at Disney's BoardWalk

SUNDAY | PROGRAM DETAILS | SUNDAY, MARCH 6, 2016

6:00 AM – 8:00 AM

RESEARCH INTEREST GROUP:

Growth Factors

Coronado M–Q

ORGANIZERS: Daniel Grande, PhD, Feinstein Institute for Medical Research; Henning Madry, MD, Saarland University

OBJECTIVES: The Growth Factors Research Interest Group is designed to disseminate the latest advances in growth factor research and its role in the study of musculoskeletal tissues. The meeting is open to all scientists and clinicians with an interest in repair, regeneration, and development of these tissues.

8:00 AM – 9:30 AM

WORKSHOPS:

Building Better Bone: The Weaving of Biologic and Engineering Strategies for Managing Bone Loss

Coronado H–J

Collaboration of the ORS and OTA

Organizers: Jaimo Ahn, MD, PhD, University of Pennsylvania; Mara L. Schenker, MD, Emory University

Segmental bone loss remains a difficult clinical problem for orthopaedic trauma surgeons. Current treatment strategies include autograft, allograft, bone graft substitution, biologics, vascularized bone grafting, Masquelet technique, and bone transport. Significant research effort has been made towards engineering strategies for bone graft substitution, including strategies with biologic drug delivery options. This workshop will describe the clinical need for augmenting bone loss, either with biologics or with engineered strategies. Further, this workshop will delineate the currently available clinical techniques, as well as the future directions, with an emphasis on engineering strategies that take advantage of our biologic understanding of bone.

Bone Graft and Bone Graft Substitutes

Mara L. Schenker, MD, Emory University

Current Surgical Treatment of Massive Bone Loss: Masquelet and Transport

Jaimo Ahn, MD, PhD, University of Pennsylvania

Engineering Solutions: State-of-the Art and Future Directions

Nick Willett, PhD, Emory University

Strategies to Improve Total Knee Arthroplasty

Fiesta 5

Collaboration of the ORS and Knee Society

ORGANIZERS: Thomas P. Vail, MD, University of California San Francisco; Kevin L. Garvin, MD, University of Nebraska Medical Center

Total knee arthroplasty is a very common and fast growing part of orthopaedic practice. Due to the associated costs and frequency of total knee procedures in the United States, there is a high priority placed upon optimization of outcome, minimizing complications, and assessing performance. Three areas of focus have been identified as having both a clinical priority and high degree of relevance to orthopaedic research: performance measures and outcome, peri-prosthetic infection, and optimization of surgical technique.

Performance Measures, Outcomes, and Value Creation in Total Knee Arthroplasty

Kevin Bozic, MD, University of Texas at Austin

The Latest Advancements in Technique for Performing Total Knee Arthroplasty

Thomas P. Vail, MD, University of California San Francisco

Epidemiology, Diagnosis, and Treatment of Periprosthetic Infection

Kevin L. Garvin, MD, University of Nebraska Medical Center

SUNDAY | PROGRAM DETAILS | SUNDAY, MARCH 6, 2016

How to Accelerate Basic Discoveries to Patient Benefit

Coronado L

ORGANIZERS: Jeffrey C. Lotz, PhD, University of California at San Francisco; Vijay K. Goel, PhD, University of Toledo

There is an implicit expectation that advancements in biomedical research will lengthen and improve the quality of life. This premise underlies investments in basic research that continue to yield important advances. However, the clinical translation of new discoveries is often impeded by a number of trans-disciplinary obstacles. On the academic side, traditional funding and promotion mechanisms encourage scientists to continually push the frontiers of basic science, rather than refine existing concepts along a translational track. From a clinical perspective, many new technologies are not sufficiently aligned with specific clinical indications, and lack validation in appropriate pre-clinical models. Also, academic scientists and clinicians often lack expertise and the clear roadmap necessary to bring medical products to market. On the industry side, product development and clinical trials represent a significant financial burden, requiring that products not only be therapeutically effective but also commercially successful. This necessitates addressing specific unmet needs with high potential for regulatory approval, clinical adoption, and payer reimbursement. Taken together, these factors limit the opportunities for patients to experience the life-enhancing benefits of many basic discoveries that are never developed into products that can be brought to market. This workshop will discuss the opportunities and roadblocks associated with translating basic discoveries to clinical benefit. Presentations will be followed by a panel discussion with audience participation.

AAOS Research Priorities

Tamara Alliston, PhD, University of California San Francisco

Measuring Value in the Management of Musculoskeletal Disorders

Sigurd Berven, University of California San Francisco

Industry Perspective on New Technology Selection and Investment

Hassan Serhan, Depuy Synthes Spine

NIH Initiatives to Accelerate Discoveries to Clinical Trials

Joan McGowan, PhD, NIAMS/NIH, DHHS-Musculoskeletal Diseases Branch

PROFESSIONAL ADVANCEMENT SESSION: Healthcare Economics in Orthopaedics— What You Need to Know*

Coronado K

Organized by the ORS Industry Engagement Committee

ORGANIZERS: Michael Ominsky, PhD, Amgen, Inc.; Sally LiArno, PhD, Stryker Orthopaedics

The development of any new orthopaedic implant or therapeutic is dependent on eventual reimbursement to the company for its use. Therefore understanding at an early stage the scope of the unmet medical need that the product is targeting and its potential value to patients, physicians, and insurance/payers is critical. Similarly, the economic impacts of disease drive both basic and translational research in academic settings and are an important component of grant funding. Despite its importance, orthopaedic researchers and physicians are rarely exposed to the ways in which healthcare economics are examined and applied to develop new products or drive new areas of research. The goal of this workshop is to educate the audience on what healthcare economics means within orthopaedics, and provide examples of how it is applied to stimulate new areas of research.

The Burden of Musculoskeletal Disease and the Change in Reimbursement from Volume to Value

Stuart Weinstein, MD, University of Iowa Medical Center

Data Overload: Resources for Evaluating Utilization, Outcomes, and Costs

Kevin Ong, Exponent, Inc.

Value Based Healthcare from Theory to Practice

Bipin Mistry, MD, MBA, Harvard Business School

*This session does not qualify for CME credit

SUNDAY | PROGRAM DETAILS | SUNDAY, MARCH 6, 2016

8:00 AM – 11:30 AM

ORS/OREF BASIC SCIENCE COURSE, PART II

Monterrey 1–3

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

All fees include *Orthopaedic Basic Science: Foundations of Clinical Practice* textbook

ORGANIZERS: Richard L. Lieber, PhD, Rehabilitation Institute of Chicago; Marjolein C. van der Meulen, PhD, Cornell University; 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.

MUSCULOSKELETAL PATHOPHYSIOLOGY

Tissue Engineering in Orthopaedics

Robert Sah, MD, ScD, University of California San Diego

Bone Injury, Regeneration and Repair

Ralph Marcucio, PhD, University of CA, San Francisco

Molecular Basis of Cancer

R. Lor Randall, MD, University of Utah, Huntsman Cancer Institute

Orthopaedic Infections

Joseph C. Wenke, PhD, US Army Institute of Surgical Research

Inflammation in the Musculoskeletal System

Regis J. O'Keefe, MD, Washington University in St. Louis

Osteoporosis/Metabolic Bone

Susan V. Bukata, MD, University of CA, Los Angeles

Post-Traumatic Osteoarthritis

William Bugbee, MD, Scripps Clinic

Implant Wear and Inflammatory Response

Darryl D. D'Lima, MD, PhD, Scripps Clinic

Thromboembolic Disease and Fat Embolism Syndrome

Vincent D. Pellegrini, Jr., MD, Medical University of South Carolina

10:00 AM – 2:30 PM

ORS CLINICAL RESEARCH FORUM:

Clinical Trials from Early Stage to Large Datasets and Fundamental Challenges

Durango 1–2

Organized by the ORS Clinical Research Committee

Kurt Spindler, MD, Chair

The 2016 ORS Clinical Research Forum will bring together key clinical research leaders to focus on three areas of research. First, to aid early stage clinical researchers with grants and mentors. Second, to understand the strengths and weakness of large datasets. Finally, discuss the challenges fundamental to all clinical research. This is an interactive conference with sufficient time for questions and discussion.

SESSION I:

Early Stage Clinical Grants for Researchers with Mentors

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

Strategy of First Clinical Grant

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

Understanding PRO (Patient Reported Outcomes)

Patricia D. Franklin, MD, University Of Massachusetts Medical School

Effective Mentorship

Regis J. O'Keefe, MD, PhD, Washington University

Institutional Commitment and Resources

Evan L. Flatow, MD, Mt. Sinai School of Medicine

Panel Discussion

SUNDAY | PROGRAM DETAILS | SUNDAY, MARCH 6, 2016

SESSION II:

Evaluating Large Datasets: Strengths and Weaknesses

Moderator: David Wasserstein, MD, MSc, MPH(c), FRCSCD,
Sunnybrook Health Sciences Centre

Administrative and/or Billing Databases

Richard Jenkinson MD, MSc, University of Toronto

Registries

Richard E. Hughes, MD, University of Michigan

Prospective Cohorts

Rick Wright, MD, Washington University

Organizing Multicenter Trials

Emil Schemitsch, MD, University of Toronto

Panel Discussion

SESSION III:

Challenges Fundamental to ALL Clinical Research

MODERATOR: Joel Gagnier, PhD, University of Michigan

Predicting Sample Sizes and Adequate Clinical Patients

Joel Gagnier, PhD, University of Michigan

Strategies for Meeting Enrollment Goals

Kurt Spindler, MD, Cleveland Clinic Foundation

Maintaining Clinical Follow-up

Carolyn M. Hettrick, MD, MPH, University of Iowa
Sports Medical Center

Panel Discussion

12:30 PM – 1:00 PM

INNOVATION THEATER:

Innovation Central

AMTI

The Multi-Fiber Ligament Model at ORS Innovation Theater by Advanced Mechanical Technology, Inc. (AMTI) and The Shiley Center for Orthopaedic Research and Education (SCORE)

Hear about AMTI's latest work in modeling the soft tissue structures of the knee, now verified by experimental results from SCORE. With our evolutionary algorithm we design a kinetically accurate soft tissue model that represents soft tissue forces throughout the range of motion of the knee joint. The model has already created new capabilities in research and simulation. We will present those results and look ahead to applications in surgical planning and patient-specific prosthesis design.

12:30 PM – 1:30 PM

NEW INVESTIGATOR NETWORKING AND MENTORING SESSION:

Successfully Competing for a Faculty Position

Coronado K

ORGANIZERS: Nelly Andawaris-Puri, PhD, Lehan School of Medicine at Mount Sinai; Devina Purmessur, PhD, The Ohio State University, Member, ORS New Investigator Mentoring Committee

You have been diligently training through your PhD and post-doctoral fellowship. Now it seems like it is time to take your career to the next level and apply for faculty positions. How do you know when you are ready to be a competitive applicant? What are the key elements of a successful faculty application? How do you negotiate an appropriate start-up package? From job searches and applications through negotiations, learn ways to set yourself up for success from internationally renowned ORS mentors. This network mentoring session will provide guidance and advice based on ORS mentors own experiences and will focus on the following topics:

- What a search committee looks for in an application
- How to write an effective research and teaching statement
- How to prepare for each round of interviews
- What to expect from a 2nd visit
- How to negotiate an appropriate start-up package

Welcome & Introductions

Alice H. Huang, PhD, Devina Purmessur, PhD

A Successful Application and Interview

Mitch Schaffler, PhD

The 2nd Visit and the Negotiation Process

Marjolein van der Meulen, PhD

QUESTION AND ANSWER SESSION

1:15 PM – 1:30 PM

INNOVATION THEATER:

Innovation Central

Glenbrook Technologies

The LabScope Micro-Videofluoroscopic X-ray Technology

Introducing a new small animal imaging technology: The LabScope Micro-Videofluoroscopic X-ray Technology. Greater resolution and detail, with lower dose than any existing fluoroscopy; helping to advance pre-clinical, small animal research.

SUNDAY | PROGRAM DETAILS | SUNDAY, MARCH 6, 2016

3:30 PM – 5:00 PM

ORS EXCELLENCE IN ORTHOPAEDICS AWARDS SESSION Paper Presentations



Germany—2016 Guest Nation Paper Presentation
DGU Basic Science Award 2015

Dr. Tanja Niedermaier, University of Regensburg,
Germany

Absence of substance P and the sympathetic nervous system impact on bone structure and chondrocyte differentiation in an adult model of endochondral ossification



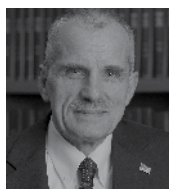
Kappa Delta Young Investigator Award
Louis E. DeFrate, ScD, Duke University Medical Center

The effects of ACL graft placement on in vivo knee function and cartilage thickness distribution



Kappa Delta Ann Doner Vaughn Award
Francis K. Lee, MD, PhD, Columbia University

Targeting Innate Immune Inflammatory Pathways in Osteolytic Disorders: Unmasking the Two Faces of Osteoprogenitors Cells



Kappa Delta Elizabeth Winston Lanier Award
Edward M. Wojtys, MD, University of Michigan

On Knee Function and ACL Injury
Co-Author: James A. Ashton-Miller, PhD



OREF Clinical Research Award
Timothy E. Hewett, PhD, Ohio State University
Mechanisms and Prevention of ACL Injuries: Cutting ACL Injury Risk with Finely Sharpened Tools
Co-Authors: Gregory D.d. Myer, PhD; Kevin R. Ford, PhD; Mark Paterno, PhD and Carmen Quatman, MD



CORR®ORS Richard A. Brand Award for Outstanding Orthopaedic Research
Marie Badalamante, PhD, Stony Brook University Medical Center, NY
Clinical Trials of a New Treatment Method for Adhesive Capsulitis

6:00 PM – 6:30 PM

TECHNIQUES WORKSHOP: Bone Histomorphometry

Innovation Central/Veracruz Exhibit Hall

PRESENTER: Thomas Wronski, PhD, University of Florida
Equipment for this workshop is furnished by Osteometrics

OBJECTIVE: The goal of this Techniques Workshop on Bone Histomorphometry is to provide an interactive forum for audience members to learn essentials of bone histomorphometry from a leading expert in the field. In this interactive workshop, microscopic images of bone sections will be presented, and audience members will be shown how to identify specific bone cells, mineralizing surfaces, fluorochrome labels, and other commonly identified structural and cellular features used in traditional bone histomorphometry. This session is complementary to the Practical Bone Histomorphometry in Rodents Research Interest Group, held on Friday at 4:30 p.m.

7:30 PM – 10:00 PM

ORS AWARDS GALA

\$125/person or \$1,100 for a table of 10

Atlantic Dance Hall at Disney's BoardWalk

Join us for an evening of celebration as we honor the 2016 Award Recipients — who are all outstanding leaders and investigators in the field of musculoskeletal research. Honorees include: Joan E. Bechtold, PhD; Andrew Carr, ChM DSc FRCS FMedSci; Louis DeFrate, ScD; Timothy Hewett, PhD; Clark Hung, PhD; Francis Lee, MD, PhD; Louis Soslowsky, PhD; and Edward Wojtys, Marie Badalamante, PhD; Sunichiro Okazaki, PD, PhD and Linda J. Sandell, PhD.

The evening will begin with a cocktail reception, followed by dinner and dessert at one of the most beautiful venues within the Disney Parks, the Atlantic Dance Hall.

The evening will end with our ever-popular and fun live auction that will benefit the ORS/OREF Grants Campaign. 100% of the proceeds raised at this event will support this grant initiative and support the important research being done by our early career investigators.

SUNDAY | NIRA PRESENTATION SESSION

8:00 AM – 9:00 AM | SUNDAY, MARCH 6, 2016

TIME	NIRA PRESENTATION SESSION 24 Tendon and Intervertebral Disc
ROOM	Fiesta 6

Moderators Dawn M. Elliott, PhD and Stavros Thomopoulos, PhD

- 8:00 AM Paper No. 0158
Effects of Autologous Tenocyte-Seeded Nanofibrous Scaffolds in Rotator Cuff Repair Are Age-Dependent
Julianne Huegel, Dong Hwa Kim, James M. Cirone, Adam M. Pardes, Tyler R. Morris, Courtney A. Nuss, Robert L. Mauck, Louis J. Soslowsky, Andrew F. Kuntz
- 8:07 AM Paper No. 0159
Engineered Nanofiber Crimp Alters Scaffold Mechanics and Mesenchymal Stem Cell Mechanotransduction
Spencer E. Szczesny, Pang-Ching Liu, Tristan P. Driscoll, Robert L. Mauck, Pen-Hsiu G. Chao
- 8:14 AM Paper No. 0160
Elucidating the Transcriptional Network of Mechanosensitive Tendon Master Gene Mohawk (Mkx)
Tomohiro Kayama, Masaki Mori, Yoshiaki Ito, Ryo Nakamichi, Takahide Matsushima, Shizuko Ichinose, Mitsuru Saito, Keishi Marumo, Hiroshi Asahara
- 8:21 AM Paper No. 0161
Total Disc Replacement Using Tissue-Engineered Intervertebral Discs: In Vivo Outcome in a Canine Model
Yu Moriguchi, Jorge A. Mojica-Santiago, Peter Grunert, Rodrigo Navarro, Brenton Pennicooke, Connor Berlin, Katherine Hudson, Lawrence Bonassar, Roger Hartl
- 8:28 AM Paper No. 0162
Endoplasmic Reticulum Stress Is a Critical Mediator of Intervertebral Disc Degeneration
Takeshi Fujii, Nobuyuki Fujita, Satoshi Suzuki, Ryuichi Watanabe, Kota Watanabe, Ken Ishii, Takashi Tsuji, Takeshi Miyamoto, Keisuke Horiuchi, Morio Matsumoto, Masaya Nakamura
- 8:35 AM Paper No. 0163
Expression of Glial Cell Line-Derived Neurotrophic Factor in the Human Intervertebral Disc
Junichi Yamada, Koji Akeda, Koichi Masuda, Keianne Yamada, Kevin Cheng, Norihiko Takegami, Kazuma Nakase, Akihiro Sudo
- 8:42 AM Paper No. 0164
Distribution of Biochemical and Mechanical Properties of the Intervertebral Disc Assessed Using Quantitative MRI
Arin M. Ellingson, Jutta Ellermann, David W. Polly
- 8:49 AM Paper No. 0165
Role of Cartilage Endplate in Disc Mechanics and Nutrition
Yongren Wu, Sarah E. Cisewski, Elizabeth H. Slate, Vincent D. Pellegrini Jr., Hai Yao



SUNDAY

SUNDAY | 10:00 AM – 11:00 AM | SUNDAY, MARCH 6, 2016

TIME	SPOTLIGHT SESSION 25 Rotator Cuff Disease	SESSION 26 Bone Progenitors and Fracture Healing	SESSION 27 Spine Therapeutics Clinical	SESSION 28 Clinical Outcomes in Total Joint Replacement	SESSION 29 Knee Diseases and Repair
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5	Fiesta 6
Moderators	Brian Feeley, MD and Heath Henninger, PhD	Joel Boerckel, PhD and Erik Walldorff, PhD	Donita Bylski-Austrow, PhD and Lachlan Smith, PhD	Robert Hastings, MS and Sally LiArno, PhD	Mehul Dharia, MSME and Clare Fitzpatrick, PhD
10:00 AM	 <p>SPOTLIGHT SPEAKER</p> <p>Leesha M. Galatz, PhD</p> <p>Rotator Cuff Disease – Where Do We Stand in 2016?</p>	<p>Paper No. 0169</p> <p>Soluble Factors in Bone Marrow Niche Enhance Human Mesenchymal Stem Cell-Based Tissue Regeneration</p> <p>Tsung-Lin Tsai, Wan-Ju Li</p>	<p>Paper No. 0175</p> <p>The Correlations of Quantitative T2 Magnetic Resonance Imaging in Respect to the Rheological Properties of Human Cadaveric Intervertebral Disc</p> <p>Tzu-Chiao Yang, Li-Yu Lin, Ching-Ting Lin, Yu-Tang Shih, Jaw-Lin Wang</p>	<p>Paper No. 0181</p> <p>Greater Medial Compartment Forces During TKA Associated with Improved Patient Satisfaction and Function</p> <p>Cale Jacobs, Christian Christensen, Tharun Karthikeyan</p>	<p>Paper No. 0187</p> <p>A Smart Patellar Implant for Patellofemoral Joint Force Measurement – In Vitro Validation</p> <p>Matthew K. Dion, Sarah L. Giddings, Jared Roberts, Luke Beardslee, Nathaniel C. Cady, Darryl D' Lima, Eric Ledet</p>
10:10 AM		<p>Paper No. 0170</p> <p>Well-Orchestrated Coupling of Osteoblast to Osteoclast Derived from Human iPSCs Promotes Bone Regeneration</p> <p>Ok Hee Jeon, Leelamma Feldman, Ricardo Feldman, Jennifer Elisseeff</p>	<p>Paper No. 0176</p> <p>Comparison of Cervical Kinematics, Pain and Functional Disability Between Single- and Two-Level Anterior Cervical Discectomy and Fusion</p> <p>Andy Chien, Dar-Ming Lai, Shwu-Fen Wang, Wei-Li Hsu, Chih-Hsiu Cheng, Jaw-Lin Wang</p>	<p>Paper No. 0182</p> <p>Home Discharge Following Primary TJA Is Associated with Fewer Postoperative Complications: An Analysis of the Medicare Database</p> <p>Kevin L. Ong, Doruk Baykal, Edmund Lau, Arthur Malkani, Gwo-Chin Lee</p>	<p>Paper No. 0188</p> <p>Linking Regional Proximal Tibia Bone Microarchitecture to In Vivo Dynamic Joint Loads in End-Stage Knee Osteoarthritis</p> <p>Bryant C. Roberts, Dominic Thewlis, Lucian B. Solomon, Graham Mercer, Karen J. Reynolds, Egon Perilli</p>
10:20 AM		<p>Paper No. 0171</p> <p>Peripheral Blood Mononuclear Cells with Ex Vivo Quality and Quantity Control Culture Accelerate Fracture Healing</p> <p>Kenji Mifuji, Masakazu Ishikawa, Naosuke Kamei, Rica Tanaka, Nobuo Adachi, Takayuki Asahara, Mitsuo Ochi</p>	<p>Paper No. 0177</p> <p>Biomechanical and Histological Evaluations of Bioactive Pedicle Screws with Hydroxyapatite-Forming Potential in the Canine Lumbar Spine</p> <p>Koji Akeda, Seiji Yamaguchi, Tomiharu Matsushita, Tadashi Kokubo, Koichiro Murata, Norihiko Takegami, Junichi Yamada, Akihiko Matsumine, Akihiro Sudo</p>	<p>Paper No. 0183</p> <p>The Impact of Hip Implant Positioning on Muscle and Joint Loading During a Dynamic Step Down</p> <p>Casey A. Myers, Kevin B. Shelburne, Peter J. Laz, Dana L. Judd, Cory L. Christiansen, Jennifer Stevens-Lapsley, Paul J. Rullkoetter</p>	<p>Paper No. 0189</p> <p>Denervation of Sensory Afferents in the ACL Affects Joint Health and Function</p> <p>James L. Cook, Christopher Nagelli, Keiichi Kuroki, Chantelle Bozynski, Timothy Hewett</p>
10:30 AM	<p>Paper No. 0166</p> <p>Perivascular Stem Cells Diminish Muscle Atrophy Following Massive Rotator Cuff Tears in a Small Animal Model</p> <p>Claire D. Eliasberg, Tomasz J. Kowalski, Cameron A. Garagozlo, Kyle M. Natsuhara, Iain R. Murray, Adam Z. Khan, Owen J. McBride, Peter I. Cha, David R. McAllister, Brian T. Feeley, Frank A. Petrigliano</p>	<p>Paper No. 0172</p> <p>Prostaglandin Ip Agonist Promotes Osteoblastic Differentiation and Bmp-Induced Bone Formation</p> <p>Sadaaki Kanayama, Takashi Kaito, Tokimitsu Morimoto, Masafumi Kashii, Takahiro Makino, Masayuki Furuya, Kazuma Kitaguchi, Yusuke Sakai, Hideki Yoshikawa</p>	<p>Paper No. 0178</p> <p>The Development of a 3D-Printed Hyperelastic Bone Graft Substitute for Spinal Fusion</p> <p>Ralph Cook, Adam Jakus, Danielle S. Chun, Joseph Weiner, Abhishek Kannan, Sean Mitchell, Chawon Yun, Stuart Stock, Ramille Shah, Wellington Hsu, Erin L Hsu</p>	<p>Paper No. 0184</p> <p>Identifying Preoperative Patient Characteristics That Correlate with Early Improvement or Decline Following Total Knee Arthroplasty</p> <p>Jeffrey Lange, Steven DiSegna, Wenyun Yang, Wenjun Li, Patricia Franklin</p>	<p>Paper No. 0190</p> <p>The Effect of Initial Graft Tension After Anterior Cruciate Ligament (ACL) Reconstruction: A Randomized Clinical Trial (NCT00434837) with 84-Month Follow-Up</p> <p>Matthew R. Akelman, Paul D. Fadale, Michael J. Hulstyn, Robert M. Shalvoy, Arlene Garcia, Kaitlyn E. Chin, Gary J. Badger, Jeffrey Duryea, Glenn A. Tung, Braden C. Fleming</p>
10:40 AM	<p>Paper No. 0167</p> <p>The Role of Inflammation in Rotator Cuff Tendon Tendinosis</p> <p>Shivam Shah, Ioannis Korpakakis, Yousef Abu-Amer, Stavros Thomopoulos</p>	<p>Paper No. 0173</p> <p>Macrophage Secreted Factors Rejuvenate Fracture Repair</p> <p>Linda Vi, Gurpreet S. Baht, Heather Whetstone, Raymond Poon, Qingxia Wei, Puvindran Nadesan, Benjamin Alman</p>	<p>Paper No. 0179</p> <p>The Use of hPSCs and Nell-1 for the Spinal Fusion of Osteoporotic Rats</p> <p>Soonchul Lee, Xinli Zhang, Jia Shen, Aaron W. James, Choon G. Chung, Reef Hardy, Chenshuang Li, Caroline Girgus, Yulong Zhang, David Stoker, Huiming Wang, Benzhamin M. Wu, Bruno Peault, Kang Ting, Chia Soo</p>	<p>Paper No. 0185</p> <p>The Influence of Implant Orientation on Pelvis Stability in Patients with Unilateral Total Hip Arthroplasty During Step Down Activity</p> <p>Donna Moxley Scarborough, Tova Kosowsky, Tsung-Yuan Tsai, Young-Min Kwon</p>	<p>Paper No. 0191</p> <p>Load-Bearing Characteristics Differ Between More and Less Lax Anterior Cruciate Ligament-Competent and -Deficient Knees</p> <p>James Boorman-Padgett, Robert Kent, Ran Thein, Thomas Kiewicewicz, Andrew Pearle, Carl Imhauser</p>
10:50 AM	<p>Paper No. 0168</p> <p>Rat Supraspinatus Tendon Responds Acutely and Chronically to Exercise</p> <p>Sarah I. Rooney, Daniel J. Torino, Rachel Baskin, Rameen P. Vafa, Andrew F. Kuntz, Louis J. Soslowsky</p>	<p>Paper No. 0174</p> <p>CD31(+) Cells from Peripheral Blood Are a Promising Source for Endogenous Bone Regeneration Under Biologically Compromised Conditions</p> <p>Andrea F. Sass, Sebastian Filter, Agnes Ellinghaus, Katharina Schmidt-Bleek, Alexander Rose, Sven Geissler, Georg Duda, Anke Dienelt</p>	<p>Paper No. 0180</p> <p>Expandable Cage Subsidence in Transforaminal Lumbar Interbody Fusion (TLIF): Risk Factors and Clinical Outcomes</p> <p>Andrew Chung, Dennis Crandall, Jan Revella, Paulo Castaneda</p>	<p>Paper No. 0186</p> <p>Asymmetry in Patients with a Dual Mobility Total Hip Arthroplasty During Inclined Walking: A Randomized Clinical Trial</p> <p>Erik Kowalski, Danilo S. Catelli, Mario Lamontagne, Paul Beaulé</p>	<p>Paper No. 0192</p> <p>Geometric Risk Factors for Noncontact Contralateral ACL Injury in Young Female Athletes</p> <p>James Levis, Erin C. Argenti, Pamela M. Vacek, Daniel R. Sturms, James Slauterbeck, Mack Gardner-Morse, Timothy W. Tourville, Bruce Beynon</p>

SUNDAY | SESSIONS 11:15 AM – 12:15 PM | SUNDAY, MARCH 6, 2016

TIME	SPOTLIGHT SESSION 30 Joint Arthroplasty and Implant Wear	SESSION 31 Bone Mechanobiology and Biomechanics	SESSION 32 Disc Tissue Engineering	SESSION 33 Hip Disease Processes
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5
Moderators	Stuart Goodman, MD, PhD and Kartik M. Varadarajan, PhD	Nilsson Holguin, PhD and Sandra Shefelbine, PhD	Mauro Alini, PhD and Lisbet A Haglund, PhD	Valentin Antoci, MD, PhD and Megan Killian, PhD
11:15 AM	 <p>SPOTLIGHT SPEAKER</p> <p>Steven Kurtz, PhD</p> <p>Advances in UHMWPE Biomaterials for Total Joint Arthroplasty</p>	<p>Paper No. 0196</p> <p>Osteocyte Responses to Loading In Vivo in Mice with a Genetically Encoded Calcium Indicator: Effects of Strain Magnitude and Loading Frequency on Cell Recruitment and Signaling Intensity</p> <p>Karl J. Lewis, Pryanka Bawa, Joyce Louis, David Spray, Robert Majeska, Sheldon Weinbaum, Mitchell Schaffler</p>	<p>Paper No. 0202</p> <p>In Vivo Mechanical Function and Remodeling of Disc-Like Angle Ply Structures (DAPS) for Total Disc Replacement</p> <p>John T. Martin, Sarah Gullbrand, Dong Hwa Kim, Kensuke Ikuta, Lachlan J. Smith, Dawn Elliott, Harvey Smith, Robert Mauck</p>	<p>Paper No. 0208</p> <p>Correlation of T1p Mri and Womac Scores in Hips with Cam-type Femoroacetabular Impingement</p> <p>Helen Anwander, Gerd Melkus, Kawan S. Rakhra, Paul E. Beaulé</p>
11:25 AM		<p>Paper No. 0197</p> <p>The Angiogenic and Osteogenic Effects of Cyclic Tensile Strain on a Co-Culture of Human MSCs and HUVECs</p> <p>Andrew J. Steward, Jacqueline H. Cole, Frances S. Ligler, Elizabeth G. Lobo</p>	<p>Paper No. 0203</p> <p>A Bioreactor Model for Dynamic Loading, Matrix Maintenance and Tissue Repair of Human Intervertebral Discs</p> <p>Lisbet Haglund, Derek H. Rosenzweig, Rahul Gawri, Janet Moir, Lorne Beckman, David Eglin, Thomas Steffen, Peter Roughley, Jean Ouellet</p>	<p>Paper No. 0209</p> <p>Acetabular Bone Density Decreases Following Surgical Correction of FAI Deformities</p> <p>Tiffany Dang, Paul E. Beaulé, Hanspeter Frei, Andrew D. Speirs</p>
11:35 AM		<p>Paper No. 0198</p> <p>T-Type Voltage-Sensitive Calcium Channels Mediate Mechanically Induced Intracellular Calcium Oscillations by Regulating Intracellular and Endoplasmic Reticulum Calcium Dynamics in Osteocytes</p> <p>Genevieve N. Brown, X. Edward Guo</p>	<p>Paper No. 0204</p> <p>Development of a Whole Bovine Long-Term Organ Culture System That Retains Vertebral Bone for Intervertebral Disc Repair and Biomechanical Studies Using Primegrowth Media</p> <p>Michael P. Grant, Laura Epure, Omar Salem, Motaz Alaqeel, John Antoniou, Fackson Mwale</p>	<p>Paper No. 0210</p> <p>Clinical Trial: Lansoprazole Prevents the Development of Corticosteroid-Induced Osteonecrosis of the Femoral Head</p> <p>Shunichiro Okazaki, Motohisa Yamamoto, Satoshi Nagoya, Chisako Suzuki, Junya Shimizu, Hiroki Takahashi, Hideki Hyodoh, Toshihiko Yamashita</p>
11:45 AM	<p>Paper No. 0193</p> <p>Vitamin E-Infused Highly Cross-Linked Polyethylene at Five Years Follow-Up, a Randomized Radiostereometry Study</p> <p>Per-Erik Johanson, Bitu Shareghi, Jonas Thanner, Johan Kärrholm</p>	<p>Paper No. 0199</p> <p>What Determines the Size and Mechanics of Bone-Like Mineral?</p> <p>Alix C. Deymier-Black, Arun K. Nair, Baptiste Depalle, Zhao Quin, Kashyap Arcot, Claude H. Yoder, Markus J. Buehler, Stavros Thomopoulos, Guy M. Genin, Jill D. Pasteris</p>	<p>Paper No. 0205</p> <p>Microfluidic Flow Cell Array Printing for Engineered IVD and Musculoskeletal Tissues</p> <p>Alexander Blitch, Nikki Davidoff, Niloofer Farhang, Benjamin Brooks, Robert Bowles</p>	<p>Paper No. 0211</p> <p>Evaluating the Effects of Periacetabular Osteotomy-Induced Changes in Joint Mechanics on Short-Term Patient Outcomes</p> <p>Kevin C. Townsend, Jessica E. Goetz, Saran Tantavitis, Todd O. McKinley, Michael C. Willey</p>
11:55 AM	<p>Paper No. 0194</p> <p>Oxidation of Second Generation Sequentially Irradiated and Annealed Highly Cross-Linked Polyethylene Tibial Bearings</p> <p>Alan Kop, Cathie Keogh, Eric Swarts, Moreica Pabbruwe</p>	<p>Paper No. 0200</p> <p>Cortical Bone Tissue Indentation Properties Are Deteriorated in Adults with Type 2 Diabetes Mellitus</p> <p>Lamya Karim, Kelsey Velie, Miranda Van Vliet, Ayesha Abdeen, Douglas Ayres, Mary Bouxsein</p>	<p>Paper No. 0206</p> <p>A Combinatorial Approach for Annulus Fibrosus Tissue Engineering Using Silk-Based Laminates, Adipose-Derived Stem Cells and Cell-Sheet Technology</p> <p>Puay Yong Neo, Siew Lok Toh, James Cho-Hong Goh</p>	<p>Paper No. 0212</p> <p>Pelvic Tilt and Hip Range of Motion in Femoroacetabular Impingement</p> <p>Rikin Patel, Christopher Lenherr, Joshua Harris, Philip C Noble</p>
12:05 PM	<p>Paper No. 0195</p> <p>Is Highly Cross-Linked Polyethylene a Safe Alternative to Conventional UHMWPE for Dual Mobility Cup Mobile Component in Total Hip Arthroplasty? A Biomechanical Study</p> <p>Matthieu Malatray, Jean-Paul Roux, Julien Wegryzn</p>	<p>Paper No. 0201</p> <p>Looking Beyond Targeted Perturbation Models: Wnt Signaling and the Natural Variation in Bone Mechanical Function</p> <p>Stephen H. Schlecht, Lauren Smith, Yueqin Yang, Erin Bigelow, Amber Cathey, Bonnie Nolan, Melissa Ramcharan, Eugene Manley, Maureen Devlin, Joseph Nadeau, Karl J. Jepsen</p>	<p>Paper No. 0207</p> <p>Biomimetic Tg-bmp 2/7 Release System for Nucleus Pulposus Regeneration as Treatment for Degenerative Disc Disease</p> <p>Gernot Lang, Zhen Li, Xu Chen, Hagit Sacks, Avner Yayon, Franz Weber, Mauro Alini, Sibylle Grad</p>	<p>Paper No. 0213</p> <p>Three-Dimensional CT Analysis Identifies Distinct Variations in Acetabular Morphology in the Dysplastic Hip</p> <p>Jeffrey Nepple, James Ross, Asheesh Bedi, Perry Schoenecker, John C. Clohisy</p>

SUNDAY | NIRA PRESENTATION SESSION

11:15 AM – 12:15 PM | SUNDAY, MARCH 6, 2016

TIME	NIRA PRESENTATION SESSION 34 Bone Repair and Trauma
ROOM	Fiesta 6

Moderators Marjolein van der Meulen, PhD and J. Mark Wilkinson, MD, PhD

11:15 AM Paper No. 0214
Combinatorial Gene Therapy Accelerates Bone and Cartilage Regeneration: Design of Non-Viral Gene-Activated Scaffolds for Orthopaedic Tissue Engineering
Rosanne M. Raftery, Caroline Curtin, Sally-Ann Cryan, Fergal J. O'Brien

11:22 AM Paper No. 0215
The Critical Role of Mesenchymal Progenitors in Initiating the Secondary Ossification Center at the Epiphyseal Cartilage
Wei Tong, Haoruo Jia, Xiaoyuan Ma, Motomi Enomoto-Iwamoto, Ling Qin

11:29 AM Paper No. 0216
PTH Signaling Mediates Adaptation of the Perilacunar Tissue During Exercise
Joseph Gardinier, Salam Al-Omaishi, Michael Morris, David Kohn

11:36 AM Paper No. 0217
Post-Fracture Impact of PI3K Activity Modulation on Periosteal Expansion and Osterix Expression
Bhavita Walia, Vanessa Scanlon, Jungeun Yu, Marc Hansen, Peter Maye, Hicham Drissi, Archana Sanjay

11:43 AM Paper No. 0218
Increased Bone Formation and Angiogenesis During Fracture Repair Following Conditional Deletion of Runx1 and Runx3 In the Periosteum
David N. Paglia, Do Yu Soung, Xiaochuan Yang, Hani A. Awad, Joseph Lorenzo, Hicham Drissi

11:50 AM Paper No. 0219
Parathyroid Hormone Entrainable Circadian Clock Functions in the Mouse Femur Fracture Healing Site
Tatsuya Kunimoto, Naoki Okubo, Yoichi Minami, Hiroyoshi Fujiwara, Toshihiro Hosokawa, Ryo Oda, Toshikazu Kubo, Kazuhiro Yagita

11:57 AM Paper No. 0220
Elucidating the Mechanism of Anti-*isdB* Antibody-Mediated Sepsis and Death from *S. Aureus* Implant-Associated Osteomyelitis
Masahiro Ishikawa, Kohei Nishitani, Hiromu Ito, Karen De Mesy Bentley, Sheila N Bello-Irizarry, Bruce I. Goldman, Wu Zhijin, Elaine M Gersz, Stephen L. Kates, John Daiss, Edward M. Schwarz

12:04 PM Paper No. 0221
The Dose Response Effect of Ketotifen Fumarate on Post-Traumatic Joint Contractures
Prism S. Schneider, Herman Johal, Mei Zhang, David Hart, A. Befus, Paul Salo, Cun-Yi Fan, Xiangdang Liang, Kevin Hildebrand



SUNDAY | SESSIONS 2:15 PM – 3:15 PM | SUNDAY, MARCH 6, 2016

TIME	SESSION 35 Osteoarthritis Treatment: Basic Science	SESSION 36 Foot and Ankle	SESSION 37 Trauma Pathophysiology	SESSION 38 Knee: Computational Modeling
ROOM	Coronado H-J	Coronado L	Fiesta 5	Fiesta 6
Moderators	Blaine Christiansen, PhD and Sara Farquhar, PhD	Jessica E. Goetz, PhD and Sheldon Lin, MD	Animesh Agarwal, MD and Anna Miller, MD	Ali Hosseini, PhD and Hannah Lundberg, PhD
2:15 PM	Paper No. 0222 Physical Damage to Healthy Articular Cartilage Induces Expression of the Pain Mediator Ngf by a Tgfb-Mediated Process – Potential Role in OA-Related Pain? Eva Thijssen, Esmeralda N. Blaney Davidson, Peter M. Van der Kraan	Paper No. 0228 Impact of Anatomical Cuts on Bony Support in Total Ankle Arthroplasty Jeff Bischoff, Lew Schon, Charles Saltzman	Paper No. 0234 Definitive Muscle Tissue Restoration Rescues BMP-2 Mediated Bone Healing After Severe Musculoskeletal Trauma Beth E. Pollot, Stephen M. Goldman, Joseph C. Wenke, Benjamin T. Corona	Paper No. 0240 Developing the Strength Response of a Multi-Scale Musculoskeletal Model of the Healthy Human Knee Donald R. Hume, Michael Harris, Alessandro Navacchia, Kevin B. Shelburne
2:25 PM	Paper No. 0223 Subchondral Bone Circulation in Osteoarthritis of the Human Knee Jonathan Dyke, Jennifer Racine, Anne Voisinot, Peter Evangelista, Roy Aaron	Paper No. 0229 Evaluation of Hypermobility of First Ray Using Weight-Bearing Ct and 3D Analysis System in Normal vs. Hallux Valgus Patients Tadashi Kimura, Makoto Kubota, Tetsuya Taguchi, Hidekazu Hattori, Kazuhiko Minagawa, Naoki Suzuki, Asaki Hattori, Keishi Marumo	Paper No. 0235 Inhibition of mTOR with Rapamycin Significantly Attenuates Ectopic Bone Formation in a Rat Model of Trauma-induced Heterotopic Ossification Ammar T. Qureshi, Gabriel J. Pavey, Allison M. Tomasino, Jonathan G. Seavey, Erin M. Sanders, Danett K. Bishop, Benjamin K. Potter, Jonathan A. Forsberg, Thomas A. Davis	Paper No. 0241 Computational Modeling Can Reveal Functional Implications of Focal Cartilage Defects in the Knee Joint During Gait Mikko S. Venäläinen, Jari Salo, Jukka S. Jurvelin, Juha Töyräs, Tuomas Viren, Rami K. Korhonen
2:35 PM	Paper No. 0224 Association Between Cartilage Contact, Morphology, and MR Biomarkers in Healthy and ACL-Reconstructed Knees Jarred Kaiser, Michael F. Vignos, Fang Liu, Richard Kijowski, Geoffrey Baer, Darryl G. Thelen	Paper No. 0230 Low-Magnitude High-Frequency Vibration (LMHFV) Stabilizes Blood Glucose Level, Enhances Blood Flow, and Increases Healing Rate, on the Foot Wound of Streptozotocin-Induced Diabetic Rats Oi-Ling Yu, Kwok Sui Leung, Kwok pui Fung, Wing Hoi Cheung	Paper No. 0236 A System for Intra-Operative Contact Stress Estimation to Aid in Surgical Reduction of Articular Fractures Andrew M. Kern, Donald Anderson	Paper No. 0242 Specimen-Specific Comparison of a Computational Model and Physical Experiment Reveals Accurate Predictions of Lateral Compartment Instability in the Anterior Cruciate Ligament-Deficient Knee in Response to Combined Rotatory Loads Mohammad Kia, Kevin Schafer, Andrew D. Pearle, Thomas Wickiewicz, Carl W. Imhauser
2:45 PM	Paper No. 0225 The Effects of Tibiofemoral Joint Subchondral Bone Anatomy on Medial Cartilage Loading: Implications for Knee Osteoarthritis Risk Ata M. Kiapour, Ali Kiapour, Vijay K. Goel, Timothy E. Hewett, Constantine K. Demetropoulos	Paper No. 0231 Meso-Macro Mechanical Analysis of the Fatty Tissues in the Heel Pad Wen-Ming Chen, Peter V.S. Lee, Sung-Jae Lee	Paper No. 0237 Osteoprotegerin Is Critical for the Formation of Heterotopic Ossification Song Xue, Roberto Fajardo, Kevin P. McHugh	Paper No. 0243 The Effect of Cartilage Swelling and Fixed Charge Density on Knee Joint Mechanics During Gait Lasse P. Räsänen, Petri Kalevi Tanska, Stefan Zbyn, Siegfried Trattning, Miika Nieminen, Rami Korhonen
2:55 PM	Paper No. 0226 P21 Deficiency Is Susceptible to Osteoarthritis with Inflammation Shinsuke Kihara, Shinya Hayashi, Noriyuki Kanzaki, Shingo Hashimoto, Shuhei Sakata, Nobuaki Chinzei, Masahiko Hanaoka, Kazuhiro Takeuchi, Ryosuke Kuroda, Masahiro Kurosaka	Paper No. 0232 Novel Additive-Manufactured Foot Orthotic Achieves Comfort Equivalent to the Traditional Standard Breanne Przestrzelski, Kyle Walker, Scott Stanley, Brian Kaluf, Nicole Hooks, Dan Ballard, Timothy Pruett, Steven Hoeffner, John D. DesJardins	Paper No. 0238 The Amplitude of Intramuscular Pressure Oscillations in Compartment Syndrome Andreas Nilsson, Jorma Styf	Paper No. 0244 In-Vivo Analysis of Flexion Axes of the Knee: Femoral Condylar Motion During Dynamic Knee Flexion Yong Feng, Tsung-Yuan Tsai, Jing-Sheng Li, Young-Min Kwon, Changqing Zhang, Harry E. Rubash, Guoan Li
3:05 PM	Paper No. 0227 Lubricin/Proteoglycan-4 (PRG4) Inhibits Interleukin-1 Beta (IL-1β) Induced Nuclear Factor Kappa B (NFκB) Activation and Proliferation of Osteoarthritic Synovocytes in a CD44-Dependent Manner Maha Jamal, Ali Alquraini, Tannin Schmidt, Gregory Jay, Khaled A. Elsaid	Paper No. 0233 Passive Engineering Mechanism Enhancement of a Flexor Digitorum Longus Tendon Transfer Procedure Connor M. Pihl, Christina J. Stender, Ravi Balasubramanian, Kylie M. Edinger, Bruce J. Sangeorzan, William R. Ledoux	Paper No. 0239 Treatment of Established Non-Union in Critically-Sized Rat Femoral Defects Using an Alginate-BMP-2 Hybrid Delivery System Albert Cheng, Laxminarayanan Krishnan, Robert Guldberg	Paper No. 0245 The Influence of the ACL Femoral Attachment on Knee Mechanics During Gait: A Simulation Study Colin R. Smith, Michael F. Vignos, Darryl Thelen

MONDAY | MEETING HIGHLIGHTS | MONDAY, MARCH 7, 2016

6:00 AM – 8:00 AM

**RESEARCH INTEREST GROUP:
Good and Bad Animal Models for
Orthopaedics**

Monterrey 1

6:30 AM – 8:00 AM

**RESEARCH INTEREST GROUP:
Orthopaedic Implants**

Coronado M–P

7:00 AM – 8:00 AM

**RESEARCH INTEREST GROUP:
Skeletal Muscle**

Coronado F–G

8:00 AM – 7:15 PM

INNOVATION CENTRAL OPEN

Veracruz Exhibit Hall

8:00 AM – 9:00 AM

**SESSION:
Hand and Wrist**

Fiesta 5

8:00 AM – 9:30 AM

**WORKSHOPS:
The Good and the Bad—
Interdependency of Bone and
Immune Cells: Possibilities for
Future Treatments?**

Coronado K

**Should We Believe the Hype?
The Influence of Vitamin D in
Musculoskeletal Health and Beyond**

Coronado H–J

**Meniscal Repair and Replacement
Strategies: Where Are We in 2016?**

Fiesta 6

**PROFESSIONAL ADVANCEMENT
SESSION:**

**Advocating for Funding and Beyond:
Tips and Tricks on How to Champion
Orthopaedic Research**

Coronado L

9:45 AM – 10:45 AM

**SPOTLIGHT SESSION:
How Do Genes Cause Osteoarthritis?**

Coronado H–J

SESSIONS:

POSTER TEASER II

Coronado K

Models of Muscle Disease

Coronado L

Upper Extremity

Fiesta 5

Knee Ligament

Fiesta 6

10:45 AM – 11:45 AM

POSTER VIEWING (Poster Session II)

Innovation Central

11:30 AM – 12:30 PM

**NEW INVESTIGATOR NETWORKING
AND MENTORING SESSION:**

**How to Lead and Motivate a
Successful Team**

Durango 1–2

12:30 PM – 1:30 PM

**SPOTLIGHT SESSION:
Inflammation and Osteoarthritis**

Coronado H–J

SESSIONS:

Spine: Disc Biology

Coronado K

**Stem Cells in Muscle Disease
and Repair**

Coronado L

Tendon and Ligament:

Progenitors and Stem Cells

Fiesta 5

**Gene Therapy and Genetic
Regulation of Joint
Tissue Homeostasis**

Fiesta 6

1:45 PM – 2:45 PM

**SPOTLIGHT SESSION:
Lower Limb Biomechanics**

Fiesta 6

SESSIONS:

Biomaterials Cartilage I

Coronado H–J

Osteoclasts and Osteolysis

Coronado K

**Diagnostic Imaging – Novel
Techniques for Multi-Tissue
and Multi-Modality**

Coronado L

**Tendon and Ligament:
Cell Biology and Development**

Fiesta 5

3:00 PM – 4:00 PM

ORS KEYNOTE SPEAKER:

Joel Selanikio, MD

Coronado H–J

4:15 PM – 5:30 PM

**ORS ACHIEVEMENT AWARDS
AND LECTURES & 2016
INAUGURATION CEREMONY**

Coronado H–J

5:30 PM – 7:00 PM

**POSTER RECEPTION (Poster Session II),
Authors will be at posters.**

Innovation Central

8:00 PM – 10:00 PM

**WOMEN'S LEADERSHIP
FORUM RECEPTION**

Monterrey 1–3

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MONDAY | PROGRAM DETAILS | MONDAY, MARCH 7, 2016

6:00 AM – 8:00 AM

RESEARCH INTEREST GROUP:

Good and Bad Animal Models for Orthopaedics

Monterrey 1

ORGANIZER: Stephan Zeiter, PhD, AO Research Institute

OBJECTIVE: Studies involving animals are a key element of musculoskeletal research. These studies should be properly designed, conducted and reported. Further, in order to be able to compare results among research groups similar principles and models should be used. However, typically research results are discussed and not the models or the methodology as such – even though this may have a major impact on the validity of the results. This RIG aims to bring researchers across disciplines involved in animal studies together to discuss on scientifically sound and ethical use of animals in musculoskeletal research.

6:30 AM – 8:00 AM

RESEARCH INTEREST GROUP:

Orthopaedic Implants

Coronado M–P

ORGANIZERS: Kenneth Mann, PhD, SUNY Upstate Medical University; Nico Verdonchot, PhD Orthopaedic Research Lab, Radboudumc, Nijmegen, The Netherlands

OBJECTIVES: A huge amount of high-quality research is performed to improve orthopaedic implants. However, the impact within and outside the orthopaedic community of this type of research is under debate as it is often perceived as incremental on highly innovative. This Research Interest Group is set up to determine to determine future challenges on the scientific and technological sides, assess what the best strategy is to better profile implant related research, how funding for this research can be secured, and how this all fits within the Orthopaedic Research Society.

7:00 AM – 8:00AM

RESEARCH INTEREST GROUP:

Skeletal Muscle

Coronado F–G

ORGANIZERS: Samuel Ward, PhD, University of California, San Diego; Chris Mendias, PhD, University of Michigan

OBJECTIVES: This will be the inaugural meeting of the Skeletal Muscle Research Interest Group. We would like to discuss future opportunities to grow skeletal muscle research within the ORS, educational and training initiatives, and to develop and enhance collaborative research efforts across multiple groups of investigators. Anyone with interest in skeletal muscle (basic,

clinical, tissue engineering) is invited to attend. In particular, we encourage those who do not have a primary research focus on skeletal muscle, but are looking to develop collaborations with established skeletal muscle investigators, to join us at this meeting.

8:00 AM – 9:30 AM

WORKSHOPS:

The Good and the Bad – Interdependency of Bone and Immune Cells: Possibilities for Future Treatments?

Coronado K

ORGANIZERS: Georg N. Duda, PhD, Julius Wolff Institut, Charité – Universitätsmedizin Berlin, Charité; Katharina Schmidt-Bleek, PhD, Julius Wolff Institut, Charité – Universitätsmedizin Berlin

The research field osteoimmunology is still young but has already revealed a striking and essential interdependency between bone and immune cells in the process of successful bone healing. Macrophages and B- and T-cells have come into focus in this context. However, the inherent plasticity of immune cells prevents the labeling as good or bad players in the healing process. Inflammation is needed to initiate healing, but has to be strictly regulated to stay on the “good” side of the healing influences. Bone healing without macrophages is severely deterred, in elderly, where the ratio of M1:M2 macrophages is skewed towards M1 macrophages; however, they could be responsible for healing problems. Among the T-cells CD8 positive T-cells were proven to negatively influence bone healing, while regulatory T-cells are thought to enhance healing. This workshop is intended to raise the awareness of the duplicity of immune cell affects in the context of healing bone. Its understanding is essential for the development of future treatment strategies, especially under the aspect, that the individual immune status of each patient could influence possible immune-modulatory therapies.

Accessing the Complex Role of the Immune System in Post-Natal Bone Regeneration

Louis Gerstenfeld, PhD, Boston University School of Medicine

Interaction of Age and Inflammation during Bone Fracture Healing

Ralph Marcucio, PhD, University of California San Francisco

Interplay of Inflammation and Regeneration:

The Role of Immune Cells in Tissue Reconstitution

Georg N. Duda, PhD, Julius Wolff Institut, Charité – Universitätsmedizin Berlin

MONDAY | PROGRAM DETAILS | MONDAY, MARCH 7, 2016

Should We Believe the Hype? The Influence of Vitamin D in Musculoskeletal Health and Beyond

Coronado H—J

Organized by the ORS Women's Leadership Forum

ORGANIZERS: Susan V. Bukata, MD, UCLA Medical Center;
Robin M. Queen, PhD, Virginia Tech

Discussions about Vitamin D and its potential health benefits are everywhere — from the doctor's office to the lay press. Vitamin D has returned to prominence in the past decade for its role in bone health, but the potential for Vitamin D to prevent fractures remains controversial. Recent research in Vitamin D demonstrates that its influence expands far beyond maintaining bone mineralization and strength. This workshop will look at the role that Vitamin D plays in fracture prevention, but also explore the emerging influence that Vitamin D signaling has on musculoskeletal health and development.

Immune Modulation Under the Influence of Vitamin D

John Adams, MD, University of California Los Angeles

Vitamin D and Fracture: Sorting out the Influences

Barbara Minkowitz, MD, Atlantic Health Systems

Vitamin D Regulation of Chondrocytes: Can it Possibly Modulate Arthritis?

Barbara D. Boyan, PhD, Virginia Commonwealth University

Meniscal Repair and Replacement Strategies: Where Are We in 2016?

Fiesta 6

ORGANIZERS: Lutz Dürselen, PhD, Ulm University;
Lawrence J. Bonassar, PhD, Cornell University

Treatment of meniscal lesions is an important clinical issue, due to both the large number of surgeries and the high likelihood that such injuries will lead to osteoarthritis. Repair and replacement strategies are very challenging due to the low regenerative capacity of the meniscus and the high mechanical demands. There is no gold standard for the replacement of the meniscus and no convincing implant or replacement method has been evolved yet. The challenges in developing suitable meniscal implants arise from both the complex biological structure and mechanical behavior. This workshop aims to elucidate the current status of meniscal repair and replacement seen from three perspectives: understanding of the engineering considerations of meniscal function, development of biological strategies for

repair, and the integrating clinical experience in designing and implementing therapies. The three speakers, each one renowned in their field of activity, will finally give their own estimation of the most promising future development.

The Engineering Perspective: Permanent Meniscus Replacement and Pre-Clinical Testing

Marc Levenston, PhD, Stanford University

The Biological Perspective: Reconstruction and Repair of the Knee Meniscus: From Scaffolds to Pre-Clinical Models

Robert L. Mauck, PhD, McKay Orthopaedic Research Laboratory

The Clinical Perspective: Translation of Meniscus Healing Research to Clinical Practice: What I do to Augment Meniscus Repair Success

Scott A. Rodeo, MD, Hospital for Special Surgery

PROFESSIONAL ADVANCEMENT SESSION:

Advocating for Funding and Beyond: Tips and Tricks on How to Champion Orthopaedic Research

Coronado L

Organized by the ORS Advocacy Committee

ORGANIZERS: Megan L. Killian, PhD, University of Delaware;
Lynne Jones, PhD, Johns Hopkins University

At this session, members of the ORS Advocacy Committee will introduce the newly-developed Orthopaedic Research Advocacy Toolbox. Expert panelists will discuss ways in which scientists and clinicians alike can participate in advocating for research funding and increase awareness of musculoskeletal research needs. Panelists will also illustrate their experiences from advocating on Capitol Hill with mock Congressional meetings. Lastly, panelists will demonstrate easy and unique approaches to connect with the public, governing officials, and private sector for the improvement and betterment of funding and awareness for the orthopaedic research environment.

Advocacy: From the Patient's Perspective

Charles "Skip" Shank

Advocating for our Patients and our Profession

Stuart Weinstein, MD, University of Iowa

The Need for Advocacy to Advance Orthopaedic Science

Lynne Jones, PhD, Johns Hopkins University

MONDAY | PROGRAM DETAILS | MONDAY, MARCH 7, 2016

11:30 AM – 12:30 PM

NEW INVESTIGATOR NETWORKING AND MENTORING

SESSION: How to Lead and Motivate a Successful Team

Durango 1–2

ORGANIZERS: Nelly Andawaris-Puri, PhD, Icahn School of Medicine at Mount Sinai and Devina Purmessur, PhD, The Ohio State University, Member, ORS New Investigator Mentoring Committee

For any new faculty starting your research program, identifying the right people for your team has a significant impact on your success. Choosing people that will work well together from early on is critical. How do you identify the qualities that make a great scientist? How do you create a stimulating and nurturing work environment while dealing with conflict when it occurs? At the same time setting a good example and providing mentorship to your staff and students is important. From picking the right staff members, to benchmarks for a successful mentor/mentee relationship, this networking session will provide guidance and advice based on ORS members own experiences and will focus on the following topics:

- Identifying the right people for your team
- Establishing a collaborative environment
- How to deal with conflict
- How to be a good mentor to a diverse audience: research assistants, graduate students and postdocs
- How to establish effective mentor/mentee relationships

WELCOME AND INTRODUCTIONS:

Alice H. Huang, PhD; Devina Purmessur, PhD

Choosing the right people

James Iatridis, PhD, Icahn School of Medicine at Mount Sinai

How to mentor trainees

Tamara Alliston, PhD



3:00 PM – 4:00 PM

ORS KEYNOTE SPEAKER:

Coronado H–J

Joel Selanikio, MD

Big Data and Health, an Introduction

Dr. Joel Selanikio is an award-winning physician, inventor, emergency responder, and public speaker who leads the efforts of Magpi to develop and promote new technologies and business models for health and international development, including multiple-award-winning Magpi mobile data collection and messaging software — the most widely scaled mobile technology ever created for international development.

In December 2014–January 2015, he was the lead physician at the IMC Ebola Treatment Center at Lunsar, Sierra Leone.

Dr. Selanikio is a frequent keynote speaker and consultant in the fields of social entrepreneurship, innovation, big data, public and global health, healthcare, child health, epidemiology, and the use of technology for development (“ICT4D”) and for emergency and disaster preparedness and outbreak response, and has consulted or spoken on these topics at Davos, TEDx, Foo Camp, Harvard, MIT, Stanford, Google, DARPA, CNN, Fox News, the Clinton Global Initiative, the Royal Society of Medicine, and many other very prominent venues and organizations. He is a judge for the GSMA Global Mobile Awards, and is a winner of both the \$100,000 Lemelson-MIT Award for Sustainability and the Wall Street Journal Technology Innovation Award.

Dr. Selanikio has been profiled by the Guardian, Wired, Forbes, The Economist, The Wall Street Journal, Fox News, the BBC, NPR, Information Week, and the Washington Post, among many other publications. He is a practicing pediatrician, and is a former Wall Street computer consultant, and former CDC epidemiologist. As an officer of the Public Health Service, Dr. Selanikio served as Chief of Operations for the HHS Secretary’s Emergency Command Center after the 9/11 attacks. In 2005, he was given the Haverford Award for Humanitarian Service for his work in treating tsunami victims in Aceh.

MONDAY | PROGRAM DETAILS | MONDAY, MARCH 7, 2016

4:15 PM – 5:30 PM

ORS ACHIEVEMENT AWARDS AND LECTURES & 2016 INAUGURATION CEREMONY

Coronado H–J

MODERATOR: Mathias P.G. Bostrom, MD



Marshall R. Urist Lecturer
Clark Hung, PhD



Arthur Steindler Lecturer
Andrew Carr, ChM, DSc,
FRCS, FMedSci

ORS Video Outreach Competition Awards

Recognition of ORS Harris Award, *Journal of Orthopaedic Research* Award, and ORS/AMTI Force in Motion Foundation Scholarship and Travel Grant Recipients

Announcement of the ORS New Investigator Recognition Awards

Announcement of the ORS Spine Section Awards



Inauguration of Farshid Guilak, PhD
Incoming ORS President (2016–2017)

8:00 PM – 10:00 PM

WOMEN'S LEADERSHIP FORUM RECEPTION

\$65/person; Monterrey 1–3

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 2016 Women's Leadership Forum Award recipient will be honored for her role as an outstanding mentor to fellow female scientists.

With support from



MONDAY | SESSIONS 8:00 AM – 10:45 AM | MONDAY, MARCH 7, 2016


8:00 AM – 9:00 AM

9:45 AM – 10:45 AM

TIME	SESSION 39 Hand and Wrist	SPOTLIGHT SESSION 40 How Do Genes Cause Osteoarthritis?
ROOM	Fiesta 5	Coronado H-J

Moderators Richard Gelberman, MD and Chunfeng Zhao, MD

Cheryl Ackert-Bicknell, PhD and Muhammad Rai, PhD

8:00 AM	Paper No. 0246 Morphometric, Mechanical, and Histological Characterization of the Ligaments of the Thumb Carpometacarpal Joint: Correlation to Thumb Stability Christina Salas, Deana Mercer, Justin Brantley, Cory Carlston, Mahmoud Reda Taha	9:45 AM	 <p>SPOTLIGHT SPEAKER Eleftheria Zeggini, PhD</p> <p>Progress in Understanding the Genomic Aetiology of Osteoarthritis Moderators</p>
8:10 AM	Paper No. 0247 Three-Dimensional Structural Stiffness of the Wrist Joseph N. Gabra, Zong-Ming Li	9:55 AM	
8:20 AM	Paper No. 0248 Variation in the Rotation Axes of the Scapholunate Joint During Flexion-Extension and Radial-Ulnar Deviation Motions Gordon Best, Robin N. Kamal, David R. Pichora, Joseph (Trey) Crisco, Michael J. Rainbow	10:05 AM	
8:30 AM	Paper No. 0249 The Effects of Distal Radius Deformities on Wrist Kinematics – an In-Vitro Biomechanical Study Clare Padmore, Helen Stoesser, Masao Nishiwaki, Braden Gammon, Dan Langohr, Emily Allen Lalone, James A. Johnson, Graham King	10:15 AM	Paper No. 0252 Targeted Genome Editing of Human Induced Pluripotent Stem Cells Using CRISPR/CAS9 to Generate an In-Locus Type II Collagen Reporter for the Purification of Chondrogenic Cells Shaunak Adkar, Vincent P. Willard, Jonathan Brunger, Kenneth T. Shiao, Charles Gersbach, Farshid Guilak
8:40 AM	Paper No. 0250 Carpal Kinematics During Simulated Wrist Motion Helen Stoesser, Clare Padmore, Masao Nishiwaki, Braden Gammon, Emily Allen Lalone, Dan Langohr, Graham J. King, James A. Johnson	10:25 AM	Paper No. 0253 Articular Adipose Tissue Macrophages at the Crossroad Between Obesity and Osteoarthritis Natalia S. Harasymowicz, Richard Burnett, Donald M. Salter, Hamish Simpson
8:50 AM	Paper No. 0251 Normal and Abnormal Paraneurial Tissues Create Strain Gradients in Rat Sciatic Nerves Ian Foran, Vincent Hussey, Rushil Patel, Jaemyoung Sung, Sameer B. Shah	10:35 AM	Paper No. 0254 MIRNA-Mediated Dysregulation of Growth Factor Pathways in Experimental Osteoarthritis Paul J. Fanning, Christopher Raskett, Nicholas Farina, Yukiko Maeda, Ellen Gravalles, Gary Stein, Janet Stein, David C. Ayers, Jane B. Lian



MONDAY

MONDAY | POSTER TEASER SESSION II 9:45 AM – 10:45 AM | MONDAY, MARCH 7, 2016

SESSION 41 – POSTER TEASER II Room: Coronado

Moderators Susan Chubinskaya, PhD and Michael J. Yeszowski, MD, PhD


<p>9:45 AM Paper No. 0255</p> <p>Cartilage-Specific Conditional Deletion of PKCδ Protects Joint Degeneration Without Relieving Joint Pain in a Mouse Model of Osteoarthritis</p> <p>Colin Jorgensen, Ranjan Kc, Tariq Muhammad, Xin Li, Zhiqiang Liu, John Hamilton, Ronald Kahn, Dhanya Asokumar, Hee-Jeong Im</p>	<p>10:05 AM Paper No. 0265</p> <p>The Effect of Marrow Shear Stress on Bone Formation and Anisotropy</p> <p>Tyler C. Kreipke, Kimberly Curtis, Josue Santana, Alyssa Varsanik, Thomas R. Coughlin, Glen Niebur</p>	<p>10:25 AM Paper No. 0275</p> <p>Effects of Platelet-Rich Plasma on ACL and Meniscal Healing in a Canine OA Model</p> <p>Farrah A. Monibi, Patrick Smith, Chantelle Bozynski, Keichi Kuroki, Cristi R. Cook, Aaron M. Stoker, Ferris Pfeiffer, James L. Cook</p>
<p>9:47 AM Paper No. 0256</p> <p>Validation of an In Vitro Co-Culture Model Comprised of Human Osteoarthritic Joint Tissue Explants</p> <p>Natasha Topoluk, Kathleen Steckbeck, Brian Burnikel, John Tokish, Jeremy Mercuri</p>	<p>10:07 AM Paper No. 0266</p> <p>HPMA Copolymer Targets Tumor-Associated Macrophages of Skeletal and Non-Skeletal Metastases in Orthotopic and Heterotopic Breast Carcinoma Models</p> <p>Melissa Zimel, Chloe Horowitz, Rajasekhar Vinagolu, Alexander B. Christ, Xin Wei, Dong Wang, Steven Goldring, Edward Purdue, John Healey</p>	<p>10:27 AM Paper No. 0276</p> <p>Gender-Specific Implant Debris-Induced Osteolysis In Vivo: UHMWPE vs. Cobalt Alloy</p> <p>Stefan Landgraeber, Lauryn Samelko, Kyrn McAllister, Sebastian Putz, Joshua Jacobs, Nadim J. Hallab</p>
<p>9:49 AM Paper No. 0257</p> <p>Effect Of Immunosuppressive Agent On Articular Cartilage And Synovium After Asc Transplantation in a Goat Osteoarthritis Model</p> <p>Gun-Il Im, Ji-Yun Ko, Ki Cheol Kim, Jungsun Lee, Yang Hwan Ryu</p>	<p>10:09 AM Paper No. 0267</p> <p>Fibrin Clot Prevents Bone Tunnel Enlargement After ACL Reconstruction with Allograft</p> <p>Levent Surer, Can Yapici, Claudia Guglielmino, Carola F. Van Eck, James J. Irrgang, Freddie H. Fu</p>	<p>10:29 AM Paper No. 0277</p> <p>Does Vitamin E Alter the Mechanical Properties of UHMWPE?</p> <p>Natalie D. Hope, Thomas S. Thornhill, Anuj Bellare</p>
<p>9:51 AM Paper No. 0258</p> <p>14-3-3 Epsilon: Key Player in Progranulin-Mediated Chondro-Protective Function</p> <p>Young-Su Yi, Jyoti J. Mundra, Chuanju Liu</p>	<p>10:11 AM Paper No. 0268</p> <p>Short-Term Precision Study of Stochastic Predictors for DXA Scans at the Hip</p> <p>Raul Ramos, Patricia Cussen, David Di Paolo, Joyce Ballard, Xuanliang N. Dong</p>	<p>10:31 AM Paper No. 0278</p> <p>Evaluation of A Surrogate Contact Model of TKA</p> <p>Marco A. Marra, Michael S. Andersen, Bart Koopman, Dennis Janssen, Nico Verdonshot</p>
<p>9:53 AM Paper No. 0259</p> <p>Intraperitoneal Injection of the Sirt1 Activator Srt1720 Attenuates the Progression of Experimental Osteoarthritis in Mice</p> <p>Kyohei Nishida, Takehiko Matsushita, Koji Takayama, Kanto Nagai, Takao Inokuchi, Zhang Shurong, Daisuke Araki, Tomoyuki Matsumoto, Ryosuke Kuroda, Masahiro Kurosaka</p>	<p>10:13 AM Paper No. 0269</p> <p>Bone Strength Change of the Lumbar Spine in Osteoporosis Patients Treated with Weekly Teriparatide Assessed by Finite Element Analysis of Clinical Computed Tomography Scans</p> <p>Satoru Ohashi, Kumiko Ono, Hiroyuki Oka, Yuho Kadono, Tetsuro Yasui, Yasunori Omata, Sakae Tanaka</p>	<p>10:33 AM Paper No. 0279</p> <p>Bearing Surface Damage Analysis of Anatomical and Reverse Total Shoulder Replacements: Retrieval Analysis Across Fixation Designs and UHMWPE Composition</p> <p>Louis G. Malito, Noah Bonenheim, Lulu Li, Taylor Lee, Steve Gunther, Tom Norris, Mike Ries, Lisa Pruitt</p>
<p>9:55 AM Paper No. 0260</p> <p>Recapitulation of the Spectrum of Intervertebral Disc Degeneration in a Large Animal Model</p> <p>Sarah E. Gullbrand, Neil R. Malhotra, Thomas P. Schaefer, Zosia Zawacki, Andrew H. Milby, George R. Dodge, Edward J. Vresilovic, Dawn M. Elliott, Robert L. Mauck, Lachlan J. Smith</p>	<p>10:15 AM Paper No. 0270</p> <p>Impact of the Static and Radiofrequency Magnetic Fields Produced by a 7T MR Imager on Metallic Spinal Materials</p> <p>Itsuko Tsukimura, Hideki Murakami, Hiroaki Endo, Daisuke Yamabe, Minoru Doita</p>	<p>10:35 AM Paper No. 0280</p> <p>Implant Positioning Has an Effect on Acromial Stresses in Reverse Shoulder Arthroplasty</p> <p>Murray T. Wong, G. Daniel G. Langohr, George S. Athwal, James A. Johnson</p>
<p>9:57 AM Paper No. 0261</p> <p>Abnormal Ultrastructure of the Osteocyte-lacuno-Canalicular System in Adolescent Idiopathic Scoliosis – a New Novel Finding</p> <p>Huanxiong Chen, Wayne Y.W. Lee, Jiajun Zhang, Zhiwei Wang, Bobby K.W. Ng, Kwong Man Lee, Tsz Ping Lam, Jian Q. Feng, Jack C.Y. Cheng</p>	<p>10:17 AM Paper No. 0271</p> <p>Does Graft Fixation at Knee Hyperextension Improve the Biomechanics of Anterior Cruciate Ligament Reconstruction?</p> <p>Ali Hosseini, Lin Lin, Chang Wan Kim, Lianxin Wang, Peter D. Asnis, Guoan Li</p>	<p>10:37 AM Paper No. 0281</p> <p>Bone Quality Variations in Osteoarthritic B2 Glenoid Following Eccentric Reaming During Total Shoulder Arthroplasty</p> <p>Akhil Reddy, Xiang Chen, Andreas Kontaxis, Daniel Choi, David Dines, Russell Warren, Lawrence Gulotta</p>
<p>9:59 AM Paper No. 0262</p> <p>Dynamic Foraminal Dimensions During Neck Extension and Rotation in Fusion and Artificial Disc Replacement</p> <p>Yener N. Yeni, Tim Baumer, Daniel Oravec, Azam Basheer, Michael Bey, Stephen W. Bartol, Victor Chang</p>	<p>10:19 AM Paper No. 0272</p> <p>Relationship Between Patella Alta, MPFL Elongation, and Patellar Dislocation</p> <p>Clare K. Fitzpatrick, Robert Steensen, Paul Rullkoetter</p>	<p>10:39 AM Paper No. 0282</p> <p>In Vivo Reduction in Carpal Tunnel Pressure During Radioulnar Wrist Compression</p> <p>Zong-Ming Li, Tamara L. Marquardt, Joseph N. Gabra, Peter J. Evans, William H. Seitz, Edward Diado</p>
<p>10:01 AM Paper No. 0263</p> <p>Sex Differences in Dynamic Lumbar Intervertebral Disc Rotation and Translation</p> <p>Jeannie F. Bailey, Chip Wade, Jeffrey C. Lotz, Patricia A. Kramer</p>	<p>10:21 AM Paper No. 0273</p> <p>A Novel Magnesium Ring Device Can Enhance Anterior Cruciate Ligament Healing</p> <p>Kathryn F. Farraro, Antonio Pastore, Jonquil R. Mau, Savio L-Y Woo</p>	<p>10:41 AM Paper No. 0283</p> <p>The Stabilizing Function of the Posterior Bundle of the Medial Collateral Ligament in Elbow Dislocation</p> <p>Dave Shukla, Elan Golan, Phillip M. Nasser, Maya Culbertson, Michael Hausman</p>
<p>10:03 AM Paper No. 0264</p> <p>Spinal Correction and Fusion Surgery Improves the Asymmetrical Trunk Kinematics During Gait of Adolescent Idiopathic Scoliosis with Thoracic Single Major Curve</p> <p>Mitsuhiro Nishida, Takeo Nagura, Nobuyuki Fujita, Masaya Nakamura, Morio Matsumoto, Kota Watanabe</p>	<p>10:23 AM Paper No. 0274</p> <p>The Influence of the Tibial Resection on the PCL in PCL-Retaining Total Knee Arthroplasty: A Clinical and Cadaveric Study</p> <p>Yoshio Onishi, Hiromasa Miura</p>	<p>10:43 AM Paper No. 0284</p> <p>Instability Following Sectioning of the Posterior Bundle of the Elbow's Medial Collateral Ligament</p> <p>Elan Golan, Dave R. Shukla, Phillip Nasser, Michael Hausman</p>

MONDAY | SESSIONS 9:45 AM – 10:45 AM | MONDAY, MARCH 7, 2016




TIME	SESSION 42 Models of Muscle Disease	SESSION 43 Upper Extremity	SESSION 44 Knee Ligament
ROOM	Coronado L	Fiesta 5	Fiesta 6
Moderators	Christopher Mendias, PhD and Samuel Ward, PhD	Richard Debski, PhD and Eric Ricchetti, MD	Louis DeFrate, PhD and Carl Imhauser, PhD
9:45 AM	Paper No. 0285 Muscle Microvascular Blood Flow, Oxygenation, and pH Decrease in Simulated Acute Compartment Syndrome Sravya T. Challa, Amarachi Uzosike, Alan R. Hargens, Brandon R. Macias	Paper No. 0291 Site and Severity of the Increased Humeral Retroversion in Symptomatic Baseball Players: A Three-Dimensional Computed Tomographic Analysis Yasuo Itami, Teruhisa Mihata, Koji Shibano, Kazuomi Sugamoto, Masashi Neo	Paper No. 0297 Does Early Anterior Cruciate Ligament Reconstruction Restore Dynamic Knee Function and Improve Clinical Outcomes? Yuichiro Nishizawa, James J. Irrgang, Freddie H. Fu, Scott Tashman
9:55 AM	Paper No. 0286 Muscle Activity Pattern of the Shoulder Internal Rotators: An Assessment Using Positron Emission Tomography Gaku Matsuzawa, Hirotaka Sano, Nobuyuki Yamamoto, Eiji Itoi	Paper No. 0292 Alteration of Passive Stiffness in the Supraspinatus Muscle After Double-Row and Knotless Transosseous Equivalent Rotator Cuff Repair Techniques Taku Hatta, Hugo Giambini, Alexander Hooke, Chunfeng Zhao, John W. Sperling, Scott P. Steinmann, Nobuyuki Yamamoto, Eiji Itoi, Kai-Nan An	Paper No. 0298 Region-Specific Mechanical and Microstructural Properties of the Human ACL Follow a Linear Gradient Ryan M. Castile, Nathan W. Skelley, Christian Weber, Robert H. Brophy, Spencer Lake
10:05 AM	Paper No. 0287 Reduced Muscle Degeneration and Decreased Fatty Infiltration After Rotator Cuff Tear in a PARP-1 Knock-Out Mouse Model Michael B. Kuenzler, Katja Nuss, Agnieszka Karol, Michael O. Schaer, Michael O. Hottiger, Sumit Raniga, David Kenkel, Brigitte Von Rechenberg, Matthias A. Zumstein	Paper No. 0293 Effects of Rotator Cuff Pathology and Physical Therapy on Shoulder Motion and Clinical Outcomes Tim Baumer, Cathryn Peltz, Anne Drake, Derek Chan, Veronica Mende, Jack Dischler, Vasilios Moutzouras, Michael Bey	Paper No. 0299 Multicenter Study: The Effects of ACL Reconstruction on Knee Cartilage Matrix at 6 Months Post-Surgery Alan Li, Keiko Amano, Valentina Pedioia, Benedikt Schwaiger, Kimberly Amrami, Matthew Koff, Aaron Krych, Scott Rodeo, Hollis Potter, Xiaojuan Li, C. Benjamin Ma, Thomas Link, Sharmila Majumdar
10:15 AM	Paper No. 0288 RhoA/ROCK Signaling Mediates Chronic Inflammation-Associated Pathologies in Diseased Muscles Xiaodong Mu, Ying Tang, Bing Wang, Johnny Huard	Paper No. 0294 Muscular Stabilization During Supination Reduces Radial Head Translation While Increasing the Shear Load Lin Wei, Sunghwan Kim, Edward Birdsong, Mark Carl Miller	Paper No. 0300 The Biomechanical Role of the Anterolateral Ligament of the Knee in the Context of Anterior Cruciate Ligament Reconstruction James Boorman-Padgett, Ran Thein, Jelle Van Der List, Danyal Nawabi, Thomas Wickiewicz, Andrew Pearle, Carl Imhauser
10:25 AM	Paper No. 0289 Mmp1 Gene Transfer Enhances Myoblast Migration and Engraftment in Mdx/scid Mice Haiying Pan, Kinga Vojnits, Thomas Liu, Fanwei Meng, Lei Yang, Yigang Wang, Johnny Huard, Charles Cox, Yong Li	Paper No. 0295 Is a Dart Throw Motion the Optimal Rehabilitation Motion After Surgical Reconstruction of the Scapholunate Interosseous Ligament? Frederick W. Werner, Philip A. Mohun, Brian J. Harley, Walter H. Short	Paper No. 0301 Asymmetries in Knee Kinematics and Cartilage Contact Patterns Are Correlated with ACL Graft Placement Following Reconstructive Surgery Jarred Kaiser, Michael F. Vignos, Colin R. Smith, Richard Kijowski, Geoffrey Baer, Darryl G. Thelen
10:35 AM	Paper No. 0290 Characterizing Lumbar Multifidus Fatty Infiltration with MRI: Is There a Correct Region of Interest? Jade He, Takayuki Nakajima, Alejandro A. Espinoza Orias, Howard S. An, Nozomu Inoue	Paper No. 0296 Intraoperative Fluoroscopic Assessment of Proper Implant Height in Radial Head Replacement Using Proximal Edge of Lesser Sigmoid Notch Hyun-Min Kim, Evan Roush, Casey Kiser	Paper No. 0302 Quantitative Evaluation of Knee Laxity with Isolated Anteromedial- or Posterolateral-Bundle Anterior Cruciate Ligament Deficient Knees Daisuke Araki, Ryosuke Kuroda, Takehiko Matsushita, Kouki Nagamune, Tomoyuki Matsumoto, Koji Takayama, Masahiro Kurosaka

MONDAY | SESSIONS 12:30 PM – 1:30 PM | MONDAY, MARCH 7, 2016

TIME	SPOTLIGHT SESSION 45 Inflammation and Osteoarthritis	SESSION 46 Spine: Disc Biology	SESSION 47 Stem Cells in Muscle Disease and Repair	SESSION 48 Tendon and Ligament: Progenitors and Stem Cells	SESSION 49 Gene Therapy and Genetic Regulation of Joint Tissue Homeostasis
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5	Fiesta 6
Moderators	Mary Goldring, PhD and Raghunatha Yammani, PhD	Bryan Cunningham, PhD and Nancy Hadley-Miller, MD	Roger Cornwall, MD and Lisa Larkin, PhD	Catherine K. Kuo, PhD and Dianne Little, DVM, PhD	Magali Cucchiari, PhD and Elisabeth Ferreira, PhD
12:30 PM	 <p>SPOTLIGHT SPEAKER</p> <p>Carla R. Scanzello, PhD</p> <p>Chemokines and Inflammation in Osteoarthritis: Insights from Patients and Animal Models</p>	<p>Paper No. 0306</p> <p>Whole-Transcriptome Profiling of Notochord-Derived Cells During Embryonic Nucleus Pulposus Formation</p> <p>Sun H. Peck, Kendra K. McKee, Neil R. Malhotra, John W. Tobias, Robert L. Mauck, Brian D. Harfe, Lachlan J. Smith</p>	<p>Paper No. 0312</p> <p>Characterization of Injured Muscle-Derived Stem Cell-Like Cells</p> <p>Kinga Vojnits, Haiying Pan, Xiaodong Mu, Yong Li</p>	<p>Paper No. 0318</p> <p>Expression of TGFβ Signaling Molecules During Neonatal Tendon Regeneration</p> <p>Kristen Howell, Rebecca Bell, Chun Chien, Nelly Andarawis-Puri, Alice H. Huang</p>	<p>Paper No. 0324</p> <p>Quantification of Mesenchymal Stem Cell Chondrogenesis Using Conditionally Active Lentiviral Reporter Vectors</p> <p>Alfonso Martin Pena, Ryan Porter, Isaac Adjei, Blanka Sharma, Steven Ghivizzani, Glyn Palmer</p>
12:40 PM		<p>Paper No. 0307</p> <p>Cadherin2/n-cadherin Deficiency in Nucleus Pulposus Causes Loss of Cell Vacuolation and Disc Integrity</p> <p>Changli Zhang, Foonlian Lim, Wai-Kit Tam, Tiffany Y Au, Kathryn S. Cheah, Kenneth M. Cheung, Victor Y. Leung</p>	<p>Paper No. 0313</p> <p>mTOR Signaling Modulates the Differentiation Capacity of Muscle-Derived Stem/Progenitor Cells Isolated from Progeroid Zmpste24-Deficient Mice</p> <p>Yohei Kawakami, Makoto Kobayashi, Aiping Lu, Koji Takayama, Tomoyuki Matsumoto, Rysuke Kuroda, James H. Cummins, Masahiro Kurosaka, Freddie H. Fu, Johnny Huard</p>	<p>Paper No. 0319</p> <p>CITED2 Reprogrammed Stem Cells Slow Disease Progression and Relieve Pain in Tendinopathy</p> <p>Daniel J. Leong, Zhiyong He, Teresa Doerre, Robert Majeska, David Gonzalez, Tony Wanich, Konrad Gruson, David Spray, Nelly Andarawis-Puri, Evan Flatow, Hui Bin Sun</p>	<p>Paper No. 0325</p> <p>rAAV-Mediated SOX9 Overexpression Induces Chondrogenesis in Human Bone Marrow Aspirates Seeded in Woven Poly (ε-caprolactone) Scaffolds</p> <p>Jagadeesh K. Venkatesan, Frank Moutos, Ana Rey-Rico, Janina Frisch, Gertrud Schmitt, Farshid Guilak, Henning Madry, Magali Cucchiari</p>
12:50 PM		<p>Paper No. 0308</p> <p>Influence of Cartilage Endplate Permeability on Intervertebral Disc Nutrition</p> <p>Aaron J. Fields, Ann Ouyang, Xinyan Tang, Jeffrey C. Lotz</p>	<p>Paper No. 0314</p> <p>Impaired Muscle Satellite Cell Maturation in Children with Cerebral Palsy</p> <p>Andrea A. Domenighetti, Margie Mathewson, Henry G. Chambers, Richard L. Lieber</p>	<p>Paper No. 0320</p> <p>Mohawk Knock-Out Rats Revealed Early Heterotopic Ossification of Achilles Tendon Through Failed Tenogenesis</p> <p>Hidetugu Suzuki</p>	<p>Paper No. 0326</p> <p>Dynamic Epigenetic Mechanisms Regulate Age-Dependent Sox9 Expression In Mouse Articular Cartilage</p> <p>Mingcai Zhang, Qinghua Lu, Andrew Miller, Nicholas Barnhouse, Jinxi Wang</p>
1:00 PM	<p>Paper No. 0303</p> <p>Visualizing Collagen Landscape and Inflammatory Activity Changes in Early Stages of Experimental OA Through Second Harmonic Generation and Bioluminescence Imaging</p> <p>Carrie K. Hui, Zhiyi Liu, Averi A. Leahy, Irene Georgakoudi, Li Zeng</p>	<p>Paper No. 0309</p> <p>Changes in Systemic Biomarkers Are Correlated with Improvement in Pain in Patients Treated with Epidural Steroid Injection for Lumbar Disc Disorders</p> <p>Kathryn T. Weber, Shina Satoh, Justin Virojanapa, Cristina Sison, Shaheda Quraishi, Ona Bloom, Nadeen Chahine</p>	<p>Paper No. 0315</p> <p>Testosterone Protects Against Development of Chronic Widespread Fatigue-Induced Muscle Pain</p> <p>Shinsuke Inoue, Kathleen Sluka</p>	<p>Paper No. 0321</p> <p>Stem/Progenitor Cell Recruitment to Deteriorating Tendons in Mice with Conditional Deletion of TGF-beta Type II Receptor</p> <p>Guak-Kim Tan, Anna G. Stabio, Brian A. Pryce, Doug R. Keene, Ronen Schweitzer (1:10 PM)</p>	<p>Paper No. 0327</p> <p>Cell Contractility Established by RhoA/Rock and TGFβ/BMP Signaling Mediates Load-Induced Chromatin Condensation</p> <p>Su-Jin Heo, Spencer E. Szczesny, Brian D. Cosgrove, Kamil S. Saleh, Randall L. Duncan, Robert L. Mauck</p>
1:10 PM	<p>Paper No. 0304</p> <p>Genetic Modulation of the Innate Immune System Alters the Pathology of High-Fat Diet Induced Osteoarthritis in Aged Mice</p> <p>Evangelia Kalaitzoglou, Jacquelyn Herron, Erika Barboza-Lopes, Yao Fu, Joanna Hudson, Timothy Griffin, Mary Beth Humphrey</p>	<p>Paper No. 0310</p> <p>PHD2 and PHD3 Control HIF-1 Transcriptional Activity Under Hypoxia Independent of PKM2/JMJD5 Axis in Nucleus Pulposus Cells</p> <p>Zachary R. Schoepflin, Irving Shapiro, Makarand V. Risbud</p>	<p>Paper No. 0316</p> <p>Therapeutic Effect of 4-Aminopyridine on Muscle Atrophy in Mice with Sciatic Nerve Crush</p> <p>Li Yue, Hongli Chen, Andrew Clark, John Elfar</p>	<p>Paper No. 0322</p> <p>An Investigation of Repair of Rotator Cuff Tendon Using Tenocytes, Mesenchymal Stem Cells and Tenogenic Mesenchymal Stem Cells</p> <p>Sik-Loo Tan, Chee-Ken Chan, Savatey Hak, Seow-Hui Teo, Wuey-Min Ng, Lakshmi Selvaratnam, Tunku Kamarul</p>	<p>Paper No. 0328</p> <p>MicroRNA-365 Accelerates Cartilage Degeneration In Vivo by Up-Regulating MMP-13 Through Multiple Direct Targets</p> <p>Kun Yang, Yun Gao, Yingjie Guan, Xu Yang, Yuanhe Wang, Qian Chen</p>
1:20 PM	<p>Paper No. 0305</p> <p>Comprehensive Screening of Chemokines Related to Articular Cartilage Repair</p> <p>Zenta Joutoku, Tomohiro Onodera, Daisuke Momma, Masatake Matsumoto, Rikiya Baba, Kazutoshi Hontani, Shinji Matsubara, Kentaro Homan, Rysuke Hishimura, WooYoung Kim, Norimasa Iwasaki</p>	<p>Paper No. 0311</p> <p>Culture with Live Annulus Cells and Culture with Annulus Cell Conditioned Media Significantly Increase Neurite Growth</p> <p>Helen Elizabeth Gruber, Gretchen L. Hoelscher, Letitia Bullock, Jane A. Ingram, Edward N. Hanley</p>	<p>Paper No. 0317</p> <p>Effects of Dexamethasone on Satellite Cells and Tissue-Engineered Skeletal Muscle Units</p> <p>Brian C. Syverud, Keith W. VanDusen, Lisa M. Larkin</p>	<p>Paper No. 0323</p> <p>The Differential Effects of Leukocytes-Containing and Pure Platelet-Rich-Plasma (PRP) on Tendon Stem Cells – Implications of PRP Application for the Treatment of Tendon Injuries</p> <p>Yiqin Zhou, Jianying Zhang, Haishan Wu, MaCalus Hogan, James H-C Wang</p>	<p>Paper No. 0329</p> <p>Transcriptome-Wide Analysis of Human Chondrocyte Dedifferentiation on TC Plastic</p> <p>Thomas J. Kean, Sarah Koelewyn, Zhongqi Ge, Yumei Li, Rui Chen, James E. Dennis</p>

MONDAY | SESSIONS 1:45 PM – 2:45 PM | MONDAY, MARCH 7, 2016

TIME	SESSION 50 Biomaterials Cartilage I	SESSION 51 Osteoclasts and Osteolysis	SESSION 52 Diagnostic Imaging – Novel Techniques for Multi-Tissues and Multi-Modality	SESSION 53 Tendon and Ligament: Cell Biology and Development	SPOTLIGHT SESSION 54 Lower Limb Biomechanics
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5	Fiesta 6
Moderators	Caroline Hoemann, PhD and Syam Nukavarapu, PhD	Nadim Hallab, PhD and Edward Purdue, PhD	Ara Nazarian, PhD and Hollis Potter, MD	Alice Huang, PhD and Michael Mienaltowski, PhD	Jarrett Cain, MSc, DPM, FACFAS and Robin M. Queen, PhD
1:45 PM	Paper No. 0330 The Synergistic Effects of Chondrogenic, Osteogenic and Vasogenic Regenerative Medicine Using Endothelial Progenitor Cells, Construct and Physiotherapy Treatment Shu-Wei Wu, Hsueh Chun Wang, Tzu-Hsiang Lin, Nai-Jen Chang, Hornig-Chaung Hsu, Chih-Chan Lin, Ming-Long Yeh	Paper No. 0336 Runx1 Mediates Regulation of Osteoclast Formation and Function in Myeloid Osteoclast Precursors David N. Paglia, Judy Kalinowski, Sandra Jastrzebski, Joseph Lorenzo, Hicham Drissi	Paper No. 0342 Passive Stretch of Muscle Fibers Measured In Vivo Using a Novel MRI Diffusion Tensor Imaging-Based Approach Valentina Mazzoli, Jos Oudeman, Marco A. Marra, Gustav J. Strijkers, Aart J. Nederveen, Klaas Nicolay, Nico Verdonchot, Andre Sprengers, Martijn Froeling	Paper No. 0348 Identification of Fibroblast Specific Protein 1 (Fsp1) as a Pro-Fibrotic Cell Marker in Flexor Tendon Healing Jessica Ackerman, Alayna Loisel	 <p>SPOTLIGHT SPEAKER Nico Verdonchot, PhD</p> <p>Simulation Models in Orthopaedic Biomechanics of the Lower Limb</p>
1:55 PM	Paper No. 0331 PEO-PPG-PEO Micelles as Effective rAAV-Mediated Delivery Systems to Genetically Modify Human Mesenchymal Stem Cells Without Altering Their Differentiation Potency Ana Rey-Rico, Jagadeesh K. Venkatesan, Janina Frisch, Isabel Rial-Hermida, Angel Concheiro, Henning Madry, Carmen Alvarez-Lorenzo, Magali Cucchiari	Paper No. 0337 Transcription Factor Mef2c Has Both an Anti-Anabolic and a Pro-catabolic Function in Bone Aimy Sebastian, Crista S. Yee, Deepa K. Murugesu, Sarah Hatsell, Aris N. Economides, Alexander G. Robling, Gabriela G. Loots	Paper No. 0343 Cartilage Thickness and Surface Roughness Patterns in Healthy and Osteoarthritic Knees: 3D Analysis of Osteoarthritis Initiative Subjects Using Mesh Parameterization Michael Newton, Karissa Gawronski, Kevin Baker, Tristan Maerz	Paper No. 0349 Structure and Composition in Tendons with Altered Collagen V Expression Are Location-Dependent Brianna K. Connizzo, Sheila M. Adams, David E. Birk, Louis J. Soslowsky	
2:05 PM	Paper No. 0332 Repair of Articular Cartilage Defects by Acellular Technique with an Ultrapurified Alginite Gel in a Canine Model Tomohiro Onodera, Rikiya Baba, Masatake Matsuo, Daisuke Momma, Kazutoshi Hontani, Toshihiko Tsuda, Norimasa Iwasaki	Paper No. 0338 Preventing Osteocyte- Apoptosis-Triggered Bone Resorption After Estrogen Loss: A Novel Approach Using a Biphosphonate Analogue Wing-Yee Cheung, Samuel Stephen, Jessica Thomas, Frank H. Ebetino, Mark W. Lundy, Robert J. Majeska, Mitchell B. Schaffler	Paper No. 0344 New Semi-Automatic Segmentation Method for Biomechanical Orthopaedic Applications Mimmi K. Luukkainen, Mika E. Mononen, Petri Tanska, Simo Saarakkala, Miika Nieminen, Rami K. Korhonen	Paper No. 0350 Wnt/β-catenin Signaling Contributes to Gene Expressions Related in Tendon Differentiation and Homeostasis Yasuzumi Kishimoto, Bisei Ohkawara, Kentaro Miyamoto, Naoki Ishiguro, Kinji Ohno, Tadahiro Sakai	
2:15 PM	Paper No. 0333 Microscopic MR Imaging and Polarized Light Microscopy of Hypertrophic Articular Cartilage David Kahn, Daniel Mittelstaedt, Yang Xia	Paper No. 0339 The Effect of Local IL-4 Delivery or CCL2 Blockade on Implant Fixation and Bone Structural Properties in a Mouse Model of Wear Particle Induced Osteolysis Jukka Pajarinen, Taishi Sato, Anthony Behn, Xinyi Jiang, Tzu-hua Lin, Florence Loi, Zhenyu Yao, Fan Yang, Stuart Goodman	Paper No. 0345 Correlation of MRI Appearance of Total Hip Arthroplasty with Wear Metric and Histologic Evaluation Matthew F. Koff, Parina Shah, Mauro Miranda, Christina Esposito, Elexis Baral, Kara Fields, Thomas Bauer, HSS Adult Reconstruction and Joint Replacement Div, Douglas Padgett, Timothy Wright, Hollis G. Potter	Paper No. 0351 Scleraxis is Required for the Growth and Adaptation of Adult Tendons to Mechanical Loading Jonathan P. Gumucio, Christopher L. Mendias	Paper No. 0354 Active and Passive Moments in Foot Joints During Walking Yongcheol Kim, Kyung-Min Lee, Seungbum Koo
2:25 PM	Paper No. 0334 Loading-Induced "On-Demand" Delivery from Mechanically Activated Microcapsules Bhavana Mohanraj, Miju Kim, Fuquan Tu, Daeyoon Lee, George R. Dodge, Robert Mauck	Paper No. 0340 Progranulin Protects Against Titanium-Induced Inflammatory Osteolysis by Targeting Tnf Signaling Jianlu Wei, Yunpeng Zhao, Qingyun Tian, Chuanju Liu	Paper No. 0346 A Cortical Thickness and Radiation Dose Mapping Approach for Identifying Rapid Thinning of Ribs in Lung Cancer Patients after Stereotactic Body Radiation Therapy Jeffrey S. Willey, Catherine Okoukon, Sarah K. Lynch, Emory R. McIyre, Ashley A. Weaver, A. William Blackstock, Brian E. Lally, Michael M. Munley	Paper No. 0352 GFP Reporters Within the Tendon Lineage Display Differential Expression Between Multiple Tendons and Ligaments Nathaniel A. Dymont, Jianping Huang, David W. Rowe	Paper No. 0355 Peak Plantar Pressure Forces During Running While Transitioning from Traditional to Minimalist Shoe Wear Donna Moxley Scarborough, Hollie K. Leonard, Matthew Salzler, Melissa Kusy, Eric M. Berkson
2:35 PM	Paper No. 0335 Thermoresponsive, Photocrosslinkable Hydrogels Derived from Decellularized Tendon and Cartilage Extracellular Matrices Benjamin Rothrauff, Luca Coluccino, Riccardo Gottardi, Peter Alexander, Luca Ceseracciu, Rocky Tuan	Paper No. 0341 Titanium Particles and Mechanical Instability Share Inflammatory Pathways for Induction of Periprosthetic Osteolysis Mehdi Amirhosseini, Göran Andersson, Per Aspenberg, Anna Fahlgren	Paper No. 0347 Voxel Based T1ρ and T2 Relaxation Times Are Associated with Hip Osteoarthritis Progression Matthew C. Gallo, Valentina Pedoia, Cory Wyatt, Deepak Kumar, Thomas M. Link, Richard B. Souza, Sharmila Majumdar	Paper No. 0353 Examination of Genome-Wide Methylation Changes in a Murine Model of Tendinopathy Using MiniSeq Technology Katie J. Trella, Jun Li, Jorge Galante, Vincent M. Wang, John D. Sandy, Eleni Stylianou, Anna Plaas, Robert Wysocki	Paper No. 0356 Cadaveric Gait Simulation Reproduces Foot and Ankle Kinematics from Population- Specific Inputs Josh R. Baxter, Daniel R. Sturnick, Constantine Demetropoulos, Scott Ellis, Jonathan Deland

TUESDAY | MEETING HIGHLIGHTS | TUESDAY, MARCH 8, 2016

7:00 AM – 1:30 PM

POSTERS OPEN

Innovation Central

7:30 AM – 8:30 AM

POSTER VIEWING (Poster Session II)

Innovation Central

8:45 AM – 9:45 AM

SESSIONS:

Infection

Coronado K

Bone and Cartilage Imaging

Fiesta 6

8:45 AM – 10:15 AM

WORKSHOPS:

3-Dimensional Human Tissue Models to Study Musculoskeletal Physiology and Pathophysiology

Coronado H–J

Emerging Role of Metabolic Signaling in Synovial Joint Remodeling and Osteoarthritis

Fiesta 5

8:45 AM – 10:15 AM

PROFESSIONAL ADVANCEMENT SESSION:

What Does Your CV/Resume Say About You?

Monterrey 1–3

10:30 AM – 11:30 AM

SPOTLIGHT SESSION:

Mechanobiology and the Science of Engineering in Vivo Conditions

Coronado H–J

SESSIONS:

Implant Fixation and Tribocorrosion

Coronado K

Skeletal Development/Remodeling Health and Disease

Coronado L

Cancer, Tumors: Osteosarcoma

Fiesta 5

Meniscus Tissue Engineering

Fiesta 6

11:30 AM – 12:30 PM

POSTER VIEWING (Poster Session II)

Innovation Central

12:30 PM – 1:30 PM

SPOTLIGHT SESSION:

Determinants of Musculoskeletal Development and Traits

Coronado H–J

SESSIONS:

Implant Wear and Corrosion

Coronado K

Late Breaking Session

Coronado L

Novel Pharmacologic and Device Therapies for Fracture

Fiesta 5

Biomaterials Cartilage 2

Fiesta 6



TUESDAY | PROGRAM DETAILS | TUESDAY, MARCH 8, 2016

8:45 AM – 10:15 AM

WORKSHOPS:

3-Dimensional Human Tissue Models to Study Musculoskeletal Physiology and Pathophysiology

Coronado H–J

ORGANIZERS: Farshid Guilak, PhD, Washington University; Rocky S. Tuan, PhD, University of Pittsburgh School of Medicine

Current cell-based research is frequently carried out in a 2-dimensional (2-D) tissue culture environment, despite the fact that human tissues are 3-dimensional (3-D) structures that require the interactions of multiple cell types with one another and with the environment to maintain their shape and function. Most primary cells in 2-D cultures lack in vivo characteristics such as tissue-specific gene expression, cell polarity, and cell-cell and cell-matrix contacts.

Increasing knowledge about cell biology, materials science, and microfabrication technologies is enabling scientists to engineer functional units of human tissues (i.e., 3-D human tissue models).

This workshop aims to highlight recent advancements and technologies in the construction, characterization, and analysis of 3-D human tissue models relevant to musculoskeletal physiology and pathophysiology. The discussion will focus on both the opportunities and challenges, with emphasis on the cross-disciplinary nature of such endeavors, involving stem cell science, extracellular matrix, tissue engineering, biomaterial scaffolds, gene regulation, organ-on-chip techniques, and growth factor biology.

Organs on a Chip: The Future of Personalized Medicine?

Kevin E. Healy, PhD, University of California Berkeley

Genome Editing to Create Custom-Designed Cells for 3D Tissue Systems

Farshid Guilak, PhD, Washington University

3-D Microtissue Platform to Model Osteochondral Development and Disease

Rocky S. Tuan, PhD, University of Pittsburgh School of Medicine

Emerging Role of Metabolic Signaling in Synovial Joint Remodeling and Osteoarthritis

Fiesta 5

ORGANIZERS: Timothy M. Griffin, PhD, Oklahoma Medical Research Foundation; Ronald K. June, PhD, Montana State University

Changes in cellular metabolism are intricately linked to cell growth, repair, and dysfunction. A growing number of studies show that obesity and associated metabolic diseases collectively referred to as the metabolic syndrome increase the risk of skeletal and synovial joint diseases. Recent findings illustrate how changes in cellular metabolism and metabolic signaling pathways alter skeletal development, remodeling, and homeostasis in response to biomechanical and inflammatory stress. This workshop will review the evidence for impaired cellular metabolism in osteoarthritis pathophysiology, highlight cutting-edge research on cellular metabolic signaling in bone and cartilage, and discuss possible metabolic therapies to promote joint tissue repair. The workshop will also include an introduction to the cellular metabolism of synovial joint tissues and discuss the current techniques used to evaluate metabolism in these tissues.

Update on Metabolic Stress in Osteoarthritis

Timothy M. Griffin, PhD, Oklahoma Medical Research Foundation

Energy Metabolism in Joint Tissues at Rest and in Response to Mechanical Loading

Ronald K. June, PhD, Montana State University

Sweet Bones: Glucose and Glutamine Metabolism in Osteoblasts

Fanxin Long, PhD, Washington University

AMPK and Metabolism in Cartilage and Osteoarthritis

Ru Liu-Bryan, PhD, University of California San Diego

TUESDAY | PROGRAM DETAILS | TUESDAY, MARCH 8, 2016

8:45 AM – 10:15 AM

PROFESSIONAL ADVANCEMENT SESSION:

What Does Your CV/Resume Say About You?

Monterrey 1–3

Organized by the ORS New Investigator Mentoring Committee and the ORS Women's Leadership Forum

ORGANIZERS: Robin M. Queen, PhD, FACSM, Virginia Tech, Chair, ORS Women's Leadership Forum;
Tammy L. Haut Donahue, PhD, Colorado State University, Chair, ORS New Investigator Mentoring Committee

Ever wondered what makes an ideal CV/resume in order to be hired for a new job or promoted at your company/university. Your CV/resume is a window into who you are as a teacher and a scientist so you need to make sure that it is telling the best story possible. This program will explore and examine the key aspects of a CV/resume with great tips and pointers on what to do and not to do when preparing these documents. We have assembled 3 amazing speakers to explore this topic for each area (medicine, basic science and industry).

The program will begin with 3 short talks on various aspects of CV/resume writing including, but not limited to how to organize your CV, what you should include, how to make the best impression and what not to include. Following the short talks, we will have tables set up around the room for participants to ask experts in the field how to improve their individual CV. This program is ideal for the early career investigator as well as those who are beginning or about to complete the tenure process.

Please make sure that you come with a copy of your CV/resume and questions for the experts to make this the most productive session possible

SPEAKERS:

What does your CV/Resume Say About You: For Promotion in Academic Medicine?

Susan Chubinskaya, PhD, Rush University Medical Center

What does your CV/Resume Say About You: Advancement in Academia: Engineering?

Elizabeth Lobo, PhD, University of Missouri

What does your CV/Resume Say About You: Finding a Job/Being Promoted in Industry?

Gloria Matthews, DVM, PhD Histogenics

TUESDAY



TUESDAY | SESSIONS 8:45 AM – 9:45AM | TUESDAY, MARCH 8, 2016

TIME	SESSION 55 Infection	SESSION 56 Bone and Cartilage Imaging
ROOM	Coronado K	Fiesta 6

Moderators Terence McIff, PhD and Britt Wildemann, PhD Mark Grinstaff, PhD and Ferris Pfeiffer, PhD

8:45 AM Paper No. 0357
Evidence of *S. aureus* Deformation, Proliferation and Migration in Canaliculi of Cortical Bone Using a Murine Model of Osteomyelitis
Karen De Mesy Bentley, Ryan Trombetta, Kohei Nishitani, Sheila N. Bello-Irizarry, Stephen L. Kates, Hani Awad, Edward M. Schwarz

8:55 AM Paper No. 0358
Minimum Biofilm Eradication Concentration Decreases with Increasing Time of Exposure to Antimicrobials In-Vitro
Paulo Castaneda, Alexander C. McLaren, Gamuchirai Tavaziva, Derek Overstreet

9:05 AM Paper No. 0359
Voltage-Controlled Electrical Stimulation Is an Effective Treatment Adjunct for Periprosthetic Joint Infection
Scott R. Nodzo, Menachem Tobias, Richard Ahn, Lisa Hansen, Nicole Luke-Marshall, Anthony Campagnari, Mark T. Ehrensberger

9:15 AM Paper No. 0360
Antibodies Secreted by Circulating Plasmablasts: A New Biomarker for Early Diagnosis of Acute Orthopaedic Infections by *Staphylococcus aureus*
Sandeep P. Soin, Kohei Nishitani, Stephen L. Kates, Edward M. Schwarz, John L. Daiss

9:25 AM Paper No. 0361
Inhibition of Implant Osseointegration by *Acinetobacter* Depends on Quorum-Sensing, Toll-Like Receptors and IL-1 β
Hyonmin Choe, Bryan Hausman, Sona Haku, Hani A. Essber, Steve H. Marshall, Ozan Akkus, Phillip N. Rather, Robert A. Bonomo, Yutaka Inaba, Tomoyuki Saito, Edward M. Greenfield

9:35 AM Paper No. 0362
Quantification of Peri-Implant Bacterial Load and In Vivo Biofilm Formation in an Innovative, Clinically-Representative Mouse Model of Periprosthetic Joint Infection
Alberto Carli, Xu Yang, Vinicius Ladeira Craveiro, Matthew B. Shirley, Karen De Mesy Bentley, F. Patrick Ross, Mathias Bostrom

Paper No. 0363
The Influences of Different Spatial Resolutions on the Characteristics of T2 Relaxation Time in Articular Cartilage: A Study Based on Coarse-Graining the Microscopic MRI Data
Zhiguo Zhuang, Ji Hyun Lee, Farid Badar, Yang Xia

Paper No. 0364
Detecting the Early Cartilage Lesions Using Novel Three-Dimensional T1rho Mapping
Munehiro Ogawa, Kazunori Tanaka, Yusuke Inagaki, Tsukasa Kumai, Yasuhito Tanaka

Paper No. 0365
Quantitative Analysis of T2 Relaxation Times of the Patellofemoral Joint Cartilage 3 Years After ACL Reconstruction
ChangWan Kim, Ali Hosseini, Yang Wang, Martin Torriani, Alan Grodzinsky, Guoan Li


Paper No. 0366
Morphological Changes In Bone-Cartilage Interface During Osteoarthritis
Tanja Lehto, Jérôme Thevenot, Petri Lehenkari, Maarit Valkealahti, Olli-Matti Aho, Mikko A. Finnilä, Sakari S. Karhula, Lassi Rieppo, Simo Saarakkala

Paper No. 0367
3D MRI-Based Statistical Shape Modeling for the Analysis of Longitudinal Bone Shape Changes 6 Months and 1 Year After Anterior Cruciate Ligament Reconstruction
Valentina Padoia, Keiko Amano, Drew Lansdown, Benjamin Ma, Xiaojuan Li


Paper No. 0368
Development of an Osteoarthritis Grading System Based on Clinical Contrast-Enhanced Computed Tomography for the Assessment of Cartilage Integrity
Brad B. Nelson, Rachel C. Stewart, Chris E. Kawcak, Jonathan D. Freedman, Brian Snyder, Laurie R. Goodrich, Mark W. Grinstaff



TUESDAY | SESSIONS 10:30 AM – 11:30 AM | TUESDAY, MARCH 8, 2016

TIME	SPOTLIGHT SESSION 57 Mechanobiology and the Science of Engineering In Vivo Conditions	SESSION 58 Implant Fixation and Tribocorrosion	SESSION 59 Skeletal Development/ Remodeling Health and Disease	SESSION 60 Cancer, Tumors: Osteosarcoma	SESSION 61 Meniscus Tissue Engineering
ROOM	Coronado H-J	Coronado K	Coronado L	Fiesta 5	Fiesta 6
Moderators	Rhima Coleman, PhD and Robert Sah, MD, PhD	Bo Gao, PhD and Michael Morlock, PhD	Thomas Hering, PhD and Audrey McAlinden, PhD	Timothy Damron, MD and Michelle A. Ghert, MD	Catherine Holt, PhD and Aaron Stoker, PhD
10:30 AM	 <p>SPOTLIGHT SPEAKER Clark T. Hung, PhD</p> <p>Chondrocyte Mechanobiology: Application to Cartilage Tissue Engineering</p>	Paper No. 0372 Intermittent Parathyroid Hormone Enhances Osseointegration of a Physiologically Loaded Tibial Implant in Ovariectomized Mice Xu Yang, Joseph E. Kossel, Matthew B. Shirley, Caroline Brial, Arvinth Sethuraman, Christina Asare, Vinicius Craveiro, Jodhvir Mangat, Aleksey Dvorzhinskiy, Benjamin F. Ricciardi, F. Patrick Ross, Marjolein C.H. Van der Meulen, Mathias P.G. Bostrom	Paper No. 0378 The Majority of Fibrodysplasia Ossificans Progressiva-Related Variants of Acvr1 Drive Heterotopic Ossification by Aberrantly Perceiving the Natural Antagonist Activin A as an Agonist Dana M. Alessi Wolken, Hyon J. Kim, Joyce McClain, Richard A. Corpina, Harikiran Nistala, Christopher J. Schoenherr, Andrew J. Murphy, Sarah J. Hatsell, Aris N. Economides, Vincent Idone	Paper No. 0384 Opportunities for Drug Repurposing in Osteosarcoma: A Screen of FDA-Approved Oncology Drugs in a Micrometastatic Model of Disease Christopher D. Collier, James D. Buschbach, Deep A. Gandhi, Patrick J. Getty, Edward M. Greenfield	Paper No. 0390 Evaluating Mechanical Properties of a Decellularized and Laser-Drilled Meniscus Replacement Emily H. Lakes, Peter S. McFetridge, Kyle D. Allen
10:40 AM		Paper No. 0373 Locally Administered Bisphosphonate in Acetabular Revisions Using the Bone Impaction Technique — a Randomized, Placebo-Controlled Study Evaluated with Radiostereometric Analysis and Dual-Energy X-ray Absorptiometry Magnus Tägil, Gunnar Flivik, Vasilis Zampelis, Martin Sundberg, Ola Belfrage	Paper No. 0379 Adams 18, A Novel Regulator of Skeletal Maturity and Bone Remodeling Sardar Uddin, Chuanju Liu	Paper No. 0385 Targeted Inhibition of Insulin-Like Growth Factor 1 Receptor Signaling for Potential Treatment of Human Osteosarcoma Maryam K. Mohammed, Zhan Liao, Hue H. Luu, Rex C. Haydon, Tong-Chuan He	Paper No. 0391 Development of a Novel Decellularized Meniscal Scaffold for Use in Tissue Engineering Farrah A. Monibi, Aaron M. Stoker, Ferris M. Pfeiffer, Keiichi Kuroki, Seth L. Sherman, James L. Cook
10:50 AM		Paper No. 0374 Low BMD and Long Time in Service Increase Total Knee Replacement Failure Risk from Mechanical Overload Mark A. Miller, William Zimmerman, Kenneth A. Mann	Paper No. 0380 Intracellular Cholesterol Production Is Required for Chondrocyte Differentiation: Analysis of Srebp Cleavage-Activating Protein (scap) Deficient Mice Hidetoshi Tsushima, Shu-Hsuan C. Hsu, Yuning J. Tang, Terese Camp, Puvvi Nadesan, Vijitha Puvindran, Yinshi Ren, Anthony J. Mirando, Deepika Sharma, Matthew J. Hilton, Benjamin Alman	Paper No. 0386 Three-Dimensional Drug-Screening Platform for Progression of Osteosarcoma Micrometastases Demonstrates Heterogeneous Response to MAP Chemotherapy Christopher D. Collier, Emily C. Wirtz, William Z. Morris, Patrick J. Getty, Edward M. Greenfield	Paper No. 0392 Heterogeneous Tissue-Engineered Constructs (hetTECs) Recapitulate the Micromechanical and Mechanobiologic Complexity of Native Dense Connective Tissues Su-Jin Heo, Woojin M. Han, Claire M. McLeod, Randall L. Duncan, Dawn M. Elliott, Robert L. Mauck
11:00 AM	Paper No. 0369 N-Cadherin Presentation Alters Rac1 Signaling to Modulate Mesenchymal Progenitor Cell Mechanosensing of Soft Tissue Microenvironments Brian D. Cosgrove, Keeley L. Mui, Tristan P. Driscoll, Richard K. Assoian, Jason A. Burdick, Robert L. Mauck	Paper No. 0375 Clinical Relevance of Corrosion Patterns Attributed to Inflammatory Cell Induced Corrosion: A Retrieval Study Anna Di Laura, Harry Hothi, Jay Meswania, Robert Whittaker, Danielle De Villiers, Gordon Blunn, John Skinner, Alister Hart	Paper No. 0381 Radical Therapeutic Strategy for Foramen Magnum Stenosis and Spinal Canal Stenosis in Achondroplasia Masaki Matsushita, Hiroshi Kitoh, Kenichi Mishima, Hiroshi Sugiura, Sachi Hasegawa, Naoki Ishiguro, Kinji Ohno	Paper No. 0387 Intra-Tumoral Heterogeneity in Osteosarcoma and Its Therapeutic Implications Padraic P. Levings, Emma V. Hyddmark, Elham Nasri, Ali Zarezaadeh, Steven Ghivizzani, Parker Gibbs	Paper No. 0393 Transplantation of Aggregates of Synovial Mesenchymal Stem Cells Promotes Meniscus Regeneration in Monkeys Shimpei Kondo, Takeshi Muneta, Yusuke Nakagawa, Toshifumi Watanabe, Kunikazu Tsuji, Ichiro Sekiya
11:10 AM	Paper No. 0370 A Secretomic Comparison of the Induction of Chondrogenesis in Human Mesenchymal Stem Cells via TGF-β1 and Mechanical Load Oliver F.W. Gardner, Niamh Fahy, Mauro Alini, Martin Stoddart	Paper No. 0376 Effect of Biofilm on CoCrMo Corrosion Philip Chuang, Viswanathan Swaminathan, Leonid Pavlovsky, Ligaya Marquez-Catral, David Jones, Lin Song	Paper No. 0382 Primary Glia Are Required for Migration and Differentiation of Periosteal Progenitors in Skeletal Development Emily Moore, Yuchen Yang, Christopher Jacobs	Paper No. 0388 Wnt/β-catenin Signaling Is Activated in Chondrosarcoma and May Serve as a Potential Target for Treatment Zhiyong He, David Geller, Daniel Leong, Justin Tang, Johnathan Morris, Shalom Kalnicki, Chandan Guha, Hui Bin Sun	Paper No. 0394 Co-Culture of Meniscal Fibrochondrocytes and Mesenchymal Stem Cells Enhances the Lubrication of Tissue-Engineered Constructs Through Lubricin Localization Edward D. Bonnevie, Mary Clare McCorry, Lawrence J. Bonassar
11:20 AM	Paper No. 0371 II-1α Enhances Piezo1-Mediated Degradation in Modular Articular Chondrocytes Whasil Lee, Holly A. Leddy, Amy McNulty, Farshid Guilak, Wolfgang Liedtke	Paper No. 0377 Retrieval Analysis of Degradation in Modular Total Knee Replacements Audrey Martin, Kirsten Seagers, Michael Mayor, Douglas Van Citters	Paper No. 0383 TIMP3 Gene Affects Compositional, Structural and Mechanical Integrity of Bone Brendyn Miller, Lyudmila Spevak, Lyudmila Lukashova, Behzad Javaheri, Andrew A. Pitsillides, George Bou-Gharios, Adele L. Boskey, Alessandra Carriero	Paper No. 0389 Tumor-Elicited Secretion of IL6 and of IL8 from Reactive Mesenchymal Stroma Is Enhanced Under the Acidic Microenvironment of Glycolytic Cancer Cells and Promotes Osteosarcoma Stemness Sofia Avnet, Gemma Di Pompo, Margherita Cortini, Gloria Bonuccelli, Tokuhiko Chano, Nicola Baldini	Paper No. 0395 A New Silk Fibroin Scaffold for Partial Meniscal Replacement Exhibits Friction Coefficients Similar to the Physiologically Articulating Surfaces Daniela Warnecke, Natalie B. Schild, Svenja Klose, Nick Skaer, Oliver Kessler, Anita Ignatius, Lutz Dürselen

TUESDAY | SESSIONS 12:30 PM – 1:30 PM | TUESDAY, MARCH 8, 2016

TIME	SPOTLIGHT SESSION 62 Determinants of Musculoskeletal Development and Traits	SESSION 63 Implant Wear and Corrosion	SESSION 65 Novel Pharmacologic and Device Therapies for Fracture	SESSION 66 Biomaterials Cartilage 2	SESSION 64 Late Breaking Session
ROOM	Coronado H-J	Coronado K	Fiesta 5	Fiesta 6	Coronado L
Moderators	Barbara Boyan, PhD and Johnny Huard, PhD	Gordon Blunn, PhD and Magnus Tagih, MD, PhD	Aaron Schindeler, PhD and Katharina Schmidt-Bleek, PhD	Robert Mauck, PhD and Diane Wagner, PhD	Susan Chubinskaya, PhD and J. Mark Wilkinson, MD, PhD
12:30 PM	 <p>SPOTLIGHT SPEAKER</p>	<p>Paper No. 0399</p> <p>A Classification of Trunnion Damage Patterns Observed at Revision THR</p> <p>Hugh Jones, Angela Chun, Jasmine L. Gonzalez, Philip C. Noble</p>	<p>Paper No. 0405</p> <p>A Novel Treatment for Nf1-Associated Deficiencies in Fracture Repair</p> <p>Gurpreet S. Baht, Benjamin Alman</p>	<p>Paper No. 0411</p> <p>Repair of Osteochondritis Dissecans Lesions Using a Novel Osteochondral Defect Repair Scaffold in a Sporthorse Filly</p> <p>Tanya J. Levingstone, J. David Stack, Clodagh Kearney, Ruth Sanders, Conor Moran, Florent David, Fergal J. O'Brien</p>	<p>12:30 PM</p> <p>Paper No. 2155</p> <p>Angiogenic Activity of Osteoprogenitor Cells Derived from Human Pluripotent Stem Cells Influences Their Capability to Promote Bone Repair</p> <p>Li Zou, Joan Bechtold, Dan Kaufman</p>
12:40 PM	<p>Karl J. Jepsen, PhD</p> <p>Sexual Dimorphism</p>	<p>Paper No. 0400</p> <p>Degradation Modes of CoCrMo and Ti6Al4V Alloys in Modular Head-Neck Junctions of Retrieved Hip Prostheses</p> <p>Deborah J. Hall, Robin Pourzal, Mathew T. Mathew, Hannah J. Lundberg, Joshua J. Jacobs, Robert M. Urban</p>	<p>Paper No. 0406</p> <p>Effects of Amifostine and Zoledronic Acid on Radiation-Associated Bone Damage in a Pediatric Mouse Model</p> <p>Megan Elizabeth Oest, Kenneth A. Mann, Nicholas D. Zimmerman, Jacklyn R. Goodheart, Timothy A. Damron</p>	<p>Paper No. 0412</p> <p>Developing an Injectable Layer-by-Layer 3D Bioscaffold to Repair Cartilage Defect in an Ex Vivo Osteochondral Defect Model</p> <p>Tzu-Hsun Chiu, Pei-Chun Hsieh, Tzu-Hsiang Lin, Meng-Chian Wu, Hsueh Chun Wang, Hsueh-Chaung Hsu, Ming-Long Yeh</p>	<p>12:40 PM</p> <p>Paper No. 2156</p> <p>Systemic Mesenchymal Stem Cell Mobilization and Migration Following Anterior Cruciate Ligament (ACL) Rupture</p> <p>Tristan Maerz, Abigail Davidson, Michael Newton, Meagan Salisbury, Mackenzie Fleischer, Perry Altman, Michael Kurdziel, Kevin Baker</p>
12:50 PM		<p>Paper No. 0401</p> <p>Do Ceramic Femoral Heads Contribute to Polyethylene Oxidation?</p> <p>B. Sonny Bal, Leonardo Puppulin, Marco Boffelli, Bryan J. McEntire, Mohamed Rahaman, Kengo Yamamoto, Giuseppe Pezzotti</p>	<p>Paper No. 0407</p> <p>Teriparatide (PTH1-34) Increases Callus Volume and Enhances Radiographic Healing in a Massive Canine Femoral Allograft Model</p> <p>Kohei Nishitani, Zachary Mietus, Masahiro Ishikawa, Hiromu Ito, Chao Xie, Hani Awad, Stephen L. Kates, Nicole Ehrhart, Edward M. Schwarz</p>	<p>Paper No. 0413</p> <p>Degree of Methacrylation Affecting Hyaluronan Hydrogels Properties and Chondrogenesis of Adipose-Derived Stem Cells</p> <p>Benjamin Teong, Chien-Mei Chang, Shun-Cheng Wu, Je-Ken Chang, Mei-Ling Ho</p>	<p>12:47 PM</p> <p>Paper No. 2157</p> <p>Geospatial Analysis of Localized Relationships Between Knee Mechanics and Cartilage Changes After ACL Reconstruction</p> <p>Scott Tashman, Eric Thorhauer, Freddie Fu, James Irrgang</p>
1:00 PM	<p>Paper No. 0396</p> <p>Electronic Health Records Help Elucidate the First Genome-Wide Association Signal of Developmental Dysplasia of the Hip</p> <p>Konstantinos Hatzikotoulas, Matthew Clark, Karan Shah, Deborah Eastwood, Eleftheria Zeggini, Mark Wilkinson</p>	<p>Paper No. 0402</p> <p>Differential Effects of Hydrothermal Aging on the Surface Fracture Toughness of Ceramics</p> <p>Bryan J. McEntire, Yuto Enomoto, Wenliang Zhu, Marco Boffelli, Elia Marin, B. Sonny Bal, Giuseppe Pezzotti</p>	<p>Paper No. 0408</p> <p>Osseointegration and Defect Repair with a New Porous Titanium Screw in Ovine Long-Bone Models for Gap-Healing, Osteonecrosis, and Bone Ingrowth</p> <p>Robert A. Poggie, Louis-Philippe Lefebvre, Stephanie Grenier, Madeleine Chagnon, Michel Assad</p>	<p>Paper No. 0414</p> <p>An In Vitro Chondro-Osteo-Vascular Triphasic Model of the Osteochondral Complex for Studying Osteochondral Biology and for Drug Screening</p> <p>Riccardo Gottardi, Alessandro Piroso, Peter Alexander, Paul Manner, Dario Puppi, Federica Chiellini, Rocky Tuan</p>	<p>12:54 PM</p> <p>Paper No. 2158</p> <p>Plasma Membrane Disruptions as a Novel Mechanosensation Mechanism in Osteocytes</p> <p>David Sellman, Kanglun Yu, Kayce Vanpelt, Ahmed Elsherbini, Oran D. Kennedy, Anna McNeil, Paul L. McNeil, Meghan E. McGee-Lawrence</p>
1:10 PM	<p>Paper No. 0397</p> <p>Novel Genetic Loci Regulating Cortical Bone Morphometry Revealed by Diversity Outbred Mice</p> <p>Douglas J. Adams, Daniel M. Gatti, Renata Rydzik, Laura L. Mello, David W. Rowe, Cheryl L. Ackert-Bicknell</p>	<p>Paper No. 0403</p> <p>100-Million-Cycle Wear Evaluation of Crosslinked Vitamin E Grafted Polyethylene (VE-HXPE) Acetabular Liners</p> <p>Kimberly D. Mimnaugh, Oludele Popoola, Diego A. Orozco Villaseñor, Andrew A. Freiberg</p>	<p>Paper No. 0409</p> <p>Characterization of an MRI-Compatible Intramedullary Ceramic Device for a Mouse Fracture Model</p> <p>Richard Stange, Melanie Timmen, Romano Matthys, Verena Hoerr, Uwe Hansen, Nina Schmitz, Katharina Kosta, Michael Raschke</p>	<p>Paper No. 0415</p> <p>Enhanced Collagen Type-I and -II Gene Expression in Rat Bone Marrow-Derived Stem Cells Cultured with a Novel Biomaterial for Use in Articular Cartilage Defect Repair</p> <p>David P. Plaza, Jolanta B. Norelli, Jonathan Berkowitz, John Schwartz, Hixiang Liang, Daniel A. Grande</p>	<p>1:01 PM</p> <p>Paper No. 2159</p> <p>Characterizing the Contribution of Fibro-Adipogenic Progenitor Cells to Muscle Fibrosis After Traumatic Injury</p> <p>Anne Y. Ning, Michael Davies, Lawrence Lee, Mengyao Liu, Xuhui Liu, Brian Feeley</p>
1:20 PM	<p>Paper No. 0398</p> <p>Different Regulation of Limb Development by p63 Transcript Variants</p> <p>Manabu Kawata, Yuki Taniguchi, Sakae Tanaka, Taku Saito</p>	<p>Paper No. 0404</p> <p>Wear Rates of Larger-Diameter XLPE at 5 to 13 Years: Does Liner Thickness or Component Position Matter?</p> <p>Jonathan Haw, Andrew K. Battenberg, Der-Chen T. Huang, Thomas P. Schmalzried</p>	<p>Paper No. 0410</p> <p>Novel Impedance Spectroscopy Device Detects Fracture Progression in Mice</p> <p>Monica C. Lin, Frank Yang, Safa T. Herfat, Chelsea S. Bahney, Michel M. Maharbiz, Meir Marmor</p>	<p>Paper No. 0416</p> <p>Biomaterial Properties of Novel Glycosaminoglycan-Based Double Network Hydrogels: Potential Materials for Inducing Cartilage Regeneration</p> <p>Kotaro Higa, Nobuto Kitamura, Keiko Goto, Takayuki Kurokawa, Susumu Wada, Takayuki Nonoyama, Jian P. Gong, Fuminori Kanaya, Kazunori Yasuda</p>	<p>1:08 PM</p> <p>Paper No. 2160</p> <p>Patellar Kinematics in Adolescent Females with Anterior Knee Pain</p> <p>Victor R. Carlson, Barry P. Boden, Frances T. Sheehan</p>
					<p>1:15 PM</p> <p>Paper No. 2161</p> <p>Co-Treatment with Bisphosphonate and Sclerostin Antibody During Growth Reveals Distinct Pathways for Additive Gains in Bone Mass in Mouse Model for Osteogenesis Imperfecta</p> <p>Diana Olvera, Basma Khoury, Joan C. Marini, Michelle S. Caird, Kenneth M. Kozloff</p>
					<p>1:22 PM</p> <p>Paper No. 2162</p> <p>Differential Bacterial Expression on Silicon Nitride, PEEK, and Titanium Surfaces</p> <p>Bryan J. McEntire, Erin N. Jones, Darin Ray, Ryan M. Bock, B. Sonny Bal, Giuseppe Pezzotti</p>

CONGRATULATIONS TO ALL OF THE 2016 AWARD RECIPIENTS



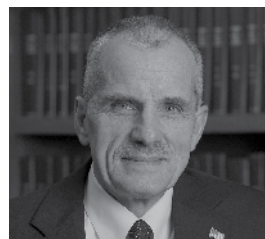
2016 Kappa Delta Young Investigator Award

Louis E. DeFrate, ScD
Duke University Medical Center
The Effects of ACL Graft Placement on In Vivo Knee Function and Cartilage Thickness Distribution



2016 Kappa Delta Ann Doner Vaughn Award

Francis Y. Lee, MD, PhD
Columbia University
Targeting Innate Immune Inflammatory Pathways in Osteolytic Disorders: Unmasking the Two Faces of Osteoprogenitors Cells



2016 Kappa Delta Elizabeth Winston Lanier Award

Edward M. Wojtys, MD
University of Michigan
On Knee Function and ACL Injury
Co-Author: James A. Ashton-Miller, PhD



2016 OREF Clinical Research Award

Timothy E. Hewett, PhD
Ohio State University
Mechanisms and Prevention of ACL Injuries: Cutting ACL Injury Risk with Finely Sharpened Tools
Co-Authors: Gregory D.d. Myer, PhD, Kevin R. Ford, PhD, Mark Paterno, PhD, and Carmen Quatman, MD



ORS Arthur Steindler Award and Lecturer

Professor Andrew Carr, ChM DSc FRCS FMedSci
Head, Nuffield Department of Orthopaedics Rheumatology and Musculoskeletal Sciences (NDORMS)
Director, NIHR Musculoskeletal Biomedical Research Unit
Director, Botnar Research Centre, University of Oxford, Nuffield Orthopaedic Centre



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Marie Badalamente, PhD
Stony Brook University Medical Center, NY
Clinical Trials of a New Treatment Method for Adhesive Capsulitis



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University of Minnesota



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Shunichiro Okazaki MD, PhD
Department of Musculoskeletal Biomechanics and Surgical Development, and Department of Legal Medicine, Sapporo Medical University



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Clark T. Hung, PhD
Columbia University



ORS Outstanding Achievement in Mentoring Award

Louis J. Soslowsky, PhD
McKay Orthopaedic Research Laboratory



AAOS Women's Health Issues Advisory Board Award

Shinsuke Inoue, MD, PhD
University of Iowa
Testosterone Protects Against Development of Chronic Widespread Fatigue-Induced Muscular Pain

CONGRATULATIONS TO ALL OF THE 2016 TRAVEL GRANT RECIPIENTS AND VIDEO OUTREACH COMPETITION WINNERS

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Hospital for Sick Children, Toronto

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FIRST PLACE
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THIRD PLACE
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Massachusetts General Hospital

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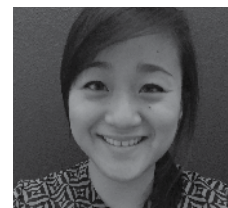
Gerd Huber, Dipl.-Ing, Dr.-Ing.
Institute of Biomechanics,
TUHH Hamburg University
of Technology
Spinal Fatigue Strength



Donald R Hume, PhD Candidate
University of Denver, Center for
Orthopaedic Biomechanics
*Developing the Strength Response
of a Multi-Scale Musculoskeletal
Model of the Healthy Human Knee*



Mohammad Kia, PhD
Hospital for Special Surgery
*Specimen-Specific Comparison of a
Computational Model and Physical
Experiment Reveals Accurate
Predictions of Lateral Compartment
Instability in the Anterior Cruciate
Ligament-Deficient Knee in
Response to Combined
Rotatory Loads*



Betty Liu, B.S.
Duke University
*In Vivo Cartilage Strains in Regions
of Cartilage-to-Cartilage Contact
and Cartilage-to-Meniscus Contact*



Franklin Moutos, PhD
CyteX Therapeutics, Inc.
*Anatomically-Shaped Tissue-
Engineered Cartilage with Tunable
and Inducible Anti-Cytokine
Delivery for Biological
Joint Resurfacing*



Hugh Jones, BS
Institute of Orthopedic Research
and Education
*A Classification of Trunnion
Damage Patterns Observed at
Revision THR*



Chinmay S. Paranjape
Student at Duke University School
of Medicine, Candidate for MD,
Masters in Health Sciences and
Clinical Research
*In Vivo Characterization of Acute
Localized Tibial Cartilage Strains
as a Function of Walk Duration*



Bryant C Roberts, BAppSc, BEng
(Hons), PhD Candidate
Flinders University, Australia
*Linking Regional Proximal Tibia
Bone Microarchitecture to in vivo
Dynamic Joint Loads in End-Stage
Knee Osteoarthritis*



Christina Salas, PhD
University of New Mexico
*Morphometric, Mechanical, and
Histological Characterization of
The Ligaments Of The Thumb
Carpometacarpal Joint: Correlation
To Thumb Stability*



Mikko S. Venäläinen, MSc, PhD
Student
Department of Applied Physics,
University of Eastern Finland
*Computational Modeling Can
Reveal Functional Implications
of Focal Cartilage Defects in the
Knee Joint during Gait*

FORCE AND MOTION FOUNDATION/ORS YOUNG SCIENTIST SCHOLARSHIP



Allison L. Clouthier, MASc, PhD
Candidate
Queen's University, Kingston,
Ontario, Canada
*Effectiveness of Valgus Braces
for Knee Osteoarthritis Can Be
Predicted by Unbraced Static
and Dynamic Measures*

TUESDAY

For more information regarding Force and Motion Foundation/ORS Young Scientist Scholarship,
please visit <http://www.ors.org/blog/2015/11/24/young-scientist-scholarship/>

2016 POSTER SESSIONS | INNOVATION CENTRAL | SATURDAY — TUESDAY

POSTER PRESENTERS WILL HAVE TWO POSTER SESSIONS

Poster Session 1 (PS1): Posters will be displayed on Saturday and Sunday • Poster Session 2 (PS2): Posters will be displayed on Monday and Tuesday

SATURDAY, MARCH 5 | 8:00 AM – 7:00 PM

10:45 AM – 11:45 AM Dedicated Poster Viewing
5:15 PM – 6:45 PM President's Welcome Poster Reception

SUNDAY, MARCH 6 | 9:00 AM – 6:30 PM

1:00 PM – 2:00 PM Dedicated Poster Viewing
5:00 PM – 6:30 PM Poster Session 1 Reception

Authors at posters to answer questions

EVEN-numbered poster presenters 5:00 PM – 5:45 PM
ODD-numbered poster presenters 5:45 PM – 6:30 PM

MONDAY, MARCH 7 | 8:00 AM – 7:00 PM

10:45 AM – 11:45 AM Dedicated Poster Viewing
5:30 PM – 7:00 PM Poster Session 2 Reception

Authors at posters to answer questions

EVEN-numbered poster presenters 5:30 PM – 6:15 PM
ODD-numbered poster presenters 6:15 PM – 7:00 PM

TUESDAY, MARCH 8 | 7:00 AM – 1:30 PM

7:30 AM – 8:30 AM Dedicated Poster Viewing
11:30 AM – 12:30 PM Dedicated Poster Viewing

POSTER CATEGORIES	POSTER SESSION 1 #'S	POSTER SESSION 2 #'S
American Academy of Orthopaedic Surgeons (AAOS) Best Posters	AAOS1–AAOS7	AAOS1–AAOS7
Biomaterial	417–471	1288–1347
Board of Specialty Society (BOS) Best Posters	BOS1–BOS7	BOS1–BOS7
Bone	675–766A	1544–1634
Bone Fracture	767–821	1635–1688
Cancer, Tumors	1243–1266	2109–2133
Cartilage, Synovium & Osteoarthritis	472–606	1348–1478
Diagnostic Imaging	1267–1287	2134–2154
Foot and Ankle	1208–1222	2074–2088
Hand, Wrist and Elbow	1188–1207	2054–2073
Hip	972–996	1840–1864
Hip and Knee Arthroplasty	997–1146	1865–2010
Infection and Inflammation	1223–1233	2089–2099
International Combined Orthopaedic Research Society (ICORS) Best Posters	ICORS1–ICORS12	ICORS1–ICORS12
Knee	916–971	1782–1839
Late Breaking Poster Session	2163–2211	2212–2269
Meniscus	607–619	1479–1490
Muscle	662–674	1531–1543
NIRA Finalists	1–8 and 120–221	1–8 and 120–221
Poster Teasers	15–44	255–284
Shoulder	1147–1187	2011–2053
Spine	822–915	1689–1781
Tendon/Ligament	620–661	1491–1530
Trauma	1234–1242	2100–2108
Women's Health Issues Board (WHIAB) Best Poster	WHIAB	WHIAB

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS (AAOS) BEST POSTERS

- AAOS1 *AAOS Best Hip Poster*
Effect of Smoking on Postoperative Complications after Total Hip Arthroplasty: A Propensity Score Matched Analysis
Shawn Sahota, MD, Francis Lovecchio, BA, Matthew D. Beal, MD, David W. Manning, MD
- AAOS2 *AAOS Best Knee Poster*
The Value of Using a Skin Knife in Orthopaedic Surgery — Myth or Necessity?
Oliver Schindler, FRCS (Ortho)
- AAOS3 *AAOS Best Foot and Ankle Poster*
Tranexamic Acid Reduces Postoperative Morbidity in Patients Undergoing Foot and Ankle Surgery
Nicholas Abidi, MD, Ashish Govan, BS, Clay Christensen, BS, Jess Gifford, BS
- AAOS4 *AAOS Best Hand and Wrist Poster*
The Arkansas Hand Trauma Telemedicine System: A Review of the First Year
Wesley Greer, MD, John W. Bracey, MD, Mark A. Tait, MD, Sophie B. Hollenberg, BS, John M. Stephenson, MD, Theresa O. Wyrick, MD
- AAOS5 *AAOS Best Shoulder and Wrist Poster*
Is There an Association Between the “Critical Shoulder Angle” and Clinical Outcome after Rotator Cuff Repair
Jacob Kirsch, MD, Amit Nathani, MD, Christopher B. Robbins, Joel J. Gagnier, PhD, Asheesh Bedi, MD, Bruce S. Miller, MD, MS
- AAOS6 *AAOS Best Spine Poster*
Sagittal Spinal Alignment and Balance in Diffuse Idiopathic Skeletal Hyperostosis: A Population based Cohort Study
Ryohei Kagotani, MD, Munehito Yoshida, MD, Shigeyuki Muraki, PhD, MD, Hiroyuki Oka, MD, Hiroshi Hashizume, MD, Hiroshi Yamada, MD, Shunji Tsutsui, MD, PhD, Toru Akune, MD, Noriko Yoshimura, MD
- AAOS7 *AAOS Best Tumors Poster*
Outcomes of Distal Femur Replacement with or without Patellar Resurfacing After Resection of the Distal Femur
Mauricio Etchebehere, MD, PhD, Justin E. Bird, MD, Patrick P. Lin, MD, Robert L. Satcher, Jr, MD, Bryan S. Moon, MD, Jun Yu, MS, Liang Li, PhD, Valerae O. Lewis, MD

BOARD OF SPECIALITY SOCIETY (BOS) BEST POSTERS

- BOS1 *American Association for Hand Surgery (AAHS)*
Predicting Failure and Complications in Total Wrist Arthroplasty; review of a 40-year experience
Eric Wagner, MD, Kopil Mehretra, MD, Marco Rizzo, MD
- BOS2 *American Orthopaedic Foot and Ankle Society (AOFAS)*
A New Method for Achieving Compression in Hindfoot Arthrodesis
J. Greisberg, J.T. Vosseller, C. Ferry, T. Gardener

- BOS3 *Cervical Spine Research Society (CSRS)*
Is it Necessary to Extend a Multilevel Posterior Cervical Decompression and Fusion to the Upper Thoracic Spine?
Gregory D. Schroeder, MD; Christopher K. Kepler, MD, MBA; Mark F. Kurd, MD; Loren B. Mead, BS; Kristen Nicholson, PhD; Christie E. Stawicki, BS; Priyanka Kumar, BS; Paul W. Millhouse, MD; Kristen E. Radcliff, MD; Jeffery A. Rihn, MD; D. Greg Anderson, MD; Alan S. Hilibrand, MD; Alexander R. Vaccaro, III, MD, PhD
- BOS4 *North American Spine Society (NASS)*
Do Epidural Injections Prior to Lumbar Fusions Effect Postoperative Infection And Intraoperative Durotomy Rates? A nationwide database analysis of 231,439 cases
Anuj Singla, Scott Yang, Brian C. Werner, Jourdan M. Cancienne, Hamid Hassanzadeh, Adam L. Shimer, Frank H. Shen
- BOS5 *Orthopaedic Trauma Association (OTA)*
Targeted Stimulation of Retinoic Acid Receptor Signaling Mitigates the Formation of Heterotopic Ossification Formation In An Established Blast-Related Traumatic Injury Model
Gabriel Joel Pavey, MD, Ammar T. Qureshi PhD, Allison Tomasino BS, Cary Honnold DVM, Danett Bishop, PhD, Benjamin Levi MD, Maurizio Pacifici PhD, Mashahiro Iwamoto PhD, Benjamin K. Potter MD, Thomas A. Davis, PhD, Jonathan A. Forsberg, MD
- BOS6 *Pediatric Orthopaedic Society of North America (POSNA)*
Ultrasound Exam at six weeks of age for infants born breech with normal hip exam
M Pacana, W Hennrikus, J Slough, W Curtain
- BOS7 *Society of Military Orthopaedic Surgeons (SOMOS)*
Decreasing Infection in Traumatic Orthopaedic Wounds With Local Antibiotics: A Contaminated Fracture Model
CPT David J. Tennent, MD, Stefanie Shiels, PhD, Carlos J. Sanchez Jr., PhD, MAJ Kevin Akers, MD, MAJ Daniel J. Stinner, MD, Krista Niece, PhD, Joseph C. Wenke, PhD

INTERNATIONAL COMBINED ORTHOPAEDIC RESEARCH SOCIETY (ICORS) BEST POSTERS

- ICORS1 *AO Foundation*
Staphylococcus aureus infection causes hyper mineralisation by osteoblasts in a 3D extra-cellular matrix environment
N Kavanagh, A Widaa, FJ O'Brien, SW Kerrigan
- ICORS2 *British Orthopaedic Research Society (BORS)*
The Changing Microarchitecture of Trabecular Bone with High Strain
Robert Wallace
- ICORS3 *Canadian Orthopaedic Research Society (CORS)*
FGFR3 modulates fracture repair by controlling the balance of intramembranous and endochondral ossification
Simon P. Kelley, Chunying Yu, Heather Whetstone, Benjamin Alman
- ICORS4 *Chinese Orthopaedic Research Society (CORS)*
TRAF3 Inhibits Cartilage Breakdown during Arthritis by Blocking IL-17 Induced NF-κB and MAPK Pathways
Xiaoling Zhang, Ning Zhang, Guoli Hu, Jiao Li, Jing Wang, Wen Wu, Jing Li, Wenxue Tong, Xiaoying Zhao

- ICORS5 *Chinese Orthopaedic Research Society (CORS)*
Dysplastic spondylolysis is caused by mutations in the diastrophic dysplasia sulfate transporter gene
Tao Cai, Liu Yang, Wanshi Cai, Sen Guo, Ping Yu, Jinchun Li, Xueyu Hu, Ming Yan, Qianzhi Shao, Yan Jin, Zhongsheng Sun, and Zhuo-Jing Luo
- ICORS6 *European Orthopaedic Research Society (EORS)*
The Effect of Scoliosis Implant Design Parameters on Whole Spine Mechanical Behaviour
J.J. Arts, J. Hazrati Marangalou, G. Meijer, K. Ito, B. van Rietbergen, J.J. Homminga
- ICORS7 *International Chinese Musculoskeletal Research Society (ICMRS)*
Endoplasmic reticulum calcium dynamics in osteocyte mechanobiology
Genevieve Brown, Prajesh Desai, and X. Edward Guo
- ICORS8 *Japanese Orthopaedic Association (JOA)*
Potential biomarkers of infection identified by plasma metabolome analysis in mice
N Isogai, Y Shiono, T Kuramoto, K Yoshioka, H Ishihama, H Funao, M Matsumoto, M Nakamura, K Ishii
- ICORS9 *Korean Orthopaedic Research Society (KORS)*
Temporal Pattern in Segmental Motions of the Foot in Healthy Senile Adults: Comparison between Young and Senile Healthy Adults
Sang Gyo Seo, Eo Jin Kim, Sung Ju Kim, Kyoung Min Lee, In Ho Choi, Dong Yeon Lee
- ICORS10 *Korean Orthopaedic Research Society (KORS)*
Inter-segmental Motions of the Foot in Healthy Adults: Effect of Aging
Sang Gyo Seo, MD, Dong Yeon Lee, MD, Eo Jin Kim, MD, Jong Woong Park, MD, Sung Ju Kim, MS, Kyoung Min Lee, MD, In Ho Choi, MD
- ICORS11 *Taiwan Orthopaedic Research Society (TORS)*
The Role of Oxidative Stress in the Pathogenesis of Hypertrophic Ligamentum Flavum
Cheng-Li Lin, Shu-Hsien Shih, Dur-Zong Hsu, I-Ming Jou
- ICORS12 *Taiwan Orthopaedic Research Society (TORS)*
Protecting Effects of Exercise on Glucosamine-induced Insulin Resistance in Ovariectomized Rats
Hung-Hwan Chen, Lin Kang, Tsang-Hai Huang, Sung-Yen Lin, Je-Ken Chang, Cheng-Jung Ho

AAOS WOMEN'S HEALTH ISSUES ADVISORY BOARD (WHIAB) BEST POSTER

This poster will be presented at the podium on Monday, March 7 in Session 47: Stem Cells in Muscle Disease and Repair.

- WHIAB **Testosterone Protects Against Development Of Chronic Widespread Fatigue-induced Muscle Pain**
Shinsuke Inoue, Kathleen Sluka

ORTHOPAEDIC RESEARCH SOCIETY BEST POSTERS

The following posters have been chosen as the "Best" of the ORS and were displayed at the American Academy of Orthopaedic Surgeons (AAOS) meeting, March 1 – Saturday, March 5, 2016 at the Orange County Convention Center, West Building, Hall C.

- Poster No. 0031 *ORS Best Hip Poster*
A Novel Ceramic Coating for Reduced Metal Ion Release in Metal-on-Metal Hip Surgery
Gordon W. Blunn, Roberta Ferro De Godoy, Jay Meswania, Philippa Tyler, Rikin Hargunani, Hannah Wilson, Imran Khan, Melanie J. Coathup
- Poster No. 0272 *ORS Best Knee Poster*
Relationship Between Patella Alta, MPFL Elongation, and Patellar Dislocation
Clare K. Fitzpatrick, Robert Steensen, Paul Rullkoetter
- Poster No. 2074 *ORS Best Foot and Ankle Poster*
Multi-segmental Foot Kinematics During Walking In Subjects With Medial Tibial Stress Syndrome
Takumi Okunuki, Yuta Koshino, Harukazu Tohyama, Masato Igarashi, Yuya Ezawa, Mina Samukawa, Hiroshi Saito, Masanori Yamanaka
- Poster No. 0282 *ORS Best Hand and Wrist Poster*
In Vivo Reduction in Carpal Tunnel Pressure during Radioulnar Wrist Compression
Zong-Ming Li, Tamara L. Marquardt, Joseph N. Gabra, Peter J. Evans, William H. Seitz, Edward Diaio
- Poster No. 0281 *ORS Best Shoulder and Elbow Poster*
Bone Quality Variations in Osteoarthritic B2 Glenoid Following Eccentric Reaming during Total Shoulder Arthroplasty
Akhil Reddy, Xiang Chen, Andreas Kontaxis, Daniel Choi, David Dines, Russell Warren, Lawrence Gulotta
- Poster No. 0264 *ORS Best Spine Poster*
Spinal Correction and Fusion Surgery Improves The Asymmetrical Trunk Kinematics During Gait Of Adolescent Idiopathic Scoliosis With Thoracic Single Major Curve
Mitsuhiro Nishida, Takeo Nagura, Nobuyuki Fujita, Masaya Nakamura, Morio Matsumoto, Kota Watanabe
- Poster No. 1251 *ORS Best Tumors Poster*
Round Cell-specific Microrna Contributes to Malignancy and Morphological Change in Myxoid Liposarcoma
Yutaka Nezu, Keitaro Hagiwara, Tomohiro Fujiwara, Akira Kawai, Kosuke Matsuo, Tomoyuki Saito, Takahiro Ochiya

NEW INVESTIGATOR RECOGNITION AWARD (NIRA) POSTERS

NIRA 1— OSTEOARTHRITIS AND CARTILAGE REPAIR

The following posters will also be presented in the NIRA Presentations session on Saturday, March 5 from 8:00 AM – 9:00 AM.

Poster No. 0001

Targeted Genome Engineering to Create Designer Stem Cells with Autonomously Regulated Anti-cytokine Therapy for Musculoskeletal Regenerative Medicine

Jonathan M Brunger, Ananya Zutshi, Vincent P Willard, Sameer D Chervu, David S Pisetsky, Charles A Gersbach, Farshid Guilak

Poster No. 0002

Depletion of Gangliosides Accelerated the Articular Cartilage Repair through Indian hedgehog pathway

Masatake Matsuoka, Tomohiro Onodera, Fumio Sasazawa, Daisuke Momma, Rikiya Baba, Kazutoshi Hontani, Zenta Joutoku, Shinji Matsubara, Kentaro Homan, Norimasa Iwasaki

Poster No. 0003

A Novel Bone Marrow Stimulation Technique Augmented By Administration Of Ultrapurified Alginate Gel Enhances Osteochondral Repair In A Rabbit Model

Rikiya Baba, Tomohiro Onodera, Daisuke Momma, Masatake Matsuoka, Kazutoshi Hontani, Sameh Elmorsy, Kaori Endo, Masahiro Todoh, Shigeru Tadano, Norimasa Iwasaki

Poster No. 0004

Anchorage Of Double-network Hydrogel Artificial Cartilage To Underlying Bone Using A Surface Osteoconductive Approach: In Vivo Evaluation Of The Bonding Behavior

Susumu Wada, Nobuto Kitamura, Takayuki Nonoyama, Ryuji Kiyama, Takayuki Kurokawa, Jian Ping Gong, Kazunori Yasuda

Poster No. 0005

Lipid Nanoparticle (LNP) - RNAi Delivery System, A Novel Therapeutic Strategy For Cartilage Diseases

Shaowei Wang, Xiaochun Wei, Jingming Zhou, Chongwei Chen, Yang Zhang, Pengcui Li, Guoqing Du, Ge Zhang, Heng Wu, Lei Wei

Poster No. 0006

Epidermal Growth Factor Receptor (EGFR) Signaling in Cartilage Prevents Osteoarthritis Progression

Haoruo Jia, Xiaoyuan Ma, Basak Doyran, Wei Tong, Xianrong Zhang, Motomi Enomoto-Iwamoto, Lin Han, Ling Qin

Poster No. 0007

WITHDRAWN

Poster No. 0008

Cartilage-specific Knockout Of The Mechanosensory Ion Channel TRPV4 Inhibits Age-Related Osteoarthritis

Christopher J O'Connor, Hari Ramalingam, Nicole Zelenski, Halei C Benefield, Isaura Rigo, Dianne Little, Chia-Lung Wu, Di Chen, Wolfgang Liedtke, Amy L. McNulty, Farshid Guilak

NIRA 18 - CARTILAGE AND JOINT MECHANICS

The following posters will also be presented in the NIRA Presentations session on Saturday, March 5 from 1:45 PM – 2:45 PM.

Poster No. 0120

In Vivo 3D Measurement of Time-dependent Human Knee Joint Compression and Cartilage Strain During Static Weight-Bearing

Jang-Hwan Choi, Emily J McWalter, Sanjit Datta, Kerstin Mueller, Andreas Maier, Garry Gold, Marc Levenston, Rebecca Fahrig

Poster No. 0121

Assessment of Stiffness in Intact Human Cartilage Using Contrast-enhanced Computed Tomography(CECT)

Reza Nickmanesh, Rachel Stewart, Brian Snyder, Mark Grinstaff, David Wilson

Poster No. 0122

Higher Step Frequency And More Steps Down In Unicompartmental Vs Total Knee Arthroplasty Patients Measured With Wearable Activity Monitors

Maikel Moonen, Matthijs Lipperts, Ide C Heyligers, Bernd Grimm

Poster No. 0123

Is the Hip a Ball-and-Socket Joint? Dynamic Dual Fluoroscopy Tests the Validity of an Age-old Paradigm

Niccolo M Fiorentino, Penny R Atkins, Michael J Kutschke, Kenneth B Foreman, Ashley L Kapron, Andrew E Anderson

Poster No. 0124

In-Vivo Elongation of Anterior and Posterior Cruciate Ligament in Patients with Bi-Cruciate Retaining Total Knee Arthroplasty during Sit-to-Stand

Tsung-Yuan Tsai, Jing-Sheng Li, Ali Hosseini, Ming Han Lincoln Liow, Guoan Li, Young-Min Kwon

Poster No. 0125

Effects of Ligament Remnant Tissue Preservation on the Tendon Graft after Anterior Cruciate Ligament Reconstruction: Biomechanical and Immunohistological Evaluations with A Sheep Model

Tsuneari Takahashi, Eiji Kondo, Yasuyuki Kawaguchi, Jun Onodera, Shin Miyatake, Norimasa Iwasaki, Kazunori Yasuda

Poster No. 0126

In-Situ Forces in the Anterolateral Capsule Resulting from a Simulated Pivot Shift Test

Kevin M Bell, Ata A Rahnama-Azar, Sebastian Irarrazaval, Daniel Guenther, Freddie H Fu, Volker Musahl, Richard E Debski

Poster No. 0127

Effect Of Hypercholesterolemia On Fatty Infiltration And Healing In A Rabbit Model Of A Chronic Rotator Cuff Tear

Joo Han Oh, Seok Won Chung, HaeBong Park, Jieun Kwon, Jong Pil Yoon, Ghee Young Choe

NIRA 24 - TENDON AND INTERVERTEBRAL DISC

The following posters will also be presented in the NIRA Presentations session on Sunday, March 6 from 8:00 AM – 9:00 AM.

Poster No. 0158

Effects of Autologous Tenocyte-Seeded Nanofibrous Scaffolds in Rotator Cuff Repair are Age-Dependent

Julianne Huegel, Dong Hwa Kim, James M Cirone, Adam M Pardes, Tyler R Morris, Courtney A Nuss, Robert L Mauck, Louis J Soslosky, Andrew F Kuntz

Poster No. 0159

Engineered Nanofiber Crimp Alters Scaffold Mechanics and Mesenchymal Stem Cell Mechanotransduction

Spencer E Szczesny, Pang-Ching Liu, Tristan P Driscoll, Robert L Mauck, Pen-Hsiu G Chao

Poster No. 0160

Elucidating The Transcriptional Network Of Mechanosensitive Tendon Master Gene Mohawk (Mkx)

Tomohiro Kayama, Masaki Mori, Yoshiaki Ito, Ryo Nakamichi, Takahide Matsushima, Shizuko Ichinose, Mitsuru Saito, Keishi Marumo, Hiroshi Asahara

Poster No. 0161

Total Disc Replacement Using Tissue-engineered Intervertebral Discs; In Vivo Outcome In A Canine Model

Yu Moriguchi, Jorge A Mojica-Santiago, Peter Grunert, Rodrigo Navarro, Brenton Pennicooke, Connor Berlin, Katherine Hudson, Lawrence Bonassar, Roger Hartl

Poster No. 0162

Endoplasmic Reticulum Stress Is A Critical Mediator of Intervertebral Disc Degeneration

Takeshi Fujii, Nobuyuki Fujita, Satoshi Suzuki, Ryuichi Watanabe, Kota Watanabe, Ken Ishii, Takashi Tsuji, Takeshi Miyamoto, Keisuke Horiuchi, Morio Matsumoto, Masaya Nakamura

Poster No. 0163

Expression of Glial Cell Line-derived Neurotrophic Factor in the Human Intervertebral Disc

Junichi Yamada, Koji Akeda, Koichi Masuda, Keianne Yamada, Kevin Cheng, Norihiko Takegami, Kazuma Nakase, Akihiro Sudo

Poster No. 0164

Distribution of Biochemical and Mechanical Properties of the Intervertebral Disc Assessed using Quantitative MRI

Arin M Ellingson, Jutta Ellermann, David W Polly

Poster No. 0165

Role of Cartilage Endplate in Disc Mechanics and Nutrition

Yongren Wu, Sarah E Cisewski, Elizabeth H Slate, Vincent D Pellegrini, Jr, Hai Yao

NIRA 34 - BONE REPAIR AND TRAUMA

The following posters will also be presented in the NIRA Presentations session on Sunday, March 6 from 11:15 AM – 12:15 PM.

Poster No. 0214

Combinatorial Gene Therapy Accelerates Bone and Cartilage Regeneration: Design of Non-viral Gene-Activated Scaffolds for Orthopaedic Tissue Engineering

Rosanne M Raftery, Caroline Curtin, Sally-Ann Cryan, Fergal J O'Brien

Poster No. 0215

The Critical Role of Mesenchymal Progenitors in Initiating the Secondary Ossification Center at the Epiphyseal Cartilage

Wei Tong, Haoruo Jia, Xiaoyuan Ma, Motomi Enomoto-Iwamoto, Ling Qin

Poster No. 0216

PTH Signaling Mediates Adaptation of the Perilacunar Tissue During Exercise

Joseph Gardinier, Salam Al-Omaishi, Michael Morris, David Kohn

Poster No. 0217

Post-Fracture Impact Of PI3K Activity Modulation On Periosteal Expansion And Osterix Expression

Bhavita Walia, Vanessa Scanlon, Jungeun Yu, Marc Hansen, Peter Maye, Hicham Drissi, Archana Sanjay

Poster No. 0218

Increased Bone Formation And Angiogenesis During Fracture Repair Following Conditional Deletion Of Runx1 And Runx3 In The Periosteum

David N Paglia, Do Yu Soung, Xiaochuan Yang, Hani A Awad, Joseph Lorenzo, Hicham Drissi

Poster No. 0219

Parathyroid Hormone Entrainable Circadian Clock Functions In The Mouse Femur Fracture healing Site

Tatsuya Kunitomo, Naoki Okubo, Yoichi Minami, Hiroyoshi Fujiwara, Toshihiro Hosokawa, Ryo Oda, Toshikazu Kubo, Kazuhiro Yagita

Poster No. 0220

Elucidating The Mechanism Of Anti-isdb Antibody-mediated Sepsis And Death From S. Aureus Implant-associated Osteomyelitis

Masahiro Ishikawa, Kohei Nishitani, Hiromu Ito, Karen De Mesy Bentley, Sheila N Bello-Irizarry, Bruce I Goldman, Wu Zhijin, Elaine M Gersz, Stephen L Kates, John Daiss, Edward M Schwarz

Poster No. 0221

The Dose Response Effect of Ketotifen Fumarate on Post Traumatic Joint Contractures

Prism S Schneider, Herman Johal, Mei Zhang, David Hart, A Befus, Paul Salo, Cun-Yi Fan, Xiangdang Liang, Kevin Hildebrand

POSTER TEASER I

The following posters will also be presented in Session 3 – Poster Teaser I on Saturday, March 5 from 8:00 AM – 9:00 AM.

Poster No. 0015

Nanopiece: A Nontoxic RNA Delivery Vehicle into Articular Cartilage and Joint Tissues

Brandon Vorrius, Hongchuan Yu, Liangran Guo, Wei Lu, Qian Chen, Yupeng Chen

Poster No. 0016

Hypoxia Promotes Stable Chondrocyte Differentiation of Articular Cartilage Progenitor Cells

Devon Anderson, Brandon Markway, Derek Bond, Helen McCarthy, Brian Johnstone

Poster No. 0017

High Affinity Binding of Matrilin-3 Binds to Epidermal Growth Factor Receptor With High-Affinity and Modulates Downstream Pathway Signaling

Nicholas J. Lemme, Chathuraka Teekshana Jayasuriya, Qian Chen

Poster No. 0018

Fiber Formation in Tissue Engineered Meniscus using Mesenchymal Stem Cells and Fibrochondrocytes

Mary Clare McCorry, Lawrence Bonassar

Poster No. 0019

Creating Nanometer-Resolution, Cell-to-Organ Navigable Maps of the Human Hip

André F. Pereira, Daniel Hageman, Tomasz Garbowski, Christof Riedesel, Ulf Knothe, Dirk Zeidler, Melissa Knothe Tate

Poster No. 0020

Verification and Validation of an Algorithm for Automatically Generating FE Models of the Lumbar Spine

Julius Q. Campbell, Paul Rullkoetter, Anthony Petrella

Poster No. 0021

Axial-torsion Behavior of Human Lumbar Intervertebral Discs under Physiological Compressive Loads

Semih E. Bezci, Grace D. O'Connell

Poster No. 0022

Small Molecule Diffusion within Intervertebral Disc after Low Intensity Pulsed Ultrasound (LIPUS) Stimulations

Po-Chao Chen, Po-Chun Yen, Mao-Wei Huang, Chun-Feng Lai, Ya-Cherng Chu, Jaw-Lin Wang

Poster No. 0023

Canal Volume Changes in Sub-axial Cervical Spine during In Vivo Dynamic Flexion-Extension

Haiqing Mao, Sean Driscoll, Jing-Sheng Li, Guoan Li, Kirkham B. Wood, Thomas D. Cha

Poster No. 0024

Vertebral Growth Plate Hypertrophic Zone and Cell Heights in Severe Scoliosis: Comparisons to Human Controls and Quadrupedal Models

Donita I. Bylski-Austrow, Mosep Okonny, David L. Glos, Keith F. Stringer, Eric J. Wall, Alvin H. Crawford

Poster No. 0025

In Vivo Biofilm has Different Minimum Biofilm Eradication Concentration than In Vitro Biofilm

Paulo Castaneda, Alexander C. McLaren, Derek Overstreet

Poster No. 0026

Pathological Changes In Bone And Joints Associated With Chikungunya Virus Infection

Brad A. Goupil, Matthew J. Martin, Christopher N. Mores, Margaret A. McNulty

Poster No. 0027

Post-flight Recovery from Cervical and Lumbar Paraspinal Muscle Deconditioning Following Long-Term Spaceflight

Robert M. Healey, Jacquelyn A. Holt, Brandon R. Macias, Douglas G. Chang, Alexander J. Snyder, Jeffrey C. Lotz, Alan R. Hargens

Poster No. 0028

Advanced Marker-model Techniques to Salvage Clinical RSA Data

Sara Parashin, Trevor Charles Gascoyne, Thomas Turgeon

Poster No. 0029

Pre-Operative Planning With a Shoulder Biomechanical Model Can Increase the Available Range of Motion in Reverse Shoulder Arthroplasty- A Cadaveric Validation

Andreas Kontaxis, Julien Berhouet, Daniel Choi, Xiang Chen, David Dines, Edward Craig, Russell Warren, Lawrence Gulotta

Poster No. 0030

The Effect of Neck-Shaft Angle on Joint Loads and Contact Mechanics in Reverse Total Shoulder Arthroplasty

Irfan Abdulla, G. Daniel G. Langohr, George S. Athwal, James A. Johnson

Poster No. 0031

A Novel Ceramic Coating for Reduced Metal Ion Release in Metal-on-Metal Hip Surgery

Gordon W. Blunn, Roberta Ferro De Godoy, Jay Meswania, Philippa Tyler, Rikin Hargunani, Hannah Wilson, Imran Khan, Melanie J. Coathup

Poster No. 0032

Hip Joint Stresses due to the Cam Deformity and Femoral Neck-Shaft Angle during Level-Walking

Geoffrey Ng, Giulia Mantovani, Mario Lamontagne, Michel R. Labrosse, Paul E. Beaulé

Poster No. 0033

A Murine Model of Abductor Insufficiency Accelerates the Development of Hip Osteoarthritis

Michael B. Geary, Caitlin A. Orner, Michael J. Zuscik, Alayna E. Loiselle, Brian Giordano

Poster No. 0034

Patellofemoral Thickness Influences Patellar Kinematics and Extensor Efficiency

Sami Shalhoub, Fallon Fitzwater, Chadd Clary, Lorin Maletsky

Poster No. 0035

Osteogenic And Osteoinductive Potency Of Osteophytes—Autologous Bone Graft Source

Kohei Ishihara, Ken Okazaki, Takenori Akiyama, Yukihide Iwamoto

Poster No. 0036

In Vivo Elongation of the Anterolateral Ligament and Related Extra-Articular Reconstructions

Samuel K. Van de Velde, William A. Kernkamp, Ali Hosseini, Robert F. LaPrade, Ewoud R. Van Arkel, Guoan Li

Poster No. 0037

Knees Exhibiting High and Low Levels of Rotatory Laxity Exhibit Different Loading Patterns in the Anterior Cruciate and Anterolateral Ligaments

Robert N. Kent, James Boorman-Padgett, Ran Thein, Thomas Wickiewicz, Andrew Pearle, Carl Imhauser

Poster No. 0038

The Kinematics of Two Superficial Medial Collateral Ligament Reconstructions with Single-Bundle Anterior Cruciate Ligament Reconstruction

Jiangtao D. Dong, Junjun Zhu, Brandon Marshall, Monica Linde, Patrick Smolinski, Freddie Fu

Poster No. 0039

Which Time Interval Should be Used for Measuring Co-Contraction Index for Osteoarthritic Subjects: Stance Phase or Gait Cycle?

Aseel Ghazwan, Cathy A. Holt, Chris Wilson, Gemma M. Whatling

Poster No. 0040

Tension Increases Teriparatide-Induced Bone Formation More Than Compression in the Human Femoral Neck

Amanda M. Rooney, Mathias Bostrom, David W. Dempster, Jeri W. Nieves, Hua Zhou, Marsha Zion, Catherine Roimisher, Yvonne Houle, Felicia Cosman

Poster No. 0041

Osteocytes In Vivo Modulate $\beta 3$ Integrins And P2x7r In Their Mechanoreceptor Complex In Response To Hindlimb Unloading And Reambulation

Pamela Cabahug-Zuckerman, Damien Laudier, Robert J. Majeska, Jeyantt S. Sankaran, Stefan Judex, Mitchell Schaffler

Poster No. 0042

Are Two Trans-sacral Screws Necessary for Biomechanical Stabilization of Comminuted Zone II Sacral Fractures? A "Floating Hip Model" Cadaveric Investigation

Ehsan Jazini, Noelle F. Klocke, Oliver Tannous, Herman Johal, John C. Hao, Robert O'Toole, Brandon Bucklen, Steven Ludwig

Poster No. 0043

Bioactivity Of Sol-gel-derived TiO2 Coating On PEEK: In Vitro And In Vivo Studies

Takayoshi Shimizu, Shunsuke Fujibayashi, Bungo Otsuki, Seiji Yamaguchi, Tomiharu Matsushita, Tadashi Kokubo, Shuichi Matsuda

Poster No. 0044

PTH Partially and Transiently Preserves Mineral Properties and Attenuates Collagen Matrix Damage in Irradiated Bone

Bo Gong, Megan Elizabeth Oest, Karen Esmonde-White, Kenneth A. Mann, Nicholas D. Zimmerman, Timothy A. Damron, Michael D. Morris

POSTER TEASER II

The following posters will also be presented in Session 41 – Poster Teaser II on Monday, March 7 from 9:45 AM – 10:45 AM.

Poster No. 0255

Cartilage-Specific Conditional Deletion of PKC δ Protects Joint Degeneration Without Relieving Joint Pain in a Mouse Model of Osteoarthritis

Colin Jorgensen, Ranjan Kc, Tariq Muhammad, Xin Li, Zhiqiang Liu, John Hamilton, Ronald Kahn, Dhanya Asokumar, Hee-Jeong Im

Poster No. 0256

Validation of an In Vitro Co-Culture Model Comprised of Human Osteoarthritic Joint Tissue Explants

Natasha Topoluk, Kathleen Steckbeck, Brian Burnikel, John Tokish, Jeremy Mercuri

Poster No. 0257

Effect Of Immunosuppressive Agent On Articular Cartilage And Synovium After Asc Transplantation In A Goat Osteoarthritis Model

Gun-Il Im, Ji-Yun Ko, Ki Cheol Kim, Jungsun Lee, Yang Hwan Ryu

Poster No. 0258

14-3-3 Epsilon: Key Player In Progranulin-mediated Chondro-protective Function

Young-Su Yi, Jyoti J. Mundra, Chuanju Liu

Poster No. 0259

Intraperitoneal Injection Of The Sirt1 Activator Srt1720 Attenuates The Progression Of Experimental Osteoarthritis In Mice

Kyohei Nishida, Takehiko Matsushita, Koji Takayama, Kanto Nagai, Takao Inokuchi, Zhang Shurong, Daisuke Araki, Tomoyuki Matsumoto, Ryosuke Kuroda, Masahiro Kurosaka

Poster No. 0260

Recapitulation of the Spectrum of Intervertebral Disc Degeneration in a Large Animal Model

Sarah E. Gullbrand, Neil R. Malhotra, Thomas P. Schaer, Zosia Zawacki, Andrew H. Milby, George R. Dodge, Edward J. Vresilovic, Dawn M. Elliott, Robert L. Mauck, Lachlan J. Smith

Poster No. 0261

Abnormal Ultrastructure Of The Osteocyte-lacuno-canalicular System In Adolescent Idiopathic Scoliosis - A New Novel Finding

Huanxiong Chen, Wayne YW Lee, Jiajun Zhang, Zhiwei Wang, Bobby KW Ng, Kwong Man Lee, Tsz Ping Lam, Jian Q Feng, Jack CY Cheng

Poster No. 0262

Dynamic Foraminal Dimensions During Neck Extension and Rotation in Fusion and Artificial Disc Replacement

Yener N. Yeni, Tim Baumer, Daniel Oravec, Azam Basheer, Michael Bey, Stephen W. Bartol, Victor Chang

Poster No. 0263

Sex-differences In Dynamic Lumbar Intervertebral Disc Rotation And Translation

Jeannie F. Bailey, Chip Wade, Jeffrey C. Lotz, Patricia A. Kramer

Poster No. 0264

Spinal Correction And Fusion Surgery Improves The Asymmetrical Trunk Kinematics During Gait Of Adolescent Idiopathic Scoliosis With Thoracic Single Major Curve

Mitsuhiro Nishida, Takeo Nagura, Nobuyuki Fujita, Masaya Nakamura, Morio Matsumoto, Kota Watanabe

Poster No. 0265

The Effect of Marrow Shear Stress on Bone Formation and Anisotropy

Tyler C. Kreipke, Kimberly Curtis, Josue Santana, Alyssa Varsanik, Thomas R. Coughlin, Glen Niebur

Poster No. 0266

HPMA Copolymer Targets Tumor Associated Macrophages of Skeletal and Non-Skeletal Metastases in Orthotopic and Heterotopic Breast Carcinoma Models

Melissa Zimel, Chloe Horowitz, Rajasekhar Vinagolu, Alexander B. Christ, Xin Wei, Dong Wang, Steven Goldring, Edward Purdue, John Healey

Poster No. 0267

Fibrin Clot Prevents Bone Tunnel Enlargement after ACL Reconstruction with Allograft

Levent Surer, Can Yapici, Claudia Guglielmino, Carola F. Van Eck, James J. Irrgang, Freddie H. Fu

Poster No. 0268

Short-term Precision Study of Stochastic Predictors for DXA Scans at the Hip

Raul Ramos, Patricia Cussen, David Di Paolo, Joyce Ballard, Xuanliang N. Dong

Poster No. 0269

Bone Strength Change of the Lumbar Spine in Osteoporosis Patients Treated with Weekly Teriparatide Assessed by Finite Element Analysis of Clinical Computed Tomography Scans

Satoru Ohashi, Kumiko Ono, Hiroyuki Oka, Yuho Kadono, Tetsuro Yasui, Yasunori Omata, Sakae Tanaka

Poster No. 0270

Impact of the Static and Radiofrequency Magnetic Fields Produced by a 7T MR Imager on Metallic Spinal Materials

Itsuko Tsukimura, Hideki Murakami, Hirooki Endo, Daisuke Yamabe, Minoru Doita

Poster No. 0271

Does Graft Fixation at Knee Hyperextension Improve The Biomechanics of Anterior Cruciate Ligament Reconstruction?

Ali Hosseini, Lin Lin, Chang Wan Kim, Lianxin Wang, Peter D. Asnis, Guoan Li

Poster No. 0272

Relationship Between Patella Alta, MPFL Elongation, And Patellar Dislocation

Clare K. Fitzpatrick, Robert Steensen, Paul Rullkoetter

Poster No. 0273

A Novel Magnesium Ring Device Can Enhance Anterior Cruciate Ligament Healing

Kathryn F. Farraro, Antonio Pastrone, Jonquil R. Mau, Savio L-Y. Woo

Poster No. 0274

The Influence of the Tibial Resection on the PCL in PCL-Retaining Total Knee Arthroplasty: A Clinical and Cadaveric Study

Yoshio Onishi, Hiromasa Miura

Poster No. 0275

Effects of Platelet Rich Plasma on ACL and Meniscal Healing in a Canine OA Model

Farrah A. Monibi, Patrick Smith, Chantelle Bozynski, Keiichi Kuroki, Cristi R. Cook, Aaron M. Stoker, Ferris Pfeiffer, James L. Cook

Poster No. 0276

Gender-Specific Implant Debris-Induced Osteolysis In vivo: UHMWPE versus Cobalt Alloy

Stefan Landgraeber, Lauryn Samelko, Kyron McAllister, Sebastian Putz, Joshua Jacobs, Nadim J. Hallab

Poster No. 0277

Does Vitamin E Alter The Mechanical Properties Of UHMWPE?

Natalie D. Hope, Thomas S. Thornhill, Anuj Bellare

Poster No. 0278

Evaluation of A Surrogate Contact Model of TKA

Marco A. Marra, Michael S. Andersen, Bart Koopman, Dennis Janssen, Nico Verdonschot

Poster No. 0279

Bearing Surface Damage Analysis of Anatomical and Reverse Total Shoulder Replacements: Retrieval Analysis Across Fixation Designs and UHMWPE Composition

Louis G. Malito, Noah Bonenheim, Lulu Li, Taylor Lee, Steve Gunther, Tom Norris, Mike Ries, Lisa Pruitt

Poster No. 0280

Implant Positioning has an Effect on Acromial Stresses in Reverse Shoulder Arthroplasty

Murray T. Wong, G Daniel G. Langohr, George S. Athwal, James A. Johnson

Poster No. 0281

Bone Quality Variations in Osteoarthritic B2 Glenoid Following Eccentric Reaming during Total Shoulder Arthroplasty

Akhil Reddy, Xiang Chen, Andreas Kontaxis, Daniel Choi, David Dines, Russell Warren, Lawrence Gulotta

Poster No. 0282

In Vivo Reduction in Carpal Tunnel Pressure during Radioulnar Wrist Compression

Zong-Ming Li, Tamara L. Marquardt, Joseph N. Gabra, Peter J. Evans, William H. Seitz, Edward Diao

Poster No. 0283

The Stabilizing Function of the Posterior Bundle of the Medial Collateral Ligament in Elbow Dislocation

Dave Shukla, Elan Golan, Phillip M. Nasser, Maya Culbertson, Michael Hausman

Poster No. 0284

Instability Following Sectioning of the Posterior Bundle of the Elbow's Medial Collateral Ligament

Elan Golan, Dave R. Shukla, Phillip Nasser, Michael Hausman

POSTER SESSION 1

Posters will be displayed Saturday and Sunday.

PS1 Biomaterials—Other

Poster No. 0417

The Bone-bonding And Bone-forming Ability Of The New Low Young's Modulus Ti-Nb-Sn Alloy With Anodic Oxidation And Hot Water Treatment

Hidetatsu Tanaka, Yu Mori, Atsushi Kogure, Atsushi Noro, Shuji Hanada, Naoya Masahashi, Eiji Itoi

Poster No. 0418

Reduction Of Stress Concentration And Spatial Control Of Osteoblast And Tenocyte Differentiation In A Mechanically-graded, Growth Factor-biopatterned Bone- And Tendon-like Biomaterial

Dai Fei Elmer Ker, Anthony Behn, Evelyn Wang, Benjamin Zhou, Angel Mercado-Pagán, Sungwoo Kim, Dan Wang, Burhan Gharaibeh, Yaser Shanjani, Drew Nelson, Marc Safran, Emilie Cheung, Phil G. Campbell, Lee Weiss, Yunzhi Peter Yang

Poster No. 0419

Use of Ultra-High Molecular Weight Polycaprolactone Scaffolds for ACL Reconstruction

Natalie L. Leong, Nima Kabir, Armin Arshi, Azadeh Nazemi, Benjamin M. Wu, Frank A. Petrigliano, David R. McAllister

Poster No. 0420

Simulation of Soft Tissue Remodeling in Three-dimensional Scaffolds

Chaochao Zhou, Sha Jin, Ryan Willing

Poster No. 0421

Surface Mechanical Properties of Vitamin E infused Ultra High Molecular Weight Polyethylene (UHMWPE)

Sofia E. Arevalo, Farzana Ansari, Louis G. Malito, Lisa Pruitt

Poster No. 0422

New Implant Coating Technology with Phosphopullulan Bioadhesive Materials

Yohei Kagawa, Kentaro Yamane, Kensuke Shinohara, Noriyuki Watanabe, Zhang Wei, Aki Yoshida, Masahide Yoshimura, Toshifumi Ozaki, Akihiro Matsukawa

Poster No. 0423

Vancomycin Elution Characteristics of a Silorane-Based Bone Cement

Nicholas Wischmeier, Damon Mar, David Anderson, Kathleen Kilway, Lynda Bonewald, Terence E. McIlff

Poster No. 0424

Fatigue Crack Propagation in CFR PEEK

Noah Bonnheim, Marco Regis, Alex Glavin, Farzana Ansari, Pierangiola Bracco, Lisa Pruitt

Poster No. 0425

Ct Scan And Eos Imaging Are Complementary For The Analysis Of Ceramic On Ceramic Squeaking Tha: A Case Report

Jean Y. Lazennec, Ian Clarke, Dominique Folinais, Imen Tahar, Aidin Eslam Pour

Poster No. 0426

The Effect of High Temperature Sintering on the High Cycle Fatigue Performance of Metal Injection Molded CoCrMo

Oscar A. Quintana, Sophie Yang, Bernice Aboud Gatrell

Poster No. 0427

In Situ Photopolymerized Composite-hydrogel For Orthopedic Implants – Application To A Nucleus Pulposus Replacement

Andreas M. Schmocker, Azadeh Khoushabi, Daniela Frauchiger, Cédric El Maleh, Noémie Saint Raymond, Constantin Schizas, Benjamin Gantenbein, Pierre-Etienne Bourban, Christophe Moser, Dominique Pioletti

Poster No. 0428

Optimization of a Composite Intramedullary Nail for Treating Femoral Shaft Fractures Based on the Selective Stress Shielding Approach

Saeid Samiezadeh, Zoheir Fawaz, Habiba Bougherara

Poster No. 0429

Performance of a Dextran-only Dressing Versus SurgiClot(R) to Achieve Hemostasis in a Swine Injury Model of Cancellous Bone Bleeding

Rudolfo A. Padua, Curtis E. Olson, Charles T. Floyd

Poster No. 0430

Antimicrobial Activity Of Bone Cements Containing Organic Nanoparticles

Stefano Perni, Polina Prokopovich

Poster No. 0431

WITHDRAWN

Poster No. 0432

Resorption Characteristics of a Novel Fibrin Hemostatic Dressing

Rudolfo A. Padua, Curtis E. Olson, Charles T. Floyd

Poster No. 0433

Intrusion Characteristics of High Viscosity Bone Cements for the Tibial Component of a Total Knee Arthroplasty using Negative Pressure Intrusion Cementing Technique

Nam L. Dinh, Alexander C. Chong, Justin K. Walden, Scott Adrian, Paul Wooley, Robert Cusick

PS1 Biomaterials—Bone

Poster No. 0434

Rheological Properties of Monetite Based Orthopedic Cements

Sameh A. Saleh, Anand Agarwal, Vijay Goel, Sarit Bhaduri

Poster No. 0435

A New Novel Method for Preparation of Macroporous Calcium Phosphate Cement

Sameh A. Saleh, Anand Agarwal, Vijay Goel, Sarit Bhaduri

Poster No. 0436

High Strength Titanium Porous Coating For Zta Substrate

Marco Lechthaler, Ramona Dallapiccola, Gianluca Zappini, Pierfrancesco Robotti, Jon Haftel, Francesco Bucciotti

Poster No. 0437

Static Mechanical Properties of 3D Printed Trans-modular PLA Scaffold for Bone Grafting Applications

Constance Maglaras, Victoria Maglaras, Antonio Valdevit

Poster No. 0438

Evaluation Of The In Vivo Inflammatory And Osteolytic Profile Of Hls Doped Polyethylene Particles In A Murine Model

Laurent Casabianca, Jean Langlois, Amine Zaoui, Morad Bensidhoum, Delphine Logeart, Hervé Petite, Moussa Hamadouche

Poster No. 0439

WITHDRAWN

Poster No. 0440

Polyelectrolyte Complex for Osteogenic Growth Factor with Heparin Binding Domain

Raymond Wing Moon Lam, Ming Wang, Felly Ng, Mathanapriya Naidu, Tao Hu, Kang Ting, Chia Soo, Cho Hong, James Goh, Hee-Kit Wong

Poster No. 0441

Porous Particulate Calcium Polyphosphate Bone Substitutes - Effect Of Processing On In Vivo Bone Formation

Robert Pilliar, Youxin Hu, Marc Gryn timer, Rita Kandel, John Theodoropoulos

Poster No. 0442

Lack Of Correlation Between Free Radical Content And Mechanical Properties Of Ribose-protected Irradiation Sterilized Cortical Bone Allografts

Tarik Attia, Marc Gryn timer, Thomas Willett

Poster No. 0443

Platelet Derived Growth Factor BB As A Potent Growth Factor For Osteogenic Differentiation Of Mesenchymal Stromal Cells Seeded In Nanofibrous Scaffolds

Balaji Raghavendran HR, Saktiswaren M, Murali MR, Kamarul T

Poster No. 0444

Unfocused Shock Waves For Osteoinduction In Bone Substitutes

Marianne Koolen, Behdad Pouran, Cumhur Öner, Harrie Weinans, Olav van der Jagt

Poster No. 0445

Engineered Hybrid Bioscaffold for Segmental Bone Defect Implantation

Jie Shen, Hoi Man Wong, Frankie Leung, Kenneth Cheung, Kelvin Yeung

Poster No. 0446

Dietary Effects on Fracture Toughness of Femoral Cortical Bone in Baboons

Travis Eliason, Donald Moravits, Todd Bredbenner, Anthony Comuzzie, Ellen Quillen, Daniel Nicoletta

Poster No. 0447

Effects Of Bmp-2 On Implant Integration On A Bisphosphonate Background - A Dose Respons Study

Rasmus Cleemann, Kjeld Soballe, Joan E. Bechtold, Mette Soerensen, Joergen Baas

Poster No. 0448

Optimal Condition Of Fibroblast Growth Factor-2-apatite Composite Layer For Superior Osteogenesis And Mechanical Property

Kengo Fujii, Hirotaka Mutsuzaki, Atsuo Ito, Shinji Murai, Yohei Yanagisawa, Yu Sogo, Yuki Hara, Masashi Yamazaki

Poster No. 0449

Porous Extracellular Matrix Mimic For Functionalization Of Bone Allografts

Pinliang Jiang, Zhiyi Zhou, Xiaolong Zhang, Henry Donahue, Yong Wang

Poster No. 0450

Injectable Macroporous Hydrogels With Cartilage-mimicking Mechanical Properties Accelerated Neocartilage Formation By Mesenchymal Stem Cells In Vitro

Bogdan Conrad, Li-Hsin Han, Fan Yang

Poster No. 0451

Enhancing Osseointegration of Orthopaedic Implants with Titania Nanotube Surfaces

Erin A. Baker, Alexander Vara, Meagan Salisbury, Mackenzie Fleischer, Tolou Shokuhfar, Craig Friedrich, Paul Fortin

Poster No. 0452

Biocompatible and Biomimetic 3D-Printed Bone Implants

Carlos G. Helguero, Sunjit Parmar, John Pfail, Sahana Pentyla, Imin Kao, David E. Komatsu, Srinivas Pentyla

Poster No. 0453

Microhardness in Cortical Bone From Osteoporotic Sheep Treated with Synthetic Bone Mineral

Gavriel Feuer, Nicholas Maloof, Allison Spitzer, Aditya V. Maheshwari, Carl B. Paulino, Subrata Saha

Poster No. 0454

The Effect On Osseointegration Of Photofunctionalized Titanium Alloy Ti6al4v

Ryota Yamauchi

Poster No. 0455

Trappc9 Promotes Rankl-induced Osteoclast Differentiation By Enhancing Nf-kb Activation

Thomas Mbimba, Gregory Sondag, Fouad Moussa, Lythe Albakri, Fayeze Safadi

PS1 Biomaterials—Cartilage

Poster No. 0456

Chondrocyte Phenotype is Sensitive to Hydrogel Composition in Engineered Growth Plate Microtissues

Jingming Chen, Amalie Donius, Juan Taboas

Poster No. 0457

Chondrogenesis of Dedifferentiated Human Articular Chondrocytes Seeded in Silk Fibroin Sponges: An in vitro study

Masahiko Saito, Arata Nakajima, Masato Sonobe, Hiroshi Takahashi, Masahiro Inoue, Manabu Yamada, Keichirou Yamamoto, Keita Koyama, Koichi Nakagawa

Poster No. 0458

A PLLA Scaffold with Continuous Gradient Pore Size for Osteochondral Regeneration Validated in a Microphysiological Tissue System Bioreactor

Riccardo Gottardi, Gioacchino Conoscenti, Peter G. Alexander, Paul A. Manner, Vincenzo La Carrubba, Valerio Brucato, Rocky Tuan

Poster No. 0459

Biologically Inspired Collagen-cellulose Nanomaterial Increases The Mechanical Integrity Of A Bioscaffold For Cartilage Tissue Engineering

Parisa Pooyan, Hamid Garmestani, Leon Nesti

Poster No. 0460

Characterization Of Cross-linked Hyaluronic Acid Scaffolds In Vitro And In Vivo

Christoph Bauer, Eugenia Niculescu-Morza, Sonja Höller, Margit Hornof, Daniela Kern, Vivek Jeyakumar, Stefan Nehrer

Poster No. 0461

Effects of Biochemical and Mechanical Niche Cues on Mesenchymal Stem Cell Chondrogenesis in 3D Hydrogels

Tianyi Wang, Fan Yang

Poster No. 0462

Hyaluronan Stimulates Chondrogenic Gene Expression in Human Meniscus Cells

Tanaka Takaaki, Takayuki Furumatsu, Ami Maehara, Shinichi Miyazawa, Masataka Fujii, Hiroto Inoue, Yuya Kodama, Toshifumi Ozaki

Poster No. 0463

In Vitro Wear Testing of Living Cartilage Articulating Against Alumina

Markus A. Wimmer, Carol Pacione, Michel P. Laurent, Susan Chubinskaya

Poster No. 0464

Tribological Characterization of a Synthetic Cartilage Lubricant: Evaluation of Mechanism of Modulating Friction

Benjamin G. Cooper, Brian Snyder, Mark Grinstaff

Poster No. 0465

The Effect of Cartilage Degeneration on its Stretching and Swelling Properties

Mieke Nickien, Ashvin Thambyah, Neil Broom

Poster No. 0466

Mobility Of Water And Cartilage Matrix Molecules In Human Osteoarthritis Cartilage

Sarah Mailhiot, Ronald K. June

Poster No. 0467

Detection of Early Stage of Osteoarthritis by Dual Fluorescence Imaging

Hongsik Cho, Fazal-Ur-Rehman Bhatti, David Brand, John Stuart, Karen Hasty

Poster No. 0468

Cyclic Strain Improves The Mechanical Property And Structure Of Stem Cell-based Self-assembled Tissues

Wataru Yanagita, Kei Oya, Hiromichi Nakadate, Kota Koizumi, Norimasa Nakamura, Hiromichi Fujie

PS1 Biomaterials—Fibrocartilage

Poster No. 0469

Kartogenin Promotes the Formation of Fibrocartilage Zone Between Tendon Graft and Bone Tunnel

Yiqin Zhou, Jinsong Yang, Manoj Narava, Guangyi Zhao, Jianying Zhang, MaCalus Hogan, James Wang

Poster No. 0470

In-Vivo Tensile Properties of Remodeled Extracellular Matrix Scaffolds in the Temporomandibular Joint of a Porcine Model

Jesse R. Lowe, William Chung, Bryan Brown, Scott Johnson, Stephen Badylak, Alejandro J. Almarza

Poster No. 0471

Behaviors of Human Bone Marrow Stromal Cells on Platelet-rich Plasma Pre-treated PLGA Mesh with Different Methods

Jeong Joon Yoo, Jinwoo Nam, Jung Taek Kim, Hyung Jun Jeong, Hee Joong Kim

PS1 Cartilage, Synovium & Osteoarthritis—Cell and Molecular Imaging

Poster No. 0472

Interleukin-1 β Promotes In Vitro Chondrogenesis Of Synovial Mesenchymal Stem Cells

Mana Naritomi, Mitsuru Mizuno, Hisako Katano, Koji Otabe, Nobutake Ozeki, Kunikazu Tsuji, Takeshi Muneta, Ichiro Sekiya

Poster No. 0473

Three-dimensional Analysis Of The Interaction Between Hyaline Cartilage And Subchondral Bone In Knee Joint Osteoarthritis By High-resolution Peripheral Quantitative Computed Tomography

Tunku Kamarul, Ponnurajah Panjavarnam, Chee Ken Chan, Azlina A. Abbas, Pan Pan Chong

Poster No. 0474

Fourier Transform Infrared (FTIR) Spectroscopic Determination of Cross-link Contents in Articular Cartilage

Lassi Rieppo, Harri Kokkonen, Katariina Nissinen, Vuokko Kovanen, Juha Töyräs, Mikko Lammi, Simo Saarakkala

Poster No. 0475

Changes in the Local Proteoglycan Content of the Pericellular Matrix are Highly Site-Specific and Related to Cell Deformation Behavior 3 Days after a Partial Meniscectomy in the Rabbit Knee Joint

Ari P. Ronkainen, Aino Reunamo, James M. Fick, Walter Herzog, Rami K. Korhonen

Poster No. 0476

Quantification of Molecular Sieving by Tissue Compartments Comprising Normal and Osteoarthritic Knee Joints

André F. Pereira, Damien Schnebelen, Lillian E. Knothe, Roy K. Aaron, Melissa L. Knothe Tate

Poster No. 0477

Chondrocyte Fate Inferred from 3-D Bioimage Informatics of Cell Organization in Human Articular Cartilage

Neil Chang, Van W. Wong, William D. Bugbee, Barbara L. Schumacher, Robert L. Sah

PS1 Cartilage, Synovium & Osteoarthritis—Post Traumatic OA

Poster No. 0478

Kinematic and Cartilage Health Changes in Both Injured and Contralateral Knees Following ACL Injury and Reconstruction

Jonathan K. Ochoa, Keiko Amano, Matthew Tanaka, Faustine Dufka, Valentina Pedoia, Richard Souza, Xiaojuan Li, Benjamin Ma

Poster No. 0479

Superficial Zone Cellularity is Deficient in Mice Lacking Lubricin: A Stereoscopic Analysis

Naga Padmini Karamchedu, Josef N. Tofte, Kimberly A. Waller, Ling X. Zhang, Tarpit K. Patel, Gregory D. Jay

Poster No. 0480

Traumatic Injury Induces Rapid Pericellular Matrix Remodeling and Alters Territorial Matrix Nanomechanics in an In Vitro Cartilage Explant Model

Bhavana Mohanraj, Robert Mauck, George R. Dodge

Poster No. 0481

Bilateral Assessment of Cartilage with UTE T2* Quantitative MRI and Relationships with Walking Mechanics Two Years after Anterior Cruciate Ligament Reconstruction

Matthew R. Titchenal, Ashley A. Williams, Eric F. Chehab, Jessica L. Asay, Jason L. Dragoo, Garry E. Gold, Timothy McAdams, Thomas P. Andriacchi, Constance R. Chu

Poster No. 0482

Conditional Overexpression of ELF3 in Adult Articular Cartilage Exacerbates the Onset of Surgically-Induced Osteoarthritis in Mouse Knee Joints

Elisabeth B. Wondimu, Kirsty L. Culley, Justin Quinn, Jun Chang, Cecilia L. Dragomir, Darren Plumb, Mary B. Goldring, Miguel Otero

Poster No. 0483

Elevated Lipid Metabolites in Synovial Fluid after Intra-Articular Ankle Fracture

Elizabeth M. Leimer, Kirk L. Pappan, Dana L. Nettles, Richard D. Bell, Mark E. Easley, Steven A. Olson, Lori A. Setton, Samuel B. Adams

Poster No. 0484

Genipin Crosslinking of Impacted Cartilage Enhances Resistance to Biochemical Degradation and Mechanical Wear

Diane R. Wagner, Craig M. Bonitsky, Michael Selep, Megan McGann, Timothy Ovaert, Stephen Trippel

Poster No. 0485

Oral Type 1 Collagen Peptides Induce Chondroregeneration In Posttraumatic Osteoarthritis

Qurratul-Ain Dar, Robert Maynard, Zhaoyang Liu, Eric Schott, Sarah Catheline, Michael Maloney, Reyad Elbarbary, Robert Mooney, Matthew Hilton, Janne Prawitt, Michael Zuscik

Poster No. 0486

Hypertrophy and Structural Alterations in Tibiofemoral Articular Cartilage Following Anterior Cruciate Ligament Reconstruction Assessed with MRI

Eric Thorhauer, Freddie H. Fu, James Irrgang, Scott Tashman

Poster No. 0487

Quantitative MR Characterization of Knee Cartilage 1 year after Tibial Plateau Fracture Correlates with Functional Outcomes at 2 years

Mariya L. Samoylova, Stephen Markham, Valentina Pedroia, Drew Lansdown, Nathan Singh, Rita Baumgartner, Pouriya Ghayoumi, Roland Krug, Thomas Link, Sharmila Majumdar, Saam Morshed

Poster No. 0488

Changes in Joint Contact Mechanics after an Anterior Partial Meniscectomy in a Large Quadrupedal Animal Model of Osteoarthritis

David J. Heckelsmiller, M. James Rudert, Douglas R. Pedersen, Jessica E. Goetz

Poster No. 0489

Evaluation of Tibiofemoral Cartilage Contact Area Alterations in ACL Injured Patients

Ellison Chen, Keiko Amano, Valentina Pedroia, Richard Souza, C Benjamin Ma, Xiaojuan Li

Poster No. 0490

Application Of Pulsed Low-intensity Ultrasound For Post-traumatic Osteoarthritis: An Animal Study

Talal Zahoor, Reed Mitchell, Priya Bhasin, Aliya Lakhani, Lew Schon, Zijun Zhang

Poster No. 0490A

Anti-VEGF Therapy for Inhibition of Osteoarthritis Progression and Pain

John L Hamilton, Zhiqiang Liu, Xin Li, Brett Levine, Hee-Jeong Im

PS1 Cartilage, Synovium & Osteoarthritis—Growth Plate and Cartilage Extracellular Matrix

Poster No. 0491

Roles of Decorin and Biglycan in the Nanomechanics of Cartilage during Skeletal Maturation

Basak Doyran, Qingmei Yao, Samuel J. Rozans, Qing Li, Marian F. Young, Renato V. Iozzo, David E. Birk, Lin Han

Poster No. 0492

Collagen content in the Cartilage Matrix Controls Chondrocyte Deformation in Mechanically Loaded Healthy Tissue

Ari P. Ronkainen, James M. Fick, Walter Herzog, Rami K. Korhonen

Poster No. 0493

CDC42 Regulates the Superficial Zone Chondrocyte Shape and Expression of Proteoglycan4

Elizabeth Delve, Justin Parreno, Paul Wu, Vivian Co, Rita Kandel

Poster No. 0494

Effect of Hydrodynamic Shear on Proteoglycan 4 Synthesis and Secretion by Bovine Cartilage Explants

Alyssa A. Morin, Suresh C. Regmi, Tannin A. Schmidt

Poster No. 0495

Strain Disparity Of Articular Cartilage Susceptibility To Monoiodoacetate Between Sprague-dawley And Wistar Rats

Ryusuke Saito, Kunikazu Tsuji, Yusuke Nakagawa, Mio Udo, Katsuaki Yanagisawa, Toshiyuki Ohara, Ichiro Sekiya, Takeshi Muneta

Poster No. 0496

Effects of Phosphocitrate and Its Analogue on Articular and Growth Plate Cartilages

Yubo Sun, Christopher Podracky, Alex J. Kiraly, David Mauerhan, Edward Hanley

Poster No. 0497

MiR-146a Is a Critical Regulator of Chondrocyte Proliferation through Modulating TGF β and PTHrP Signaling Pathways In Vivo

Yingjie Guan, Shaohua Du, Abass Noor, Qian Chen

Poster No. 0498

R-spondin2 Is A Critical Factor For Extracellular Matrix Production And Chondrogenesis Via Wnt/ β -catenin Signaling Pathway

Yasuhiko Takegami, Bisei Ohkawara, Taisuke Seki, Kinji Ohno, Naoki Ishiguro

Poster No. 0499

Hydrogel Composition and Permeability Influence cAMP and Ca $^{2+}$ Signaling in Chondrocytes

Amalie E. Donius, Sylvain Bougoin, Juan Taboas

PS1 Cartilage, Synovium & Osteoarthritis— Tissue Engineering and Repair/Focal Defect Repair

Poster No. 0500

Freeze-dried Chitosan Subchondral Implant Improves Cartilage Resurfacing In An Aged Sheep Bone Marrow Stimulation Model

Caroline D. Hoemann, Jessica Guzman-Morales, Gaoping Chen, Genevieve Picard, Daniel Veilleux, Michael D. Buschmann, Charles-Hubert Lafantaisie-Favreau, Mark B. Hurtig

Poster No. 0501

Large-Scale Engineered Cartilage Surfaces with Evenly Distributed Properties

Audrey C. Ford, Wan Fung Chui, Anne Y. Zeng, Aditya Nandy, Ellen Liebenberg, Tamara Alliston, Grace D. O'Connell

Poster No. 0502

Effect of Mechanical Load on Scaffold-Cartilage Integration: A Computationally Augmented Biological Model

Supansa Yodmuang, Hongqiang Guo, Tony Chen, Caroline Brial, Peter A. Torzilli, Russell F. Warren, Suzanne A. Maher

Poster No. 0503

Mechanical Characterization of Autologous Chondrocyte-Seeded Matrix Grafts after in vitro Growth

Jill Middendorf, Darvin Griffin, Stephen Kennedy, Sonya Shortkroff, Caroline Dugopolski, Joseph Siemiatkowski, Lawrence Bonassar

Poster No. 0504

Platelet-rich Plasma Supplementation on Hyaluronic Acid/Chondroitin Sulfate Hydrogel Does Not Enhance the In vivo Chondrogenesis in a Rabbit Osteochondral Defect Model

Bo Hyun Kim, Osung Lee, Hee Jung Park, Sun Young Wang, Hyuk Soo Han, Sahngghoon Lee, Myung Chul Lee

Poster No. 0505

Articular Cartilage Matrix Formation using Dynamic Self-Regenerating Cartilage and Photochemical Hydrogels

Amanda M. Meppelink, Xing Zhao, Darvin Griffin, Richard Erali, Lawrence Bonassar, Robert W. Redmond, Mark A. Randolph

Poster No. 0506

Engineering An Osteochondral Interface Via Spatially Controlled, Scaffold-mediated Gene Delivery Of TGF- β 3 And BMP-2 Within Anatomically-shaped Cartilage-derived Matrix Scaffolds

Christopher R. Rowland, Katherine A. Glass, Jonathan Brunger, Nguyen P. Huynh, Charles Gersbach, Farshid Guilak

Poster No. 0507

Devitalization of Human Cartilage Tissue: Capability and Reliability of Hydrostatic High Pressure Treatment

Bettina Hiemer, Berit Genz, Anika Jonitz-Heincke, Juliane Pasold, Jürgen Ostwald, Andreas Wree, Steffen Dommerich, Rainer Bader

Poster No. 0508

Resistance of Articular Cartilage Photochemical Bonds to Interleukin-1-Induced Degradation

Alberto L. Arvayo, Marc E. Levenston

Poster No. 0509

Validation of Long-Term Preservation of Human Osteochondral Allografts at Room Temperature

Aaron Stoker, Chantelle Bozynski, Keiichi Kuroki, Clark Hung, James P. Stannard, James L. Cook

Poster No. 0510

Allogeneic Mesenchymal Stromal Cells in a Cartilage Clinical Trial: Stimulation of Tissue Regeneration without Engraftment

Lucienne A. Vonk, Tommy S. De Windt, Roel A. De Weger, Ineke CM Slaper-Cortenbach, Daniel BF Saris

Poster No. 0511

Formation Of Human Articular Cartilage By Spatiotemporal Control Of Self-assembling Mesenchymal Cells

Johnathan J. Ng, Yiyong Wei, Bin Zhou, Samuel T. Robinson, Edward X. Guo, Gordana Vunjak-Novakovic

Poster No. 0512

Strategies for Growth Factor Conjugation to Acrylate-Modified Agarose Scaffolds for Cartilage Tissue Engineering

Michael B. Albro, Christopher D. Spicer, Martine Ballinger, Alvaro Medina Rivas, Elena Littmann, Molly M. Stevens

Poster No. 0513

Enhanced Articular Cartilage Defect Repair and Aggrecan Expression in Chondrocytes with the Use of a Novel Extracellular Matrix Biomaterial

Jolanta B. Norelli, Dawid P. Plaza, John Schwartz, Hixiang Liang, Daniel A. Grande

Poster No. 0514

MSC-Derived Extracellular Vesicles Stimulate Cartilage Regeneration and Modulate Inflammatory Responses

Lucienne A. Vonk, Sanne Van Dooremalen, Paul J. Coffey, Daniel BF Saris, Magdalena J. Lorenowicz

Poster No. 0515

Hyaluronan Alters Chondrogenesis Of Adipose Derived Stem Cells Through Affecting Phosphorylation Of Erk1/2 And Sox-9 Activity

Shun-Cheng Wu, Chung-Hwan Chen, Chien-Hsueh Chen, Je-Ken Chang, Mei-Ling Ho

Poster No. 0516

The Effect Of Leukocyte Depletion In PRP On The Proliferation And Chondrogenesis Of Synovium-derived MSCs And Expanded Chondrocytes

Hyuk Soo Han, Bo Hyun Kim, Hee Jung Park, Osung Lee, Sun Young Wang, Sahngghoon Lee, Myung Chul Lee

Poster No. 0517

Increased Media Volumes Enhance Viability and Functional Maturation of MSC-Based Engineered Cartilage

Elizabeth A. Henning, Breanna N. Seiber, David R. Steinberg, Robert L. Mauck

Poster No. 0518

Allogenic Transplantation of Magnetically Labeled Mesenchymal Stem Cells for Osteochondral Repair

Elhussein E. Mahmoud, Naosuke Kamei, Yohei Harada, Yuka Tanaka, Hideki Ohdan, Mitsuo Ochi

Poster No. 0519

Evaluating the Effect of Direct and Indirect Contact Co-culture of Human Amniotic Stem Cells with Osteoarthritic Joint Tissue Explants—Implications for Therapeutic Administration

Natasha K. Topoluk, Kathleen E. Steckbeck, Sandra J. Siatkowski, Brian G. Burnikel, John M. Tokish, Jeremy J. Mercuri

Poster No. 0520

The Inhibitory Role Of Adipose-derived Stem Cells On Chondrocyte Migration

Andrew Carroll, Roshni Rainbow, Stephen Waldman, Mark Hurtig, Lauren Flynn, Brian Amsden

PS1 Cartilage, Synovium & Osteoarthritis—Mechanics

Poster No. 0521

Focal Chondral Defects Cause Joint-Wide Decreases in Cartilage Mechanics in a Large Animal Model

Gregory R. Meloni, James M. Friedman, Alexander L. Neuwirth, Marcelo Bonadio, George R. Dodge, Robert L. Mauck

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Understanding the Mechanics of Focal Chondral Defects in the Hip

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Intracellular Calcium Signaling of In Situ Chondrocytes Could Be Correlated with Tissue Stiffness

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Healthy And Post Aclr Models Under Physiological Loading: Multiscale Syntheses Of Articular Cartilage Stress As A Function Of Graft-pretensioning Force

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In Vivo Diffusivity of a Contrast Agent in Articular Cartilage of the Human Knee Joint: A Feasibility Study

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Simon C. Mastbergen, Karen Wiegant, Michiel Beekhuizen, Natalia O. Kuchuk, Roel J. Custers, Daniel B. Saris, Laura B. Creemers, Floris P. Lafeber

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Cyclic Mechanical Loading Enhances Transport of Antibodies Through Articular Cartilage

Chris DiDomenico, Zhen Xiang Wang, Andrew Goodearl, Anna Yarinina, Victor Sun, Soumya Mitra, Annette Schwartz Serman, Lawrence Bonassar

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Genetic Manipulation Of Peripheral Blood Aspirates Via rAAV to Improve Cartilage Repair

Janina Frisch, Jagadeesh K. Venkatesan, Ana Rey Rico, Patrick Orth, Gertrud Schmitt, Henning Madry, Magali Cucchiari

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Overexpression Of TGF- β Via rAAV Gene Transfer Stimulates the Chondrogenic Processes In Human Bone Marrow Aspirates

Janina Frisch, Ana Rey Rico, Jagadeesh K. Venkatesan, Gertrud Schmitt, Henning Madry, Magali Cucchiari

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Discrepant Interleukin-1 Receptor Antagonist Concentrations Between Serum and Synovial Fluid After Intra-articular Administration of Autologous Conditioned Serum Into Equine Osteoarthritic Distal Interphalangeal Joints

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Prediction of Degree of Cartilaginous Tissue Repair as Observed by Knee Joint Distraction

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Decoding of EMG Signals for Knee Exoskeleton Used for Osteoarthritis Treatment

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Platelet Rich Plasma and Hyaluronic Acid Blend for the Treatment of Osteoarthritis: Rheological Evaluation

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Simon C. Mastbergen, Alberto Miranda, Katja Coeleveld, Bjorn P. Meij, Peter M. Van Roermund, Marianna Tryfonidou, Floris P. Lafeber

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Takahiro Machida, Keiichiro Nishida, Yoshihisa Nasu, Ryuichi Nakahara, Masahiro Horita, Ayumu Takeshita, Daisuke Kaneda, Toshifumi Ozaki

PS1 Cartilage, Synovium & Osteoarthritis—Genetics/Genomics and Proteomics

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Edward D. Bonnevie, Michelle L. Delco, Naveen Jasty, Lena Bartell, Lisa Fortier, Itai Cohen, Lawrence Bonassar

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Masato Koike, Hidetoshi Nojiri, Haruka Kaneko, Daichi Morikawa, Keiji Kobayashi, Yoshitomo Saita, Kazuo Kaneko, Takahiko Shimizu

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The Effect of C-DIM12 on Mitigating the Development of Inflammation in Cultured Equine Chondrocytes and Synoviocytes

John Alexander Schwartz, Mary Afzali, William H. Hanneman, C Wayne McIlwraith, Laurie R. Goodrich

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Linking Chondrogenesis And Inflammation Through The Smad Linker Domain

Guus G. Van den Akker, Henk Van Beuningen, Elly Vitters, Esmeralda N. Blaney Davidson, Peter Van der Kraan

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Responses of Infrapatellar Fat Pad and Synovial Tissue to Cytokine Stimulation In Vitro

Aaron M. Stoker, Catherine Jones, James Cook

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Nicole C. Werner, Aaron M. Stoker, Chantelle C. Bozynski, B. Sonny Bal, James L. Cook

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Assessment of Biomarker Production by Osteochondral Tissue Obtained from Patients Undergoing Total Knee Arthroplasty

Nicole Werner, Aaron Stoker, James T. Stannard, B. Sonny Bal, James L. Cook

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Circulating and Synovial Fluid Inflammatory Cytokine Profiles in Primary Knee Osteoarthritis

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Jessica E. Goetz, Erik Cole, Emily B. Petersen, Gail Kurriger, Douglas C. Fredericks, James A. Martin

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The Relationship Between Synovial Inflammation, Structural Joint Pathology And Pain In Post-traumatic Osteoarthritis: The Effect Of Treatment With Intra-articular Stem Cells Versus a Hyaluronan Hexadecylamide-derivative

Christopher B. Little, Cindy C. Shu, Varshini Ravi, Susan M. Smith, Antonella Schiavinato, Margaret M. Smith

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Biologic Agents Improve The Abnormality Apoptosis of Synovial Tissues In Rheumatoid Arthritis?

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Transthyretin Deposition Accelerates the Development of Experimental Osteoarthritis in Mice

Tokio Matsuzaki, Oscar Alvarez-Garcia, Yukio Akasaki, Natalia Reixach, Joel Buxbaum, Martin K. Lotz

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Differential DNA Methylation and Reduced Expression of Critical Transcription Factors in Human OA Cartilage

Oscar Alvarez-Garcia, Kathleen M. Fisch, Ryuichiro Akagi, Andrew I. Su, Martin K. Lotz

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Suppression Of REDD1 In OA Cartilage, A Novel Mechanism for Dysregulated mTOR Activation

Oscar Alvarez-Garcia, Ryuichiro Akagi, Yukio Akasaki, Kathleen M. Fisch, Andrew I. Su, Martin K. Lotz

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Suppression of Sestrins in Aging and Osteoarthritic Cartilage: Dysfunction of an Important Stress Defense Mechanism

Tao Shen, Yan Li, Merissa Olmer, Oscar Alvarez-Garcia, Martin K. Lotz

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A Pragmatic Knee Preservation Registry to Follow Patients With Degenerative Joint Disease and Determine Utility of Synovial Fluid Biomarkers to Inform Treatment Decisions

Stephen Yu, Hans-Georg Wisniewski, Elisha Lee, Thomas Deakin, Xiang Sean Zhou, Raj Karia, Eric Strauss, Laith Jazrawi, Richard Iorio, Philip Band

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Pain and Loss of Function Correlates with Changes in Joint Morphology in Thumb CMC OA

Joseph Trey Crisco, Tarpit Patel, Eni Halilaj, Douglas Moore, Amy Ladd, Arnold-Peter C. Weiss

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Real-time Estimation Of The External Knee Adduction Moment in Knee Osteoarthritis Using An Offaxis Elliptical Trainer

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Jan-Ton A. Van der Woude, Karen Wiegant, Ronald J. Van Heerwaarden, Sander Spruijt, Peter M. Van Roermund, Roel J. Custers, Simon C. Mastbergen, Floris P. Lafeber

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The Prevalence of Neurocognitive Dysfunction in Total Joint Arthroplasty and Relation to Patient Reported Outcomes

Stephen Yu, Emmanuel Edusei, Kelsey Grossman, Raj Karia, David Steiger, James Slover

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The Effects Of EP2 Agonist And -antagonist With Or Without Chondrocyte Sheet On Articular Cartilage Damage

Yoshiki Tani, Masato Sato, Shinsei Fujimura, Munetaka Yokoyama, Miyuki Yokoyama, Takumi Takahashi, Eri Okada, Hideyuki Maruki, Yoshiharu Kato, Joji Mochida

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Comparing The Allogeneic Inflammatory Reaction Between Mesenchymal-lineage Cells Derived From Different Origins

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In-vivo Repair Outcome is Influenced by In-vitro Biological Properties of Rabbit Condyle and Trochlea

Garima Dwivedi, Anik Chevrier, Mohamad-Gabriel Alameh, Caroline D. Hoemann, Michael D. Buschmann

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Human Induced Pluripotent Stem Cells (hipsc)-derived Chondrocytes Demonstrate Resistance to Inflammatory Cytokines in Comparison to Adult Chondrocytes

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Shawn P. Grogan, Tammy Lee, Emily E. Lee, Adam W. Racusin, Heinz R. Hoenecke, William D. Bugbee, Darryl D. D'Lima

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Properties of MSCs Derived From Surface, Stroma, and Perivascular Synovium Of Oa Patients

Mitsuru Mizuno, Hisako Katano, Yo Mabuchi, Yusuke Ogata, Shizuko Ichinose, Koji Otabe, Keiichiro Komori, Yukie Matsumoto, Nobutake Ozeki, Kunikazu Tsuji, Chihiro Akazawa, Takeshi Muneta, Ichiro Sekiya

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A Comparative Study of Pelleted versus Single Mesenchymal Stem Cells in 3D Hydrogels for Cartilage Repair

Heather Rogan, Fan Yang

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Human Perinatal Stem Cells Mitigate Osteoarthritis Progression More Effectively than Adult Stem Cells

Natasha K. Topoluk, Brian Burnikel, John Tokish, John Tokish, Jeremy Mercuri

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High Sensitivity Virus / Mycoplasma Screening Test Reveals High Prevalence of Parvovirus B19 Infection In Synovial Tissues and Bone Marrow

Koji Otabe, Ken Watanabe, Norio Shimizu, Takeshi Muneta, Ichiro Sekiya

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Epidemiology of Chondrogenic Progenitors in Tissues Around the Human Knee

Venkata Prasanna R. Mantripragada, George Muschler, Cynthia Boehm, Ronald Midura, Robert Sah, Neil Chang, Van W. Wong, Eben Alsberg

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Hypoxia Enhances Proliferation With Chondrogenic Potential in Primary Synovial Mesenchymal Stem Cells

Toshiyuki Ohara, Takeshi Muneta, Yusuke Nakagawa, Yu Matsukura, Shizuko Ichinose, Kunikazu Tsuji, Ichiro Sekiya

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Ascorbate-dependent Impact On Cell-derived Matrix In Modulation Of Stiffness and Rejuvenation of Infrapatellar Fat Derived Stem Cells Toward Chondrogenesis

Ming Pei, Ying Zhang, Tyler Pizzute, Chenbo Dong, Cerasela Dinu

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Fibrous Synovium Releases Higher Number Of MSCs Than Adipose Synovium in a Suspended Synovium Culture Model

Kenta Katagiri, Takeshi Muneta, Koji Otabe, Yu Matsukura, Hisako Katano, Ichiro Sekiya

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Co-culture Of Human Synovium-derived Stem Cells And Chondrocytes Reduces Hypertrophy And Enhances In Vitro Chondrogenesis

Hyuk Soo Han, Ha Roo Yang, Bo Hyun Kim, Osung Lee, Sun Young Wang, Hee Jung Park, Sahngghoon Lee, Myung Chul Lee

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Vimentin Knockdown Alters Cytoskeletal Response to Cell Deformation in Mesenchymal Stem Cells

Poonam Sharma, Zachary Bolten, Diane R. Wagner, Adam H. Hsieh

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Relationship Between Medial Meniscus Posterior Root Tear and Osteoarthritic Change in Anatomical Observation of Cadaveric Knee Joints

Yuki Kato, Midori Oshida, Shin Aizawa, Yusuke Morimoto, Masayuki Seki, Takashi Horaguchi, Yasuaki Tokuhashi

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Meniscal Loading and Molecular Transport in an In Vivo Osteoarthritis Model

Lucy Armitage, Lutz Dürselen, Roy Aaron, Anita Ignatius, Melissa Knothe Tate

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Can Meniscal Geometry be Predictive of Meniscal Tears in Patients With or Without Concomitant ACL Injury?

Damon A. Greene, Robert Pivec, Bhavleen H. Kapadia, Preston W. Grieco, Qais Naziri, Justin Tsai, Dipal Chatterjee, Fred Xavier, William P. Urban

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Natural History of Menisci Following Untreated Anterior Root Tears

Brett Steineman, Brent Warner, Lindy Gillette, Robert F. LaPrade, Tammy Haut Donahue

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Non-invasive Imaging of the Radial Tie Sheaths of the Bovine Meniscus Using MRI

Marianne S. Black, Eva G. Baylon, Brian A. Hargreaves, Garry E. Gold, Emily J. McWalter, Marc E. Levenston

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The Meniscus Kinetic Change of Porcine Knee: Motion knee MRI

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Inflammatory Response is Prerequisite to Initiate Proper Healing Process During Meniscal Regeneration in Mice

Kanehiro Hiyama, Kunikazu Tsuji, Wataru Shimada, Atsushi Okawa, Ichiro Sekiya, Takeshi Muneta

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Comparison Between Complete and Incomplete Discoid Lateral Meniscus: Histological and Cell Biological Analyses

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Platelet-Derived Growth Factor Promotes Interstitial Cell Migration in the Knee Meniscus

Feini Qu, Julianne L. Holloway, Michael P. Pintauro, Jason A. Burdick, Robert L. Mauck

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Insights on Human Meniscus Structure and Cellularity: Implications for Aging and Injury

Stephen H. Andrews, Ziad Abusara, May Chung, Jerome B. Rattner, Walter Herzog, Scott Timmermann, Norman S. Schachar, Sue Miller, Nigel Shrive, Adetola B. Adesida

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Genetic Reduction in Atm Improves the Function Of Muscle Derived Stem/progenitor Cells In the Ercc1-Δ Mouse Model of Accelerated Aging

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Chitosan-platelet-rich Plasma Implants Can Be Injected Into Meniscus Defects To Improve Repair

Anik Chevrier, Gabrielle Deprés-Tremblay, Mark Hurtig, Michael Buschmann

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Biological Augmentation Of A Polyurethane Meniscal Substitute With Mesenchymal Stem Cells for Treatment of Large Meniscal Defects

Johannes Zellner, Christian Pfeifer, Matthias Koch, Michael Nerlich, Peter Angele

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TRPV4-mediated Calcium Signaling Regulates Aligned Tissue Formation by Mesenchymal Stem Cells

Christopher L. Gilchrist, Holly A. Leddy, Laurel Kaye, Wolfgang Liedtke, Farshid Guilak

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Autologous Bone Marrow-Derived Mesenchymal Stromal Cells Elicit an Anti-Inflammatory Response in a Canine ACL Rupture Model

Peter Muir, Eric Hans, Molly Racette, Nicola Volstad, Susannah Sample, Susan Schaefer, Jason Bleedorn, Zhengling Hao, M Suresh, Peiman Hematti

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Adipose- And Muscle- Derived Mesenchymal Stem Cells From A Mouse Model With Ossification Of Spinal Ligament Showed Higher Differentiation Potential Into Osteocytes

Xizhe Liu, Gentaro Kumagai, Toru Asari, Kanichiro Wada, Toshihiro Tanaka, Kazuki Oishi, Taku Fujita, Ken-Ichi Furukawa, Yasuyuki Ishibashi

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Perivascular Tendon Stem/progenitor Cells Regulate Inflammation And Matrix Remodeling In Tendon Regeneration

Solaiman Tarafder, John A. Brito, Kun H. Sim, Chang H. Lee

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Transcriptome Profiles of Murine Achilles Tendon Proper- and Peritenon- Derived Progenitor Cells

Michael J. Mienaltowski, Angela Cánovas, Alma Islas-Trejo, Juan F. Medrano

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Effects of Aging On Tendon Stem/Progenitor Cells and Cell Senescence

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In Search of an Ideal Cell Delivery Vehicle for Biologically Augmenting Massive Rotator Cuff Repair

Alison Welch, Sandra Siatkowski, Michael Kissenberth, Stefan Tolan, Richard Hawkins, John Tokish, Gregory Colbath, Jeremy Mercuri

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Genetic Loss of PAI-1 Decreases Tendon Adhesions in a Mouse Model of Zone II Flexor Tendon Injury

Youssef Farhat, Anas Easa, Alaa Al-Maliki, Hani A. Awad

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Crossed-linked Rcollagen Matrix Combined With Prp for Enhanced Healing In Tendinopathy- Assessment In Animal Models

Oded Shoseyov, Racheli Gueta, Frida Grynspan, Tal Amzel, Jasmine Seror, Abraham Nyska, Nadav Orr, Ofer Levy

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Indian Hedgehog Signaling In Tendon-bone Healing: A Potential Regulator Of Enthesis Repair

Andrew Carbone, Camila Carballo, Will Gu, Hongsheng Wang, Lilly Ying, Richard Ma, Xang-hua Deng, Scott Rodeo

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A New Mouse Supraspinatus Tendon Repair Model

Amir Lebaschi, Jianchun Zong, Guang-Ting Cong, Liang Ying, Xiang-Hua Deng, Michael Mosca, Scott Rodeo

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Evaluation of Different Collagen Scaffolds for Tissue Reinforcement in Tendon Defects

Carolyn Gabler, Juliane Pasold, Thomas Thischer, Rainer Bader

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Sustained Release of Ibuprofen from Labrafil-Modified PLGA Microspheres

Dong Hwa Kim, Feini Qu, Corinne N. Riggin, Joseph Bernstein, Louis J. Soslowsky, Robert L. Mauck

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Immunohistochemical Analysis of Muscle Tissue Following Blunt Achilles Tendon Transection in a Rat Model

Tyler R. Morris, Benjamin R. Freedman, Pankti Bhatt, Joshua L. Gordon, Louis Soslowsky

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Tissue Defining Properties of Ligament and Tendon Occur Late in Development. Insights from Post-Translational Variances of Type I Collagen

David Hudson, Jyoti Rai, MaryAnn Weis, Jiann-Jiu Wu, David R. Eyre

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Tendon Reattachment Using Demineralised Bone Matrix

Tanujan Thangarajah, Catherine Pendegrass, Shirin Shahbazi, Simon Lambert, Susan Alexander, Gordon Blunn

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Flexor Tendon Repair Stiffness Calculations Can Be Improved

Patrick J. Schimoler, Aakash Chauhan, Pierre-Marc François, Alexander Kharlamov, Bradley A. Palmer, Edward Birdsong, Mark Carl Miller

Poster No. 0637

Strain-controlled Organ Culture Of Intact Human Anterior Cruciate Ligaments—An Ex-vivo Model To Investigate Degenerative And Regenerative Approaches

Anna Krismer, Christian Geissberger, Gierin Thomi, Romina Cabra, Sandro Kohl, Sufian S. Ahmad, Benjamin Gantenbein

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Extracellular Vesicles from Platelet Rich Plasma Enhance Tenocyte Proliferation and Migration

Cameron Murphy, Joseph Withrow, Amy Dukes, Sadanand Fulzele, Yutao Liu, Monte Hunter, Mark Hamrick

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In vitro Toxicity of Local Anesthetics and Corticosteroids on Supraspinatus Tenocyte Viability and Metabolism

Clayton Nuelle, Chris James, Aaron Stoker, James L. Cook, Seth Sherman

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Adipose Derived Human Mesenchymal Stem Cell Injections Improve Achilles Tendon Healing in a Rat Model

Sai Devana, Owen McBride, Claire Eliasberg, Tomasz Kowalski, Se Jin Park, Frank A. Petrigliano, Nelson Soohoo

PS1 Tendon/Ligament—Mechanics

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Collagen V-Deficient Tendons Exhibit Altered Dynamic Mechanical Behavior at Multiple Hierarchical Scales

Brianne K. Connizzo, Lin Han, David E. Birk, Louis J. Soslowsky

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In Vivo Analysis of Dynamic Graft Bending Angle in Anterior Cruciate Ligament Reconstructed Knees During Downhill Running and Level Walking

Yasutaka Tashiro, Vani Sundaram, Eric Thorhauer, James J. Irrgang, Freddie H. Fu, Scott Tashman

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The Stress Response Of Murine Achilles Tendons To Explant Culture Can Be Blocked By TGF- β 1 Or Low Oxygen Tension

Katie J. Trella, Jun Li, John D. Sandy, Anna Plaas, Vincent M. Wang

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Tendon Enthesis Mechanical Failure Mechanisms

Andrea G. Schwartz, Guy M. Genin, Stavros Thomopoulos

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Viscoelastic Contributions of Elastin During Uniaxial Tensile Stress Relaxation of Ligament

Heath Henninger, Benjamin M. Deviney, Michael C. Young, Jeffrey Weiss

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Changes in Viscoelastic Properties Along the Length of the Achilles Tendon

Jennifer A. Zellers, Patrick Corrigan, Daniel H. Cortes, Karin G. Silbernagel

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Simvastatin Recovers Supraspinatus Tendon Mechanical and Histological Properties in a Diet-Induced Hypercholesterolemia Rat Model

Jennica J. Tucker, Louis J. Soslowsky

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Morphology of the Lateral Ulnar Collateral Ligament

Karen Tokunaga, Kotaro Sato, Goro Tajima, Jun Yan, Katsumi Tajima, Katsuro Furumachi, Minoru Doita

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The Effect of Muscle Unloading on the Adult Tendon-to-Bone Attachment

Alix C. Deymier-Black, Andrea G. Schwartz, Stavros Thomopoulos

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The Effect of Added Lubricant on Gliding Resistance after Fibrin Gel Augmentation in an in vitro Tendon Repair

Kosuke Uehara, Chunfeng Zhao, Anne Gingery, Andrew Thoreson, Kai-Nan An, Peter Amadio

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Crimp Length Decreases in Lax Tendons due to Cytoskeletal Tension, but is Restored with Tensional Homeostasis

Michael Lavagnino, Andrew E. Brooks, Keri L. Gardner, Steven P. Arnoczky

PS1 Tendon/Ligament—Cell Biology

Poster No. 0652

Systemic Apoptotic Inhibition Promotes Remodeling in Fatigue Damaged Tendons

Meagan Robles-Harris, Matthew Anderson, Yoon Ro, Corey Suraci, Evan Flatow, Nelly Andarawis-Puri

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Influence Of Proinflammatory Cytokines On Tenocytes Of The Rotator Cuff

Franka Klatte-Schulz, Aysha Schmock, Susann Minkwitz, Meaghan Stolk, Martina Seifert, Britt Wildemann

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Platelet Rich Plasma Activates Pro-inflammatory Signaling Pathways and Induces Oxidative Stress in Tendon Fibroblasts

Joshua Hudgens, Kristoffer B. Sugg, Jeremy A. Grekin, Jonathan P. Gumucio, Asheesh Bedi, Christopher L. Mendias

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Molecular Changes of Tendon And Muscle After Achilles Tendon Repair in Senescence Accelerated Mouse

Atsuyuki Inui, Yasuhiro Ueda, Takeshi Kokubu, Yutaka Mifune, Ryosuke Sakata, Yoshifumi Harada, Fumiaki Takase, Takeshi Kataoka, Masahiro Kurosaka

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The Relative Gene Expression Profile of human Anterior Versus Posterior Cruciate Ligament

Anna Krismier, Romina Cabra, Sufian S. Ahmad, Sandro Kohl, Benjamin Gantenbein

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Assessing Ligament Degeneration Using an Alternative Histological Method

Andrew C. Rohan, Lee E. Rubin, Alison M. Biercevicz, Peter T. Evangelista, Gary J. Badger, Braden C. Fleming

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The Influence Of Injury-to-surgery Interval On Healing Potential Of Human Anterior Cruciate Ligament Remnant Tissue

Takao Inokuchi, Tomoyuki Matsumoto, Koji Takayama, Kanto Nagai, Zhang Shurong, Kyohei Nishida, Daisuke Araki, Takehiko Matsushita, Ryosuke Kuroda, Masahiro Kurosaka

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Controlled Abnormal Joint Motion in a Rat Anterior Cruciate Ligament Complete Transection Model Leads to Spontaneous Healing through the Mechanotransduction Mechanism

Takanori Kokubun, Naohiko Kanemura, Kenji Murata, Hideki Moriyama, Sadao Morita, Tetsuya Jinno, Hidetoshi Ihara, Kiyomi Takayanagi

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Histological Analyses of “Anchor-like” Structures of Human Fetal Anterior Cruciate Ligament

Kai Sun, Monica Linde-Rosen, Weifeng Yin, Ying Tang, Hao Peng, Freddie Fu, Bing Wang

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Transcriptomic Analysis of Ligamentum Flavum in Patients with Lumbar Spinal Stenosis

Sadayuki Ito, Ken Watanabe, Taiki Mori, Atsushi Harada, Syumpei Niida, Yoshihito Sakai

PS1 Muscle

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Low-Dose of Acrolein, a Cigarette Smoke Constituent, Impairs Skeletal Muscle Myogenesis and Glucose Metabolism

Rong S. Yang, Chen Y. Chiu, Huang J. Chen, Shing H. Liu

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Agrin Deficiency Deteriorates Neuromuscular Junction After Nerve Injury In the Study of Experimental study with a Mouse Model

Tetsuro Onishi, Jared Su, James S. Jung, Tom Chao, Shigeru Kurimoto, Weiping Wang, Tahseen Mozaffar, Ranjan Gupta

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Inhibition of TGF- β Signaling Decreases Fibrosis in a Mouse Model of Rotator Cuff Tears

Michael R. Davies, Xuhui Liu, Anne Y. Ning, Lawrence Lee, Hubert T. Kim, Brian T. Feeley

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The Involvement of RhoA in Inflammatory Pathology of DMD Genetic Models

Xi Yin, Jian Li, Ying Tang, Xiaodong Mu, Chuanqiang Pu, Johnny Huard, Bing Wang

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The Role Of The Microenvironment on the Interaction Between Various Populations of Resident Cells Within Skeletal Muscle: Implication for Muscle Regeneration and Repair

Aiping Lu, Jihee Sohn, Ying Tang, Bing Wang, Johnny Huard

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RhoA/Rock Inhibition Improves the Beneficial Effect of Glucocorticoid in Dystrophic Muscle

Xiaodong Mu, Ying Tang, Koji Takayama, Bing Wang, Kurt Weiss, Johnny Huard

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The Use Of Hgf To Delay Stem Cell Exhaustion In Dystrophic Muscle

Elizabeth C. Stahl, Jonathan Proto, Aiping Lu, Bing Wang, Johnny Huard

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Dietary Nitrite Supplementation Improves Dystrophic Phenotype and Increases Exercise Endurance in DMD Model

Justin Hicks, Nathan P. Thomas, Baoli Qian, MaCalus Hogan, Hongshuai Li

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Oral Administration of Losartan Significantly Enhances Muscle Regeneration And Reduce Fibrosis Formation After Compartment Syndrome-like Muscle Injury in a Rat Model

Makoto Kobayashi, Yohei Kawakami, Takanobu Otsuka, Freddie H. Fu, Johnny Huard

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Transcutaneous Application Of Co2 Activates Muscle Synthesis And Vascular Endothelial System in Injured Tibialis Anterior (ta) Muscle In Rat Models

Shiho Akahane, Yoshitada Sakai, Takeshi Ueha, Keisuke Oe, Hanako Nishimoto, Miho Inoue, Risa Harada, Takahiro Niikura, Ryosuke Kuroda, Masahiro Kurosaka

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Analysis of Skeletal Muscles During Regeneration Due to Reduced Circulation in Ob/ob Mice And Effect Of Edaravone for Oxidative Stress On C2c12 Myoblast

Takuya Nakanishi, Masaya Tsujii, Takahiro Iino, Akihiro Sudo

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Evaluation of Laminin-111 Functionalized Hyaluronic Acid (HA) Hydrogels as a Scaffolding for Expansion of a Minced Muscle Autograft Therapy to Volumetric Muscle Loss

Stephen M. Goldman, Beth E. Pollot, Benjamin T. Corona

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Pulsed Electromagnetic Fields Enhance Myotube forming of C2C12 Myoblasts

Mengyao Liu, Carlin Lee, Dominique Laron, Nianli Zhang, Erik I. Waldorff, James T. Ryaby, Brian T. Feeley, Xuhui Liu

PS1 Bone—Skeletal Development

Poster No. 0675

Bone Mineral Crystal Size and Organization Vary Across Rat Bone Cortex

Mikael J. Turunen, Jørn D. Kaspersen, Martin Bech, Florian Schaff, Magnus Tagil, Ulf Olsson, Jukka S. Jurvelin, Hanna Isaksson

Poster No. 0676

A long Lef1 isoform is required for Wnt Signaling During Skeletal Development, But Not for Bone Mineral Density Maintenance

Elizabeth W. Bradley, Soyun M. Hwang, Lomeli R. Carpio, Meghan E. McGee-Lawrence, Jennifer J. Westendorf

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Mechanosensitive MicroRNA-365 Promotes Epiphyseal Osteogenesis in Injury Induced Osteoarthritis

Yun Gao, Kun Yang, Qian Chen

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Dose-Dependent Differential Skeletal Responses to Methylphenidate in Male and Female Rats

Sardar MZ Uddin, Jaclyn Birnbaum, Lisa S. Robinson, Michalis P. Michaelo, Panayotis K. Thanos, Michael Hadjiargyrou, David E. Komatsu

Poster No. 0679

Absence of Complement Component 3 Protects Against Bone Loss in a Murine Model of Postmenopausal Osteoporosis

Danielle L. MacKay, Thomas J. Kean, Kristina G. Bernardi, Heather S. Haeberle, Catherine G. Ambrose, Feng Lin, James E. Dennis

Poster No. 0680

Characterization of the Musculoskeletal Phenotype of the G608G Progeria Mouse Model

Sebastian Suarez, Maria B. Cubria, Aidin Masoudi, Amanda DuBose, Michael Erdos, Francis Collins, Brian Snyder, Ara Nazarian

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Effects of PTH(1-34) and Zoledronic Acid On Femoral Strength and Morphology in Juvenile Mice

Christopher M. Bartlow, Megan Elizabeth Oest, Kenneth A. Mann, Nicholas D. Zimmerman, Bilal B. Butt, Timothy A. Damron

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The Role of the Ulnar Trochlear Notch Anteversion Angle in Determining Terminal Elbow Extension

Edward Abraham, Jad Monsef, Erin Garvey, Rodrigo Ortiz, Lisa Halliday, Cory Helder, Hristo Piponov

PS1 Bone—Bone Aging

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Evaluating Age-Dependent Mechanosensitivity in Mesenchymal Stromal Cells and its Potential Effect on Bone Regeneration

Arlyng G. Gonzalez Vazquez, Sara Barreto, Andrew Cameron, Fergal J. O'Brien

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Effects of Aging On Macrophage Polarization

Emmanuel Gibon, Florence Loi, Luis A. Cordova, Laura Lu, Jukka Pajarinen, Tzu-hua Lin, Akira Nabeshima, Zhenyu Yao, Stuart B. Goodman

Poster No. 0685

Muscle and Bone Loss in Response to Unloading Are Uncoupled

Toni L. Speacht, Andrew R. Krause, Jennifer L. Steiner, Charles H. Lang, Henry J. Donahue

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Age And Sex Variations Of The Three-dimensional Metatarsal Structure

Masateru Kitashiro, Takeo Nagura, Teturo Kokubo, Naomichi Ogiwara, Yasunori Suda, Yoshiaki Toyama, Morio Matsumoto, Masaya Nakamura

PS1 Bone—Osteoblasts

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H19 Promotes Osteoblast Differentiation By Functioning as a Competing Endogenous RNA

Jin-fang Zhang

Poster No. 0688

Activation of Wnt/ β -Catenin Signaling Pathway in Osteoblasts by Pigment Epithelium Derived Factor Is Via a Cross-Talk with ERK Signaling Pathway

Feng Li, Stephan Leung, Joyce Tombran-Tink, Christopher Niyibizi

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Transduction Of Oct Family Member Genes With Myc Family Member Genes Induces Osteoblast like Phenotypic Conversion in Normal Human Fibroblasts

Naoki Mizoshiri, Tsunao Kishida, Kenta Yamamoto, Toshiharu Shirai, Ryu Terauchi, Shinji Tsuchida, Yuki Mori, Yoshiki Sato, Yuji Arai, Hiroyoshi Fujiwara, Osam Mazda, Toshikazu Kubo

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Involvement of Adenosine 5'-monophosphate-activated Protein Kinase in Transforming Growth Factor- β -stimulated Vascular Endothelial Growth Factor Synthesis in Osteoblasts

Jun Mizutani, Kenji Kato, Hideo Natsume, Akira Kondo, Osamu Kozawa, Takano Otsuka

Poster No. 0691

Leptin Ameliorates Ischemic Necrosis of the Femoral Head in Rats with Obesity Induced by a High-fat Diet

Jung Ryul Kim, Kyu Yun Jang, See-Young Park

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Induction Of Skeletal Pain Related To Regional Osteoporotic Change Of Lower Limb In Tail-suspension Mouse Model

Takayuki Dohke, Kousuke Iba, Megumi Hanaka, Kumiko Kanaya, Shunichiro Okazaki, Yasuhisa Abe, Toshihiko Yamashita

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Lansoprazole Regulates Osteoclast Formation and Function

Kenichi Mishima, Hiroshi Kitoh, Masaki Matsushita, Hiroshi Sugiura, Sachi Hasegawa, Naoki Ishiguro

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Effects Of Tiludronate on Bone Growth And Remodeling in Young Horses

Margaret A. McNulty, Ashley N. Gillett, Brad A. Goupil, Colin F. Mitchell

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RNA-Seq Analysis Reveals Regulation of Human Osteoclastogenesis by Pulsed Electromagnetic Field

Zhiming He, Nagarajan Selvamurugan, Nianli Zhang, Erik Waldorff, James Ryaby, Nicola C. Partridge

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90-Days Simulated Spaceflight Impairs Quality of Rodent Lumbar Intervertebral Disc and Bone

Kevin Cheng, Brandon R. Macias, Alan Hargens, Koichi Masuda

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Targeting Cortical Lamellar Bone Formation Using Murine Axial Tibial Compression

David Sun, Michael D. Brodt, Matthew J. Silva

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Attenuated Adaptation To Loading In Inducible, Osteoblast-Specific Lrp5 CKO Mice Is Dependent On Gender

Nilsson Holguin, Matthew J. Silva

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Effects of Loading Duration and Rest Insertion on Cancellous and Cortical Bone Adaptation in the Mouse Tibia

Haisheng Yang, Rachel E. Embry, Russell P. Main

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Calcified Nano-pearls Precede Mineralization of the Human Skeleton's Lacuno-canalicular System

Björn Busse, Petar Milovanovic, Elizabeth Zimmermann, Björn Hoffmann, George Sarau, Timur Yorgan, Silke Christiansen, Michael Amling

Poster No. 0701

Vibration Direction Differentially Regulates MSC Osteogenesis In Vitro

Gunes Uzer, Suphannee Pongkitwitoon, Stefan Judex

Poster No. 0702

Primary Cilia-Mediated Mechanotransduction Regulates Osteocyte Paracrine Signaling To Osteoblasts

Milos Spasic, Michael P. Duffy, Christopher Jacobs

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Mapping the Osteocytic Cell Response to Fluid Flow Using RNA-Seq

Peter M. Govey, Yuka Imamura Kawasawa, Henry J. Donahue

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Investigating Effects of Diabetes and Diabetic Treatments On Mechanically Loaded Bone Cells

Miranda M. Carleton, Madeleine Bureau, Lidan You

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Nuclear-Cytoskeletal Imaging towards Identification of Cellular Mechanotransduction

Gunes Uzer, Suphannee Pongkitwitoon, Bilal Haider, Ravi Patel, Shu Jia, Eric Brouzes, Stefan Judex

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Osteocyte Lacunar Mineral-matrix Mismatch: A Possible Morphologic Mechanism for the Loss Of Bone Responsiveness to Load in Estrogen Depletion

Phillip Yang, Carola L. Pechey, Jennifer M. MacLeay, Anthony S. Turner, Clifford M. Les

PS1 Bone—Progenitors and Stem Cells

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Bone Marrow Composition Dictates Lineage Commitment of Human Mesenchymal Stem Cells

Yaxian Zhou, Tsung-Lin Tsai, Matthew W Squire, Wan-Ju Li

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G-CSF Induced Mobilization of CD34+ Progenitor Cells Promotes Healing of Critical Size Bone Defects

Marietta Herrmann, Vincent Stadelmann, Stephan Zeiter, Ursula Eberli, Ursula Menzel, Maria Hildebrand, Mauro Alini, Sophie Verrier

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Monitoring And Selection Of Live Mesenchymal Stem Cells Based On Differentiation Induced Changes In MRNA Expression

Bojun Li, Claudia Loebel, Ursula Menzel, Mauro Alini, Martin J. Stoddart

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Intramedullary Reaming Increases the Frequency Of Cd45-cd31-cd146+ Mesenchymal Stromal Cells and Downmodulates the Inflammatory Environment in the Fracture Site

Leonardo R. Rocha, Danielle C. Bonfim, João M. Guimaraes, Maria Eugenia L. Duarte, Rafaela C. Sartore, Rhayra B. Dias, Ana C. Leal

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Periosteal Progenitor Cells Contribute to Regenerated Lizard Tail Skeletons in Response to Ihh and BMP Signaling

Thomas Lozito, Rocky Tuan

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Impairment of Osteogenesis of Diabetic Bone Marrow-derived Stromal Cells and Periosteum-derived Cells and Their Growth Factor Rescue

Tera Filion, Jordan D. Skelly, Henry Huang, Dale Greiner, David Ayers, Jie Song

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Infusion of Bone Marrow Stromal Cells Partially Abrogate Radiation-Induced Bone Loss

Jason Horton, Ayla White, Jacklyn Goodheart, Teresa Yang, Kenneth A. Mann, Kenn Holmbeck, Deborah Citrin, Pamela Robey

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Live Multiplexed Imaging of Stem Cell Mechanotransduction and Mechanoadaptation

Iman Jalilian, Richard J. Oldfield, Peter W. Gunning, Melissa L. Knothe Tate

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Overexpression Cox-2 Inhibited Osteogenic Differentiation in Murine Bone Marrow Mesenchymal Stem Cells

Shu-Chun Chuang, I Chun Tai, Chiu-Fan Shen, Mei-Ling Ho, Je-Ken Chang

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Counteractive Effects of a RING Finger Protein RNF114 on Ca²⁺-regulated Mesenchymal Stem Cell Proliferation and Osteogenic Differentiation

Boren Lin, Sydney Yoho, Douglas Leaman, Vijay Goel, Anand Agarwal

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Downstream Mechanisms of Aryl Hydrocarbon Receptor Activation: Inhibitory Effects on Osteogenic Differentiation

Chawon Yun, Abhishek Kannan, Sean Mitchell, Danielle S. Chun, Ryan D. Freshman, Kevin Sonn, Sharath Bellary, Christian Park, Jonghwa Yun, Joseph Weiner, Ralph Cook, Ami Parekh, Wellington K. Hsu, Erin L. Hsu

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Profiling Of Human Epigenetic Regulators by a High Throughput Real-time qPCR Platform During Osteogenic Differentiation of Adipose Derived Mesenchymal Stem Cells

Amel Dudakovic, Christopher Paradise, Martina Gluscevic, Emily Camilleri, Scott Riester, Simon Cool, Allan Dietz, Andre Van Wijnen

Poster No. 0718

Integrated Cellular Imaging, Analysis, and Processing Tools for Regenerative Medicine

Edward Kwee, Kimerly Powell, George Muschler

Poster No. 0719

Differences in the Cellular Content and Mesenchymal Stem Cell in vitro Expansion of Different Bone Marrow Concentration Systems

Melissa S. Tucker

PS1 Bone—Osteoporosis, Metabolic Bone Disease, Biomarkers

Poster No. 0720

Suppression of Sclerostin Alleviates Radiation Damage to Bone by Protecting Bone forming Cells

Abhishek Chandra, Tiao Lin, Wei-Ju Tseng, Keith Cengel, Michael A. Levine, X. Sherry Liu, Ling Qin

Poster No. 0721

Progression of Vertebral Bone Disease in Mucopolysaccharidosis VII Dogs from Birth to Skeletal Maturity

Sun H. Peck, Jennifer L. Kang, Joseph A. Chiaro, Neil R. Malhotra, Patricia O'Donnell, Mark E. Haskins, Margret L. Casal, Lachlan J. Smith

Poster No. 0722

Aberrant Glycosaminoglycan Accumulation and Sulfation in Epiphyseal Cartilage in Mucopolysaccharidosis VII

Sun H. Peck, Jennifer L. Kang, George R. Dodge, Neil R. Malhotra, Mark E. Haskins, Lachlan J. Smith

Poster No. 0723

The Balance between Osteogenesis and Adipogenesis of Human Mesenchymal Stem Cells Regulated by Acoustic-Frequency Vibratory Stimulation

Xi Chen, Zong-Ping Luo, Fan He, Dong-Yan Zhong

Poster No. 0724

Dosage Effects of Extracorporeal Shockwave Therapy for Early Hip Necrosis

Ching-Jen Wang, Chung-Cheng Huang

Poster No. 0725

Comparison of Osteoporosis Pharmacotherapy Fracture Rates: Analysis of a MarketScan® Claims Database Cohort

Alan W. Reynolds, Paul Kocis, Guodong Liu, Edward J. Fox

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Aminoguanidine and Pyridoxamine Inhibit Glucose-mediated AGEs Formation in Human Cortical Bone in Vitro

Orchid Abar, Sapna Dharmar, Simon Y. Tang

Poster No. 0727

Circulating Serum Biomarkers are Associated with Composite Traits of Bone Fragility

Ellen E. Quillen, Todd L. Bredbenner, Donald E. Moravits, Arthur Nicholls, Jeffry S. Nyman, Lorena M. Havill, Daniel P. Nicoletta

Poster No. 0728

Progressive Spinal Kyphosis in Perlecan Deficient Mice

Ashutosh Parajuli, Liyun Wang, Robert Morgan, Catherine Kim-Safran

Poster No. 0729

The Effect of Bisphosphonate Therapy on Bone Healing in Rats

David Cohen, Vaidehi U. Patel, Lucas C. Olson, MoonHae Sunwoo, Barbara D. Boyan, Zvi Schwartz

Poster No. 0730

Variation in Local Density and Geometry in Femoral Neck Cortical Bone with Age and Disease: Potential Improved Measures of Fracture Prediction

Louise V. Coutts, Thomas Jenkins, Richard Oreffo, Douglas G. Dunlop, Cyrus Cooper, Nicholas C. Harvey, Phillip J. Thurner

Poster No. 0731

Preventing Bone Absorption In Calcar Region By Osteoporosis Drug In 8 To 9 Years After Total Hip Arthroplasty

Yohei Yukizawa, Yutaka Inaba, Naomi Kobayashi, Hyonmin Choe, So Kubota, Yoko Matsuda, Tomoyuki Saito

Poster No. 0732

Bone Mineral Density and Marker of Bone Metabolism in Postmenopausal Women With Distal Radius Fracture

Ryu Iida, Masaya Tsujii, Tomoaki Yoshikawa, Akihiro Sudo

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Dorr Classification Correlates With Bone Mineral Density of the Proximal Femur

Ryota Nakaya, Masaki Takao, Takashi Sakai, Takashi Nishii, Nobuhiko Sugano

**PS1 Bone—Bone Mechanics
Computational Modeling**

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Advancing Understanding of Femoral Neck Histomorphology and its Relationship to Load History: Use of Bat and Pigeon Humeri as Models for Adaptation for Habitual Torsion

John G. Skedros, Madison S. Dautre, Eric M. Brown, Chad S. Mears, Sharon M. Swartz

Poster No. 0735

Reduced Cortical Bone Strength and Material Recovery Following Radiotherapy

Connor G. Policastro, Megan E. Oest, Kenneth A. Mann, Nicholas D. Zimmerman, Timothy A. Damron

Poster No. 0736

MRI T1 Map Value Can be a Surrogate for Bone Strength of Cancellous Bone

Kaori Endo, Masahiko Takahata, Hiroyuki Sugimori, Jeffrey Wang, Satoshi Yamada, Daisuke Takahashi, Masahiro Todoh, Shigeru Tadano, Kohsuke Kudo, Norimasa Iwasaki

Poster No. 0737

The Effects Of Basic Fibroblast Growth Factor (bFGF) On Prefabricated Vascularized Bone Allografts In Recipient Rats.-genetic Analysis

Sachiko Tobiume

Poster No. 0738

Angular offset between Femoral Mechanical and Anatomical References: Is it Gender or Ethnic Dependent?

Weimin Yue, Morganne Theobald, Mike Lawrenchuk, Julien Deckx, Laurent Angibaud

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A Machine Learning Approach for Analyzing Trabeculae Bone Architecture and Texture in Gaucher Type 1 Individuals Using Micro Magnetic Resonance Imaging

Gulshan B. Sharma, Douglas D. Robertson, Jr

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Femoral Strain during Walking Predicted With Muscle Forces from Forward Dynamics Simulation Versus Inverse-Dynamics-Based Static Optimization

William B. Edwards, Ross H. Miller, Timothy R. Derrick

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The Biomechanical Effects of Bilateral Sagittal Split Ramus Osteotomy on Temporomandibular Joint

Zhan Liu, Yingli Qian, Yuanli Zhang, Yubo Fan

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Comparative Study of Morphological Parameters of TMJ between Mandibular Prognathism Patients and Asymptomatic Subjects

Zhan Liu, Xianchao Xu, Yuanli Zhang, Jinlin Song

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Computed Tomography based Structural Rigidity Analysis of Rat Tibia With Simulated Lytic Defects Considering Bone Curvature

Ramin N/A Oftadeh, Ashkan Vaziri, Hamid Naye Hashemi, Juan C. Villa-Camacho, Ara Nazarian

Poster No. 0744

Alterations in Bone Marrow Mechanotransduction in Response to Osteoporosis

Thomas A. Metzger, Ted J. Vaughan, Laoise M. McNamara, Glen L. Niebur

PS1 Bone—Bone Tissue Engineering and Repair

Poster No. 0745

Effect Of Intermittent Administration Of Teriparatide (pth 1-34) On Bmp Induced Bone Regeneration In A Rat Critical-sized Femoral Defect Model

Sadaaki Kanayama, Takashi Kaito, Tokimitsu Morimoto, Masafumi Kashii, Takahiro Makino, Masayuki Furuya, Kazuma Kitaguchi, Yusuke Sakai, Hideki Yoshikawa

Poster No. 0746

Lactoferrin Increases Bone Regeneration in a Rat Critical-Sized Calvarial Defect Model

Ryan Gao, David S. Musson, Karen E. Callon, Donna Tuari, Maureen Watson, Michael S. Dray, Dorit Naot, Jacob T. Munro, Jillian Cornish

Poster No. 0747

3D-Printed Calcium Phosphate Scaffolds with Incorporated Demineralized Bone Matrix for Intercalary Femoral Defect Reconstruction in the Murine Model

Ryan P. Trombetta, Jason A. Inzana, Shawn A. Hunter, Edward M. Schwarz, Stephen L. Kates, Hani Awad

Poster No. 0748

Healing Of Rat Segmental Defects by Adipose Derived-Mesenchymal Stem Cells is BMP-2 Dose Dependent

Elisabeth Ferreira, Martina Hauser-Schinhan, Fangjun Liu, Andreas M. Müller, Zhenxin Shen, Ryan Porter, Reinhard Windhager, Christopher H. Evans

Poster No. 0749

Accelerated Bone Healing With Sustained Co-release Of BMP2/ VEGF And Muscle-derived Progenitor Cells

Hongshuai Li, Justin J Hicks, Nathan P. Thomas, Noah R. Johnson, MaCalus V. Hogan, Yadong Wang, Johnny Huard

Poster No. 0750

Osteoporosis And Ageing Reduces The Migration Of Stem Cells But This Is Ameliorated By CXCR4

Anita Sanghani, Sorousheh Samizadeh, Melanie Coathup, Priya Kalia, Lucy Di Silvio, Bernadine Idowu, Gordon Blunn

Poster No. 0751

The BMP-2/7 Heterodimer is a Stronger Inducer of Bone Regeneration than the Individual Homodimers Without Excessive Soft Tissue Inflammation -analyses by 11.7T MRI and μ CT

Takashi Kaito, Tokimitsu Morimoto, Sadaaki Kanayama, Masafumi Kashii, Takahiro Makino, Hideki Yoshikawa

Poster No. 0752

Osteogenesis and Angiogenesis Coupling for Enhancing Bone Formation by Mesenchymal Stem Cells through Combinatorial microRNA-Therapy Using Collagen Nano-hydroxyapatite Scaffolds

Irene Mencía Castaño, Caroline M. Curtin, Garry P. Duffy, Fergal J. O'Brien

Poster No. 0753

Trabecular-Porosity Implants with Surface Roughness Induce Vertical Bone Growth without the Use of a Bone Substitute

Alice Cheng, David J. Cohen, Ryan M. Clohessy, Barbara D. Boyan, Zvi Schwartz

Poster No. 0754

Increased Duration of Chondrogenic Differentiation Enhances Induced Hypertrophic Maturation

Jonathan C. Bernhard, Susanna Betti, Samuel Robinson, X. Edward Guo, Gordana Vunjak-Novakovic

Poster No. 0755

Bromosulphophthalein Promotes Proliferation and Osteogenesis of Human Mesenchymal Stem Cells

Xinlin Yang, Andy C. Lee, Zhenyue Huang, Guo Shang, Qunjun Cui

Poster No. 0756

Optimization of Fracture Fixation With Use of Extracorporeal Shock Waves

Marianne Koolen, Moyo Krut, Cumhur Öner, Harrie Weinans, Olav van der Jagt

Poster No. 0757

Strontium Enhances BMP-2 Mediated Bone Regeneration in a Femoral Murine Bone Defect Model

Vater Corina, Saskia Schlötz, Robert Langanke, Julia Bolte, Stefan Rammelt, Michael Gelinsky, Klaus-Dieter Schaser, Stuart Goodman, Maik Stiehler, Stefan Zwillingenberger

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Design and Fabrication of Tissue Engineering Scaffolds Using Melt Electrospinning Writing

Kian F. Eichholz, Andrew D. Mac Guinness, David A. Hoey

Poster No. 0759

Extracorporeal Shockwave Therapy Shows Site-sensitive Effects In The Initiation Of Osteoarthritis Of The Knee In Rat

Ching-Jen Wang, Jai-Hong Cheng

Poster No. 0760

Physiologically Bio-mimicking Endochondral Bone Formation Facilitated by a Novel 3D Electrospun Polycaprolactone Nanofibrous Scaffold

Hongli Sun, Jacob Miszuk, Tao Xu, Yong Zhao, Hao Fong

Poster No. 0761

Repair of Intra-Articular Bone Defects With Four Synthetic Bone Substitutes in a Lapine Model

Eve Saloni, Virpi Muhonen, Kalle Lehto, Elina Järvinen, Tuomo Pyhälä, Markus Hannula, Antti Aula, Peter Uppstu, Anne-Marie Haaparanta, Ari Rosling, Minna Kellomäki, Ilkka Kiviranta

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Acceleration of Critical Bone Defect Healing by Low-intensity Ultrasound Radiation Force in a Rat Tibial Model

Jingbo Liu, Dongye Zhang, Xiaofei Li, Yixian Qin

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Bone Marrow Morphology of Turkey Ulna in Response to Dynamic Fluid Loading

Lucas V. Sansevero

PS1 Bone—Genetics, Genomics and Proteomics

Poster No. 0764

Analysis of MT1-MMP Function in Mature Bone Cells During Resolution of Standardized Bone Defects

Andrew Pak, Teresa Yang, Joanne Shi, Jason Horton, Pamela G. Robey, Kenn Holmbeck

Poster No. 0765

Single Nucleotide Polymorphisms in CLDN14 and SMOC1 Affecting Bone Mineral Density Influence Other Musculoskeletal Traits

Christopher Payette, Courtney Sprouse, Cara Goerlich, Heather Gordish-Dressman, Thomas Lynch, Heather Flynn, Leticia M. Ryan, Eric Hoffman, Monica J. Hubal, Laura L. Tosi

Poster No. 0766

Genetic Variants in the LRP5 and RUNX2 Genes Affect Bone Quality in a Pediatric African American Cohort

Heather Flynn, Courtney Sprouse, Heather Gordish-Dressman, Christopher Payette, Thomas Lynch, Leticia M. Ryan, Laura L. Tosi

Poster No. 0766A

GCKR and DGKD Single Nucleotide Polymorphisms With Effects on Serum Calcium Influence Other Musculoskeletal Traits

Thomas Lynch, Courtney Sprouse, Cara Goerlich, Heather Gordish-Dressman, Christopher Payette, Heather Flynn, Leticia Ryan, Eric Hoffman, Karen Riska, Laura Tosi

PS1 Bone Fracture—Biology

Poster No. 0767

Absence of Complement Receptor C5aR Impairs Fracture Healing

Stephanie Baur, Anna Kovtun, Markus Huber-Lang, Anita Ignatius

Poster No. 0768

The Epidemiology Of Fracture Nonunion In 18 Human Bones: Analysis Of A Payer Database Of ~90.1 Million Patients

Robert Zura, Ze Xiong, Thomas Einhorn, J. Tracy Watson, Robert F. Ostrum, Michael J Prayson, Gregory J. Della Rocca, Samir Mehta, Todd McKinley, Zhe Wang, R. Grant Steen

Poster No. 0769

Impact of Medication Use on Fracture Nonunion in Human Bones: Analysis of a Payer Database Of ~90.1 Million Patients

R. Grant Steen, Ze Xiong, Thomas Einhorn, J. Tracy Watson, Michael J Prayson, Gregory J. Della Rocca, Todd McKinley, Zhe Wang, Robert F. Zura

Poster No. 0770

Modulating Inflammation To Promote Bone Repair: A Proof-Of-Concept Study

Luis A. Cordova-Jara, Florence Loi, Emmanuel Gibon, Laura Lu, Jukka Pajarinen, Tzu-hua Lin, Akira Nabeshima, Zhenyu Yao, Stuart B. Goodman

Poster No. 0771

Selective Serotonin Reuptake Inhibitors Impair Fracture Healing

Vivian Bradaschia Correa, Devan Mehta, Anna Josephson, Philipp Leucht

Poster No. 0772

The Effect of Chronic Binge Alcohol Use on BMP-2 Signaling in a Rat Tibial Shaft Fracture Model

Anthony D. Bratton, Joshua Eisenberg, Aleksandra Vuchkovska, John Callaci

Poster No. 0773

Estrogen Receptor Expression in Osteoblasts is not Enhanced in Vitro by Low-Magnitude High-Frequency Vibrational Stimulation in Absence of Estrogen

Simon KH Chow, Kwok Sui Leung, Wing Hoi Cheung, Caroline OL Yu

Poster No. 0774

Comparison of the Regenerating and Non-Regenerating Distal Phalanx

Connie S. Chamberlain, Ellen M. Leiferman, William L. Murphy, Ray Vanderby

Poster No. 0775

Influence of the Method of Fracture Repair on the Rate and Completeness of Bone Healing

E. Lex Hanna, Yongren Wu, Robert Holmes, William Barfield, Vincent Pellegrini

PS1 Bone Fracture—Biomechanics/Clinical

Poster No. 0776

Anterior Tibial Stress Fractures- A Biomechanical Study of Tension Band Plating Versus Intramedullary Nailing

Edward C. Cheung, Keith Markolf, Nirav B. Joshi, Daniel V. Boguszewski, Frank A. Petrigliano, David R. McAllister

Poster No. 0777

Comparative Biomechanical Analysis of Medial and Lateral Plating for MIPPO in Proximal Tibial Comminuted Fractures With Intact Fibula

Sim Jae Ang, Beom koo Lee, Yong Cheol Yoon, Sung Jae Lee, A ram Kang, Kwon yong Lee

Poster No. 0778

Bone Geometry and Trabecular Microstructure of the 2nd Metatarsal Differ In Classical Ballet Dancers Compared to Long Distance Runners And Sedentary Controls

Miki Sode, Willy Tjong, Jasmine A. Nirody, Andrew Burghardt, Nancy Kadel, Richard Souza, Galateia Kazakia

Poster No. 0779

Digital Tomosynthesis and Fractal Analysis Predict Prevalent Vertebral Fractures: A Preliminary In Vivo Study

Daniel Oravec, Omar Yaldo, Michael J. Flynn, Yener N. Yeni

Poster No. 0780

3D Micro-CT Based Analysis of Trabecular Microarchitecture in Human Calcanei: A Location and Age Comparison

Annalisa De Paolis, Sam Q. Tran, Menhaz B. Shahid, Luis Cardoso

Poster No. 0781

The Distribution of Bone Mineral Density in the Femoral Heads of Intertrochanteric Hip Fractures

Keisuke Uemura, Masaki Takao, Takashi Sakai, Takashi Nishii, Hiroki Yamanaka, Futoshi Yokota, Yoshito Otake, Yoshinobu Sato, Nobuhiko Sugano

Poster No. 0782

Quantifying Tibial Plateau Fracture Severity: Fracture Energy Agrees With Clinical Rank Ordering

Kevin Dibbern, Laurence B. Kempton, Todd McKinley, Thomas F. Higgins, John Lawrence Marsh, Donald Anderson

Poster No. 0783

High Performance Prefabricated Splints Limit Wrist Motion As Well As a Traditional Cast A Pilot Study

Karan Patel, John Palsis, Nina Lara, Paulo Castaneda, Lloyd Champagne, Alexander McLaren

Poster No. 0784

Fracture Healing in Mice Lacking Pten in Osteoblasts: A Micro-Computed Tomography Imaged-Based Finite Element Analysis of Femur Strength

Caitlyn J. Collins, Bart O. Williams, Travis A. Burgers, Krishnan Suresh, Heidi-Lynn Ploeg

Poster No. 0785

Under Pressure: The Utility of Spacers in Univalved Fiberglass Casts

Kevin Kleis, John A. Schlechter, Joshua D. Doan, Christine Lynn Farnsworth, Eric W. Edmonds

Poster No. 0786

Development of a Pediatric Animal Model to Evaluate the Effects of Paralysis on Musculoskeletal Growth and Development

Daniel L. Miranda, Melissa Putman, Ruby Kandah, Maria Cubria, Sebastian Suarez, Ara Nazarian, Brian Snyder

Poster No. 0787

The Effect Of Radiotherapy and Radiotherapy Combined With Bisphosphonates or RANK Ligand Inhibitors on Bone Quality in Bone Metastases. A Systematic Review

Karlijn H.J. Groenen, Martin H. Pouw, Gerjon Hannink, Allard J.F. Hosman, Yvette M. Van der Linden, Nico Verdonshot, Esther Tanck

Poster No. 0788

Femoral Neck Fractures Treated With Hemi-arthroplasty: A Study Of A Multimodal Pain Management Program

Hank Hutchinson, Dave Jaekel, Scott Lovald, Heather Watson, Kevin L. Ong

Poster No. 0789

Vertebral Body Morphology Is Associated With Incident Lumbar Vertebral Fracture in Postmenopausal Women The OFELY Study

Jean-Paul Roux, Safaa Belghali, Julien Wegrzyn, Elisabeth Sornay-Rendu, Roland Chapurlat

Poster No. 0790

Acute Stabilization of a Leg with Fractures and Soft Tissue Injuries

Winston Elliott, David Kaimrajh, Edward Milne, Elizabeth Ouellette, Loren Latta

Poster No. 0791

Accuracy of Wearable Motion Analysis System With Inertia Measurement Units Using Complementary Filter During Daily Activities

Jun Seok Kim, Batkhishig Chojamts, Kyungsoo Kim, SuKyoung Lee, Yoon Hyuk Kim

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WITHDRAWN

PS1 Bone Fracture—Repair/Therapeutics

Poster No. 0793

On-Demand Growth Factor Delivery from Hydroxyapatite-Collagen Scaffolds Promotes Angiogenesis and Osteogenesis

Matthew Meagher, Tyler Curtis, Joel Boerckel, Ryan Roeder

Poster No. 0794

Local Zinc Chloride Release from a Calcium Sulfate Carrier Enhances Fracture Healing

Ethan S. Krell, Richard Vincent, Nicholas J. Montemurro, Jeremy Hreha, Sheldon S. Lin

Poster No. 0795

Efficacy Of WP9QY Peptide (w9) for Bone Formation in a Rat Delayed Union Model

Mikiya Sawa, Shigeyuki Wakitani, Yuriko Furuya, Naosuke Kamei, Mitsuo Ochi

Poster No. 0796

Optimal Administration Frequency And Dose of Teriparatide for Acceleration of Fracture Repair

Masahiro Ota, Masahiko Takahata, Yusuke Kameda, Tomohiro Shimizu, Hiroki Hamano, Shigeto Hiratsuka, Norimasa Iwasaki

Poster No. 0797

Large Parametric Finite Element Modeling of Fracture Fixation With Locked Plating

Hwabok Wee, John Spence Reid, Vernon M. Chinchilli, Gregory S. Lewis

Poster No. 0798

Three Dimensional Printed Scaffolds for Segmental Defects in Long Bones

Todd A. Goldstein, Sandeep Pandit, Benjamin D. Smith, Michael A. Mashura, Mikael Starecki, Daniel A. Grande

Poster No. 0799

Quantifying the Retention of Human Mesenchymal Stem Cells Directly Administered to a Femoral Fracture in a Murine Model of Diabetes

Aine Fleming, Luke Watson, Xi Zhe Chen, Emma Horan, Michael Creane, Timothy O'Brien, Cynthia M. Coleman

Poster No. 0800

Establishing an Endothelial Progenitor Cell Dose Response for the Healing of Critical Size Bone Defects

David J. Ramnarain, Charles Godbout, Emil H. Schemitsch, Aaron Nauth

Poster No. 0801

Local Vanadyl Acetylacetonate Treatment Accelerates Fracture Healing in a Mature Rat Model

Augustine J. Tawadros

Poster No. 0802

Effect of Screw Angulation on Strength of Variable Angle Locked Plating for Fracture Fixation

John Tidwell, Cassandra Ondeck, Evan Roush, Allen Kunselman, John Spence Reid, Gregory S. Lewis

Poster No. 0803

Large Autologous Bone Graft Augmented By Mesenchymal Stromal Cell Accelerates Bone Union In Rat Non-union Model With Large Bone Defect

Hiroaki Murakami, Tomoyuki Nakasa, Maskazu Ishikawa, Nobuo Adachi, Mitsuo Ochi

Poster No. 0804

WITHDRAWN

Poster No. 0805

Whole Body Vibration May Prevent Musculoskeletal Complications Related to Disuse in a Pediatric Paraplegic Rabbit Model

Daniel L. Miranda, Melissa Putman, Ruby Kandah, Maria Cubria, Sebastian Suarez, Ara Nazarian, Brian Snyder

Poster No. 0806

BMP-2 in a Novel and Time-Degradable Hydrogel Demonstrates Enhanced Bone Repair in a Mouse Model of Diabetes

Michael Messina, Matthew D. Barros, Ted Bateman, Jeffrey W. Stansbury, Allan L. Bucknell, Karen B. King

Poster No. 0807

A Comparison of Headless Screw and Locking and Non-Locking Plate Fixation for Simulated Scaphoid Defects: A Biomechanical Study

Jill Goodwin, Patricia Drace, Paulo Castaneda, Scott Edwards

Poster No. 0808

Systemically Applied Mesenchymal Stem Cells Cannot Rescue Distraction Osteogenesis in Challenging Healing Environments

Jonathon Guevara, Zachary Toth, Daniel Kim, Adrian Marley-Weaver, John Peters, J Tracy Watson, Sarah McBride-Gaggi

Poster No. 0809

The Cost of Intramedullary Nailing for Femoral Shaft Fractures in Dar es Salaam, Tanzania

Erik J. Kramer, David Shearer, Elliot Marseille, Joshua Ngahyoma, Edmund Eliezer, Saam Morshed

Poster No. 0810

Design and Biomechanical Comparison of Two Novel Adjustable-Length Intramedullary Nails

Mark J. Hegdaland, Alexander DW Throop, Alexander Martin Clark, Laurel Kuxhaus

Poster No. 0811

In Vivo Tracking of Injected Endothelial Progenitor Cells in a Rat Bone Defect Model

Brent D. Bates, Charles Godbout, Emil H. Schemitsch, Aaron Nauth

Poster No. 0812

Genetic Modification of Mesenchymal Stem Cells With scAAV-equine-BMP-2 to Induce Osteogenesis: an "Off the Shelf" Biologic for Fracture Repair

Alyssa Ball, Jennifer Phillips, R. Jude Samulski, Laurie R. Goodrich

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A Qualitative Assessment of Prospective Percutaneous Osteoplasty Model for Bone Metastases

Nischal Koirala, Stephen Duffy, Gordon McLennan

PS1 Bone Fracture—Mechanics and Computational Modeling

Poster No. 0814

Interindividual Anatomical Variations Affect The Plate-to-bone Fit During Osteosynthesis Of Distal Radius Fractures

Hidemasa Yoneda, Katsuyuki Iwatsuk, Shigeru Kurimoto, Michiro Yamamoto, Yukimi Murakami, Hitoshi Hirata

Poster No. 0815

Computational Analysis on Post-Fusion Effects of Hardware Preservation of Removal on Proximal Tibia Cartilage and Subchondral Bone

Andrew Sori, Shihab Asfour, Ali Alhandi, Loren Latta, Francesco Travascio

Poster No. 0816

Effect Of Variations in Material Conditions, Tolerances, and Test Set-up on the Bending Performance of Bone Plates

Yanming Zheng, Andy Whitten

Poster No. 0817

Finite Element Study: Novel Flanged Fracture Reconstruction Plate Uniformly Distributes Strains Across the Fracture Surface and Decreases Stress Shielding

Theodor Di Pauli von Treuheim, Glenn Sanders

Poster No. 0818

Three Dimensional Analysis of Fracture Patterns and Displacement of Fragments in Dorsally Angulated Intra-articular Distal Radius Fracture

Atsuo Shigi, Kunihiro Oka, Akira Goto, Toshiyuki Kataoka, Kohji Kuriyama, Kazuomi Sugamoto, Hideki Yoshikawa, Tsuyoshi Murase

Poster No. 0819

Subchondral Bone Analysis and Articular Surface Topology in a Rat Model of Post-Traumatic Osteoarthritis

Austin Ramme, Martin Lendhey, Kevin Voss, Jurinus Lesporis, Oran D. Kennedy

Poster No. 0820

A Biomechanical Comparison of Coronoid Fracture Fixation Techniques

Elan Golan, Maya Deza Culbertson, Ramin Sadeghpour, Yvette Ho, Jack Choueka

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Biomechanical Comparison of Percutaneous Drilling and Core Decompression on Femur Mechanical Properties

Robert Pivec, Bhavleen H. Kapadia, Roby Abraham, Carlos Buitrago, Gavriel Feuer, Nathan Cornish, Julio Jauregui, Aditya Maheshwari, Michael Mont

PS1 Spine—Computational Modeling

Poster No. 0822

Predicting Glycosaminoglycan Synthesis in Intervertebral Disc Under Mechanical Loading

Xin Gao, Qiaoqiao Zhu, Weiyong Gu

Poster No. 0823

Effect of Mechanical Loading on Heterotopic Ossification in Cervical Total Disc Replacement

Danaa Ganbat, Kyungsoo Kim, Yong Jun Jin, Won Man Park, Yoon Hyuk Kim

Poster No. 0824

Comparative Analysis of Biomechanical Parameters of Spinal Cord in Posterior Decompression Extents for Cervical Ossification of the Posterior Longitudinal Ligament

Batbayar Khuyagbaatar, Kyungsoo Kim, Won Man Park, Yoon Hyuk Kim

Poster No. 0825

Kinetics of Charged Antibiotic Penetration into Human Intervertebral Discs

Qiaoqiao Zhu, Xin Gao, Na Li, Mark D. Brown, Weiyong Gu

Poster No. 0826

Biomechanical Effects of Intervertebral Disc Degeneration on Vertebral Body Mineral Density

Xin Gao, Qiaoqiao Zhu, Weiyong Gu

Poster No. 0827

Biomechanical Evaluation of the Pullout Strength of Two Broken Sacral Pedicle Screw Revision Techniques: A Cadaveric and Finite Element Study

Joel Gerber, Vijay Goel, Anand Agarwal, Hossein Elgafy, Amey Kelkar, Manoj Kodigudla

Poster No. 0828

Biomechanical Study Of Three Atlantoaxial Screw Fixation Techniques: Finite Element Study

Iman Zafarparandeh, Deniz Ufuk Erbulut, Ali Fahir Ozer

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Bio-mechanical Effect Of Posterior Bone Graft In A Lumbar Spine with Postero-lateral fusion : A Finite Element Study

Raghu N. Natarajan, Kazuhiro Hasegawa

Poster No. 0830

Predicting Sagittal Balance Correction after Bilateral Pelvic Osteotomy: A Mathematical Model

Vahhab Zarei, Sharon C. Yson, Joan E. Bechtold, Jonathan N. Sembrano

PS1 Spine—Scoliosis

Poster No. 0831

Long-Term Effects of Spinal Fusion for Idiopathic Scoliosis On Lower Body Kinematics During Gait

Karen M. Kruger, Joseph J. Krzak, Adam Graf, Sahar Hassani, Peter F. Sturm, Kim W. Hammerberg, Purnendu Gupta, Gerald H. Harris

Poster No. 0832

Effect of Surgical Fusion on Volitional Weight-shifting in Individuals With Adolescent Idiopathic Scoliosis

Nikhil T. Kurapati, Joseph J. Krzak, Adam Graf, Sahar Hassani, Sergey Tarima, Peter Sturm, Kim Hammerberg, Purnendu Gupta, Gerald F. Harris

Poster No. 0833

Morphometric Analysis of the Neurocentral Junction in Adolescent Idiopathic Scoliosis

Tomoyuki Takigawa, Masato Tanaka, Yoshihisa Sugimoto, Shinya Arataki, Toshifumi Ozaki

Poster No. 0834

Consistent Measurement of Sagittal Spinal Alignment Using Patient-Specific Modeling Based on X-ray Images

Yoon Hyuk Kim, Jargalsuren Sainjargal, Kyungsoo Kim, Won Man Park, SuKyoung Lee

Poster No. 0835

Asymmetries in the Axial Plane of the Apical Vertebrae in Patients With Adolescent Idiopathic Scoliosis

Daniel Forsberg, Ludvig Vavrouch, Hans Tropp

Poster No. 0836

Static vs. Dynamic Torque on Asymmetric Remodeling of the Caudal Vertebral Growth Plate

John Thometz, XueCheng Liu, Robert Rizza, Derek Rosol, Channing Tassone, Sergey Tarima, Paula North

PS1 Spine—Peripheral Nerve and Spinal Cord Injury

Poster No. 0837

Amiloride Promotes Oligodendrocyte Survival and Remyelination After Spinal Cord Injury in Rats

Takeshi Imai, Masahiko Watanabe, Hiroyuki Katoh, Joji Mochida

Poster No. 0838

Regeneration of Large-gap Peripheral Nerve Injuries Using Acellular Nerve Allografts Plus Amniotic Fluid Derived Stem Cells (AFS)

Xue Ma, Thomas Smith, Zhongyu Li

Poster No. 0839

Prophylactic Ketogenic Metabolism Inhibits Histone Deacetylase and Suppression of Oxidative Stress after Spinal Cord Injury in Rats

Xiaomeng Wang, Qi Liu, Jian Zhou, Ganggang Kong, Xiuhua Wu, Qingan Zhu

Poster No. 0840

Administration Of MicroRNA-145 Promotes Spinal Cord Regeneration In Mice

Norifumi Suga, Naosuke Kamei, Satoshi Ujigo, Atsushi Takazawa, Mitsuo Ochi

Poster No. 0841

Development of New Peripheral Nerve Regeneration Therapy Using Human Adipose Tissue-derived Regenerative Cells for Peripheral Nerve Regeneration

Yumio Fujioka, Naosuke Kamei, Kazunori Yokota, Nobuo Adachi, Mitsuo Ochi

Poster No. 0842

Enhanced Central Axonal Regeneration Through Activin Signaling

Takao Omura, Kumiko Omura, Yukihiro Matsuyama, Michael Costigan, Clifford Woolf

Poster No. 0843

Safety Assessment of Human GMP-grade iPSC-NS/PCs As a Cell Source For Transplantation Therapy for Spinal Cord Injury

Keiko Sugai, Tomoko Shofuda, Ryuji Fukuzawa, Hayato Fukusumi, Miho Isoda, Shigeki Ohta, Jun Kohyama, Akio Iwanami, Morio Matsumoto, Yonehiro Kanemura, Hideyuki Okano, Masaya Nakamura

Poster No. 0844

Establishment Of Safety Evaluation Criteria Of Human Ips Cell-derived Neural Stem/progenitor Cells For Transplant Therapy

Tsuyoshi Iida, Akio Iwanami, Jun Kohyama, Tsukasa Sanosaka, Morio Matsumoto, Hideyuki Okano, Masaya Nakamura

Poster No. 0845

Transcutaneous Application of Carbon Dioxide (co2) With Hydrogel Enhances Nerve Regeneration in Sciatic Nerve Crush Rat Model

Hanako Nishimoto, Atsuyuki Inui, Takeshi Ueha, Shiho Akahane, Risa Harada, Miho Inoue, Takeshi Kokubu, Masahiro Kurosaka, Yoshitada Sakai

Poster No. 0846

Programmed Freeze/Thaw Method Dramatically Improved Cell Viability of IPS Cell-derived Neural Stem/Progenitor Cells for Clinical Application in Spinal Cord Injury

Yuichiro Nishiyama, Akio Iwanami, Jun Kohyama, Go Itakura, Morio Matsumoto, Hideyuki Okano, Masaya Nakamura

PS1 Spine—Disc Mechanics

Poster No. 0847

Instantaneous Center of Rotation of Lower Lumbar Vertebral Segments During a Dynamic Weight-Lifting Activity

Zhan Liu, Tsung-Yuan Tsai, Weiye Zhong, Jing-Sheng Li, Thomas D. Cha, Kirkham B. Wood, Guoan Li

Poster No. 0848

Biomechanical Restoration of the IVD Using a Thermally Sensitive Hydrogel Composite for Replacement of the Nucleus Pulposus

Thomas R. Christiani, Frantzeska Giginis, Mark Dittmar, Emily Schmidt, Jennifer Kadlowec, Cristina Iftode, Jennifer Vernengo

Poster No. 0849

The Effect of Degeneration on the Six Degree of Freedom Mechanical Properties of Human Spine Segments

Dhara Amin, Dana Sommerfeld, Isaac Lawless, Richard Stanley, Boyin Ding, John Costi

Poster No. 0850

Do Degenerated Human Lumbar Spine Segments Exhibit Biphasic Viscoelastic Properties?

John Costi, Dhara Amin, Isaac Lawless, Dana Sommerfeld, Richard Stanley, Boyin Ding

Poster No. 0851

Paraspinal Muscle Weakness Induced by Botulinum Toxin Causes Lumbar Spine Degeneration

Sang Kuy Han, Young Eun Kim, Sang-Rae Lee, Kyu-Tae Chang, Keyoung Jin Chun

Poster No. 0852

Mechanical Stimulation is Required for Normal Spinal Curvature and Vertebral Segmentation in the Developing Chick

Rebecca A. Rolfe, Michelle Oyen, James C. Iatridis, Niamh C. Nowlan

PS1 Spine—Spine Therapeutics (Clinical)

Poster No. 0853

Sympathectomy And Sympathetic Blockade Reduce Pain Behavior Via Alpha-2 Adrenoceptor Of The Dorsal Root Ganglion Neurons In A Lumbar Radiculopathy Model

Izaya Ogon, Tsuneo Takebayashi, Tsuyoshi Miyakawa, Takehito Iwase, Katsumasa Tanimoto, Yoshinori Terashima, Syunsuke Jimbo, Toshihiko Yamashita

Poster No. 0854

Head-Trunk Control in Patients with Cervical Spondylotic Myelopathy at 1 Year Following Decompressive Surgery

Chih-Hsiu Cheng, Andy Chien, Wei-Li Hsu, Jaw-Lin Wang, Dar-Ming Lai, Shwu-Fen Wang

Poster No. 0855

Retrospective Evaluation of the Relationship Between All Steroid Use in the Perioperative Period and Incidence of Prevertebral Soft Tissue Swelling after Anterior Cervical Discectomy and Fusion

Michael Glover, Swamy Kurra, Richard Tallarico, Nikhil Thakur, Ian Madom, Mike Sun, John Charitable, Nathaniel R. Ordway, William F. Lavelle

Poster No. 0856

Safety and Efficacy of the Use of Intrathecal Astramorph for Spinal Deformity Surgery

Jason Audlin, Swamy Kurra, Richard Tallarico, Mike Sun, Elizabeth Demers Lavelle, Nathaniel R. Ordway, William F. Lavelle

Poster No. 0857

Improving Response To Treatment For Patients With Ddd With the Use of the Fibronectin-aggreCAN Complex

Gaetano Scuderi, Pasquale Montesano, Jason Cuellar

PS1 Spine—Spine Therapeutics (In vivo Preclinical)

Poster No. 0858

Antioxidative Fullerol Inhibits Osteoclastogenesis and Inflammation in vitro and in Rabbit Spine

Xinlin Yang, Guowei Shang, Gina Beck, Changle Ren, Abhijit Dighe, Qunjun Cui

Poster No. 0859

Biomechanical and Histologic Evaluation of rhBMP-2 in a Three-level Posterolateral Spine Fusion: An Ovine Study

Jeffrey M. Toth, Mei Wang, Joshua Lawson, Jeffrey M. Badura, Kimberly Bailey DuBose

Poster No. 0860

Potent Biomineralization Inhibitor Levamisole Suppresses Ectopic Ossification of Spinal Ligaments in Mice Model

Shigeto Hiratsuka, Masahiko Takahata, Yusuke Kameda, Tomohiro Shimizu, Masahiro Ota, Norimasa Iwasaki

Poster No. 0861

Reprogrammed Osteoarthritic Human Chondrocytes as a Novel Bone Graft: A Pilot Study

Alan B.C. Dang, Helena Hong, Katie Lee, Alfred C. Kuo

Poster No. 0862

Differential Effects of Teriparatide and Zoledronate On Trabecular Osteoporosis and Ankylosis Of The Spine in the Twy Mouse Model For Diffuse Idiopathic Skeletal Hyperostosis

Hiroki Hamano, Masahiko Takahata, Shigeto Hiratsuka, Masahiro Ota, Tomohiro Shimizu, Yusuke Kameda, Norimasa Iwasaki

Poster No. 0863

Establishment Of A Lumbar Interbody Spinal Fusion Chamber—Rabbit Model

Tao Hu, Mathanapriya Naidu, Raymond W.M. Lam, Xiafei Ren, Felly Ng, Ramruttun Amit Kumarsing, Ming Wang, Kim Cheng Tan, Kai Thong Kwok, Stuart Goodman, Cho Hong, James Goh, Hee-Kit Wong

PS1 Spine—Disc, Tissue Engineering and Repair

Poster No. 0864

Fabrication, Maturation, And Implantation of a Composite Tissue-engineered Total Disc Replacement

Dong Hwa Kim, John T. Martin, Sarah E. Gullbrand, Christian G. Pfeifer, Dawn M. Elliott, Lachlan J. Smith, Harvey E. Smith, Robert L. Mauck

Poster No. 0865

Optimization of In Vitro Pre-culture Conditions To Maximize in Vivo Performance of Engineered Intervertebral Discs

John T. Martin, Sarah Gullbrand, Beth G. Ashinsky, Dong Hwa Kim, Kensuke Ikuta, Lachlan J. Smith, Dawn Elliott, Robert Mauck, Harvey Smith

Poster No. 0866

Self-Healing Dynamic Hydrogel for Nucleus Pulposus Restoration: Mechanical Characterization of Spine Motion Segments

Marianna Peroglio, Adrián Pérez-San Vicente, Manuela Ernst, Pablo Casuso, Damien Dupin, Mauro Alini, David Eglin, Irida Loinaz

Poster No. 0867

Genipin-crosslinked Fibrin has Potential for Use as a Cell Carrier for Annulus Fibrosus Repair

Michelle A. Cruz, Olivia M. Torre, Robert K. Merrill, Svenja Illien-Junger, Andrew C. Hecht, James C. Iatridis

Poster No. 0868

Variations in Media Formulation Impact ECM Synthesis and Retention in NP Cell-laden HA Hydrogels

Dong Hwa Kim, John T. Martin, Kensuke Ikuta, Harvey E. Smith, Dawn M. Elliott, Lachlan J. Smith, Robert L. Mauck

Poster No. 0869

In Situ Gelling Cellulosic Copolymer Hydrogels Restore Intervertebral Disc Height and Biomechanical Properties Post Nucleotomy

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GDNF - But Not NGF - May Mediate Annulus Fibrosus Cell-Induced Neurite Outgrowth from Adult Dorsal Root Ganglia

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Location Of The Tibial Tunnel Aperture Affects The Lateral Meniscal Extrusion In Anterior Cruciate Ligament Reconstruction

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The Anterolateral Capsule of the Knee Behaves Like a Sheet of Fibrous Tissue

Daniel Guenther, Amir A. Rahnamaï-Azar, Kevin M. Bell, Sebastian Irarrazabal, Freddie H. Fu, Volker Musahl, Richard E. Debski

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Surgical Strategy for Amyloid Arthropathy Of The Hip in Long-term Hemodialysis Patients

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Lansoprazole Prevents the Development of Corticosteroid-Induced Osteonecrosis of the Femoral Head Through the Repression of IRF7 Activity in Rat

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Yusuke Kubo, Takuaki Yamamoto, Goro Motomura, Kazuyuki Karasuyama, Kazuhiko Sonoda, Yukihide Iwamoto

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Iwao Noda, Hiroshi Miyamoto, Masaya Ueno, Shuichi Eto, Masatsugu Tsukamoto, Shunsuke Kawano, Motoki Sonohata, Masaaki Mawatari

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Antibiofilm Activity of Silver-containing Hydroxyapatite Coating in a Rat Subcutaneous Model

Masaya Ueno, Hiroshi Miyamoto, Shuichi Eto, Masatsugu Tsukamoto, Iwao Noda, Shunsuke Kawano, Masaru Kitajima, Motoki Sonohata, Masaaki Mawatari

Poster No. 1233

Controlled Delivery of Antibiotics From Silica Nanocarriers for Acrylic Bone Cement Applications

Stefano Perni, Polina Prokopovich

PS1 Trauma

Poster No. 1234

Reducing Surgical Site Infections After Tibial Plateau Fractures: Benefits of an Angiosome-sparing Approach, A Comparison Case Series

Claire F. Jones, Karim Kantar, Helene Du Toit, Markus Baker, Stuart A. Callary, Dominic Thewlis, Aaron W. Stevenson, Gerald J. Atkins, Lucian B. Solomon

Poster No. 1235

Outcomes of Type V Acromioclavicular Injuries With Nonoperative Treatment

Dunphy Taylor, Dhanur Damodar, Nathanael Heckmann, William C. Pannell, Lakshmanan Sivasundaram, Braden M. McKnight, J Ryan Hill, Reza Omid, George F. Rick Hatch, III

Poster No. 1236

Antibiotic Related Acute Kidney Injury in Patients Treated for Open Fractures

Kian Banks, William C. Pannell, Joseph Hahn, Kenji Inaba, Geoffrey S. Marecek

Poster No. 1237

Delayed Diagnosis of Orthopaedic Injuries in the Polytrauma Patient

Lattisha L. Rowe, Daniel Jupiter, Ronald Lindsey, Nikoletta Carayannopoulos

Poster No. 1238

Surgical Fixation for Nonunion of Clavicle Fractures is Associated with Higher Rates of Short Term Complications Compared to Primary Fixation

Braden M. McKnight, J Ryan Hill, Nathanael Heckmann, William C. Pannell, Lakshmanan Sivasundaram, Amir Mostofi, Reza Omid, George F. Rick Hatch, III

Poster No. 1239

Anatomical Coracoclavicular Ligament Reconstructions in the Treatment of Acute Acromioclavicular Joint Dislocations: Minimum Ten-Year Follow-up

Daisuke Mori, Fumiharu Yamashita, Masahiko Kobayashi, Noboru Funakoshi

Poster No. 1240

Role of Enhancer of Zeste Homology 2 (EZH2) in Combat Blast Induced Heterotopic Ossification

Youngmi Ji, Daniel W. Griffin, Carl Cirino, Irene Chern, Phillip Hwang, Vyomesh Patel, Leon J. Nesti

Poster No. 1241

Spinal Astrocytic PAR1 Expression is a Potential Pain-Sensitive Marker of Astrocytic Activation in Radiculopathy in Contrast to GFAP and Vimentin

Jasmine Lee, Jenell Smith, Beth Winkelstein

Poster No. 1242

Trends Associated with Surgical Fixation of Lisfranc Injuries in the United States

Evan E. Vellios, Dean Wang, Chad Ishmael, Jeremiah R. Cohen, Jeffery C. Wang, Nelson F. Soohoo

PS1 Cancer, Tumors—Bone Tumors

Poster No. 1243

Microrna-210 Differentiates Osteoblastomas and Malignant Osteosarcomas

Scott Riester, Jorge Torres-mora, Amel Dudakovic, Emily Camilleri, Peter Rose, Thomas Shives, Michael Yaszemski, Franklin Sim, Andrew Folpe, David Deyle, Annalise Noelle Larson, Mario A. Galindo, Andre M. Oliveira, Judith VMG Bovee, Andre Van Wijnen

Poster No. 1244

Identification Of Surface Marker Protein On Exosomes Derived From Ewing Sarcoma Cells

Aki Yoshida, Tomohiro Fujiwara, Koji Uotani, Yusuke Yoshioka, Koji Ueda, Takuya Morita, Ken Takeda, Toshiyuki Kunisada, Yutaka Nezu, Takahiro Ochiya, Toshifumi Ozaki

Poster No. 1245

Combination Use Of Hedgehog Inhibitors Synergistically Prevent Osteosarcoma Growth

Yoshinobu Saitoh, Takao Setoguchi, Masahito Nagata, Shunsuke Nakamura, Satoshi Nagano, Yasuhiro Ishidou, Setsuro Komiya

Poster No. 1246

Histone Demethylase N066 Overexpression Promotes Proliferative and Invasive Abilities of Prostate Cancer Cells and Causes Osteolytic Bone Lesions in Mice

Rozita Bagheri-Yarmand, Nora Navone, Xinhai Wan, Christopher Logothetis, Johnny Huard, Robert F. Gagel, Krishna Sinha

Poster No. 1247

Analysis Of Anti-tumor Effect Of A Novel Anti-podoplanin Mab Lpmab-7

Hiroharu Oki, Mika Kato Kaneko, Satoshi Ogasawara, Yuta Tsujimoto, Xing Liu, Masato Sugawara, Takashi Tsuchiya, Yukinari Kato, Michiaki Takagi

Poster No. 1248

Evaluation of the Use of Intraoperative Salvaged Blood in Metastatic Spine Tumour Surgery: Using Microwell Technique

Naresh Kumar, Aye Sandar Zaw, Bee Luan Khoo, Jean Paul Thiery

Poster No. 1249

Accurate Assessment of Bone Tumors in a Rat Model of Metastasis

Vittorio Gatti, Paolo E. Palacio-Mancheno, Pat B. Zanzonico, Vinagolu K. Rajasekhar, Gene R. Diresta, John H. Healey, Susannah P. Fritton

Poster No. 1250

Effect of Cytostatic PRP-1 on Socs3 and IL6 Mediated Inflammatory Signaling in Chondrosarcoma

Karina Galoian, Shihua Luo, Amir Qureshi, Rachel Price, Ashlyn S. Morse, H.T Temple

PS1 Cancer, Tumors—Osteosarcoma and Soft Tissue

Poster No. 1251

Round Cell-specific Microrna Contributes To Malignancy and Morphological Change In Myxoid Liposarcoma

Yutaka Nezu, Keitaro Hagiwara, Tomohiro Fujiwara, Akira Kawai, Kosuke Matsuo, Tomoyuki Saito, Takahiro Ochiya

Poster No. 1252

A Novel Treatment Strategy for Bone and Soft Tissue Sarcomas With Combination Therapy of Tumor-specific Oncolytic Adenovirus and Radiation

Toshinori Omori, Yasuaki Yamakawa, Joe Hasei, Hiroshi Tazawa, Tomohiro Fujiwara, Tadashi Komatsubara, Shuhei Osaki, Kazuhisa Sugiu, Aki Yoshida, Toshiyuki Kunisada, Yasuo Urata, Toshiyoshi Fujiwara, Toshifumi Ozaki

Poster No. 1253

Identification Of Tumor-derived Circulating Micrnas in Synovial Sarcoma Patients

Koji Uotani, Tomohiro Fujiwara, Aki Yoshida, Takuya Morita, Yutaka Nezu, Tadashi Komatsubara, Kazuhisa Sugiu, Takenori Uehara, Toshinori Omori, Ken Takeda, Toshiyuki Kunisada, Akira Kawai, Takahiro Ochiya, Toshifumi Ozaki

Poster No. 1254

SNX-2112, an Hsp90 Inhibitor, Exhibits Potent Antitumor Activity via Induction of Apoptosis and Autophagy in Nara-H Cells

Natsuko Fukuoka

Poster No. 1255

Inhibition Of The Mapk Pathway Improves The Growth Inhibitory Effect By Inhibition Of Autophagy In Nara-h Cells

Osamu Nakamura, Yoshiki Yamagami, Masaki Mori, Hideki Nishimura, Ryosuke Horie, Natsuko Fukuoka, Tetsuji Yamamoto

Poster No. 1256

Global Protein Expression Profiles Corresponding to the SYT/SSX Fusion Gene in Patients With Synovial Sarcoma

Midori Ishii, Yoshiyuki Suehara, Shinji Kohsaka, Kenta Mukaiharu, Keisuke Akaike, Daisuke Kubota, Yu Tanabe, Reiko Mineki, Tsutomu Fujimura, Kazuo Kaneko, Marc Ladanyi, Tsuyoshi Saito

Poster No. 1257

The Development of Novel Therapy Targeting Metabolic Pathway Dysregulated in Doxorubicin-resistant Bone and Soft Tissue Sarcomas

Yongji Kim, Eisuke Kobayashi, Daisuke Kubota, Yoshiyuki Suehara, Tatsuya Takagi, Kazuo Kaneko, Akira Kawai, Shigehisa Kitano

Poster No. 1258

Differentiate Human Ovarian Cancer Cell Line with Different Metastasis Characteristics by Cell Mechanical Properties

Tzu-Hsiang Lin, Pohan Chu, Tsung-Hsien Wu, Chih-Chan Lin, Ming-Long Yeh

Poster No. 1259

The Detection System For Circulating Tumor Cells Of Human Bone And Soft Tissue Sarcomas

Tadashi Komatsubara, Yasuaki Yamakawa, Kazuhisa Sugiu, Toshinori Omori, Tomohiro Fujiwara, Toshiyuki Kunisada, Yasuo Urata, Toshifumi Ozaki

Poster No. 1260

AICAR Induces Mitochondrial Apoptosis In Human Osteosarcoma Cells through AMPK-dependent PGC-1alpha / TFAM / Mitochondrial Pathway

Masayuki Morishita, Teruya Kawamoto, Yasuo Onishi, Masaya Minoda, Etsuko Kamata, Toshiyuki Takemori, Takeshi Ueha, Hitomi Hara, Naomasa Fukase, Toshihiro Akisue, Masahiro Kurosaka

Poster No. 1261

Therapy-induced Expression of Growth Differentiation Factor-15 (GDF15) Suppresses Autophagy in Osteosarcoma Cells

Toru Hirozane, Takahide Tohmonda, Masaki Yoda, Hideo Morioka, Morio Matsumoto, Keisuke Horiuchi, Masaya Nakamura

Poster No. 1262

A Genomic Analysis of the Effects of Acidic Extracellular pH, Low pO₂, and Elevated Pressure on Human Osteosarcoma Cells

Takao Matsubara, Kazuma Okuno, Akihiro Sudo, Shigeki Kakunaga, Gene R. DiResta, John H. Healey

Poster No. 1263

Investigation of a Novel Cytokine Delivery System for IL-12 Osteosarcoma Immunotherapy

Brock A. Lindsey, Jonathan M. Karnes, Jabeen Noore, Phillip A. Bostian, Seana Sears

Poster No. 1264

Combination Therapy of Smac Mimetic And Doxorubicin on Osteosarcoma Cells

Etsuko Kamata, Teruya Kawamoto, Hitomi Hara, Naomasa Fukase, Takeshi Ueha, Masaya Minoda, Masayuki Morishita, Toshiyuki Takemori, Masahiro Kurosaka, Toshihiro Akisue

Poster No. 1265

Effects Of Metformin Administration To Tumor-induced Myeloid Cells In Osteosarcoma Microenvironment

Takenori Uehara, Shingo Eikawa, Tomohiro Fujiwara, Koji Uotani, Tadashi Komatsubara, Aki Yoshida, Ken Takeda, Toshiyuki Kunisada, Heiichi Uono, Toshifumi Ozaki

Poster No. 1266

Antitumor Effects Of Chloroquine Through the Suppression of Autophagy and Activation Of The P53 Pathway in Osteosarcoma Cells

Yoichi Kitano

PS1 Diagnostic Imaging

Poster No. 1267

Detection of Rabbit Knee Cartilage Degeneration Using a New Double-contrast Agent

Okihiro Onishi, Kazuya Ikoma, Masamitsu Kido, Shigeki Hayashi, Yukichi Kabuto, Ken-ichi Matsuda, Toshikazu Kubo

Poster No. 1268

Improved Sensitivity to Measure Proteoglycan Content and Articular Cartilage Thickness in Mice Utilizing High Resolution Cationic Contrast-enhanced μ Ct

Maleeha Mashiatulla, Meghan M. Moran, Deva Chan, Jun Li, Anna Plaas, Jonathan David Freedman, Mark Grinstaff, D. Rick Sumner

Poster No. 1269

Evaluation of Water Retention in Zygapophysial Joint Cartilage and Lumbar Intervertebral Discs Before and After Exercise Stress with T2mapping

Daisuke Yamabe, Hideki Murakami, Hirooki Endo, Kooou Choukan, Itsuko Tsukimura, Minoru Doita

Poster No. 1270

Contrast-enhanced Micro-computed Tomography With CA4+ Reveals Chondrons Of Human Articular Cartilage Ex Vivo

Sakari S. Karhula, Mikko A. Finnilä, Jonathan D. Freedman, Sami Kauppinen, Maarit Valkealahti, Petri Lehenkari, Heikki J. Nieminen, Mark W. Grinstaff, Simo Saarakkala

Poster No. 1271

A Novel Method to Test Association of 3D hip Morphological Parameters With Hip Osteoarthritis

Hanifeh Khayyeri, Sami Väänänen, Gunnar Flivik, Jukka Jurvelin, Leif Dahlberg, Hanna Isaksson

Poster No. 1272

Physical Risk Factors Related With Neck Symptoms; A Cross-sectional Population-based Study

Gentarō Kumagai, Kanichiro Wada, Daisuke Chiba, Toshihiro Tanaka, Ippei Takahashi, Shigeyuki Nakaji, Yasuyuki Ishibashi

Poster No. 1273

The Evaluation of Trunk Muscles After Trunk Exercises Using the Diffusion-weighted Magnetic Resonance Imaging

Atsushi Imai, Yu Okubo, Hiroshi Akuzawa, Koji Kaneoka

Poster No. 1274

A Study of the Reproducibility of Intraoperative Image in Microendoscopic-spine-surgery Simulator

Shin-ichi Nakao, Tomoaki Takemura, Shinji Takahashi, Munehito Yoshida

Poster No. 1275

Organ-to-Cell-Scale Bone Health Assessment using Google Maps API + Navigation Approaches

Melissa L. Knothe Tate, André F. Pereira, Daniel Hageman, Dirk Zeidler, Ulf R. Knothe

Poster No. 1276

Sacral Bone Mineral Density using Opportunistic CT Scans

Ryan J. Hoel, Charles GT Ledonio, Takashi Takahashi, David W. Polly

Poster No. 1277

Systematic Mapping of Tibial Plateau Bone Microarchitecture in End-Stage Knee Osteoarthritis

Bryant C. Roberts, Dominic Thewlis, Lucian B. Solomon, Graham Mercer, Karen J. Reynolds, Egon Perilli

Poster No. 1278

Vit.E Plus Pitavastatin Treatment Restrained The Early Blood-flow Fall After the Steroid Administration to the Steroid-induced Osteonecrosis Model

Akira Ikegami, Keiichiro Ueshima, Kazuya Ikoma, Masashi Ishida, Masazumi Saito, Mikihiro Fujioka, Masaaki Kuribayashi, Shigeki Hayashi, Osam Mazda, Toshikazu Kubo

Poster No. 1279

The Effect of Bone Mineral Density on Proximal Junctional Failure in Thoraco-Lumbar Fusion

Tarush Rustagi, Richard Tallarico, Nikhil Thakur, Mike Sun, Ian Madom, Nathaniel R. Ordway, William F. Lavelle

Poster No. 1280

The Effect of Sagittal Rotation on Axial Glenoid Width and Version: Computed Tomography Scan Analysis in the Setting of Anterior Glenoid Bone Loss

Rachel M. Frank, Petar Golijanin, Bryan Vopat, Anthony Romeo, Matthew Provencher

Poster No. 1281

A Computationally Efficient Method to Measure and Evaluate Tibial Slope

Amirhesam Amerinatanzi, Kaveh Ahmadi, Rodney Summers, Timothy Hewett, Vijay Goel, Edward Nyman, Jr.

Poster No. 1282

Acetabular Morphology Difference Related to Sex and Side in Korean Population

Kwang Woo Nam, Sang-Rim Kim, Gook-Myung Choi, Eun-Joo Seo, Dimitris Dimitriou, Tsung-Yuan Tsai, Young-Min Kwon, Harry E. Rubash, Guoan Li

Poster No. 1283

Automated 3-D Segmentation of the Proximal Femur With Implications for an Intraoperative Marker of Native Femoral Anteversion

Chesley F. Durgin, III, E. Meade Spratley, Olga Mutter, Jibanananda Satpathy, William A. Jiranek, Jennifer S. Wayne

Poster No. 1284

Semi-automated Segmentation and Quantification of the Intervertebral Disc Structure During Organ Culture Using Contrast-enhanced Microcomputed Tomography

Kevin Lin, Simon Y. Tang

Poster No. 1285

High Resolution Qualitative and Quantitative MR Evaluation of the Glenoid Labrum

Kenyu Iwasaki, Monica Tafur, Eric Chang, Sheronda Statum, Reni Biswas, Betty Tran, Won Bae, Jiang Du, Graeme Bydder, Christine Chung

Poster No. 1286

Single Cell Electromagnetic Loading Device

Carissa Mason, Emily Noonan, Phillip Leopold, Antonio Valdevit

Poster No. 1287

The Bony Attachment and the Course Of Two Bands in the Anterior Bundle of the Ulnar Collateral Ligament of the Elbow: Anatomical Study

Masahito Yoshida, Hideyuki Goto, Masahiro Nozaki, Tetsuya Takenaga, Takanobu Otsuka

POSTER SESSION 2

Posters will be displayed Monday and Tuesday.

PS2 Biomaterials—Other

Poster No. 1288

Rapid Manufacture of Periosteum-Inspired Functional Fabrics Using Computer-Controlled Weaving Looms

Joanna Ng, Lillian E. Knothe, Melissa Knothe Tate

Poster No. 1289

Decellularized Muscle Matrix Promotes Muscle Regeneration in a Rat Gastrocnemius Volumetric Muscle Loss Model

Michael J. McClure, David Cohen, Allison Ramey, Satya Mallu, Jonathan Isaacs, MoonHae Sunwoo, Yen C. Huang, Barbara D Boyan, Zvi Schwartz

Poster No. 1290

Effectiveness of a New Fibrin Dressing Compared to Gelfoam(R) in a Corpectomy Model

Charles T. Floyd, Curtis E. Olson

Poster No. 1291

Oxidative And Structural Changes Of The Murine Ivd After Stab Injury In Organ Culture

Itaru Hibino, Simon Tang

Poster No. 1292

Electrochemical Performance Of Additive Manufactured Ti6Al4V

Viswanathan Swaminathan, Jaroslaw Karwowski, Haitong Zeng, Chau Ngo, Robert Klein, Steven Willis, Kevor TenHuisen

Poster No. 1293

Differential MHC Class Receptor Expression in In Vitro Human Mesenchymal Stem Cells is Mediated by Scaffold

Katherine Hudson, Marc-Anthony Rodriguez, Lawrence Bonassar

Poster No. 1294

Surgical Glove Integrity Following Entanglement in Surgical Rotatory Power Tools

Ashton H. Goldman, John R. Owen, Emanuel Haug, Jennifer S. Wayne, Gregory J. Golladay

Poster No. 1295

Overestimation Of Monoclinic Zirconia Volume Fraction In ZPTA For TJR by Means Of Raman With Katagiri's Formula

Alessandro Alan Porporati, Marco Deluca, Robert M. Streicher

Poster No. 1296

Aqueous Fluids increase Antimicrobial Release from Antibacterial Loaded Bone Cement

Paulo Castaneda, Alexander C. McLaren, Christopher Glass, Derek Overstreet

Poster No. 1297

Structural and Mechanical Characterization of Riboflavin-Crosslinked Collagen Hydrogels

Brandon Borde, Lawrence Bonassar

Poster No. 1298

Autologous Point-of-Care Approach for Regenerative Medicine Applications Using Muscle Derived Factors

Masahiro Yoshikawa, Tomoyuki Nakasa, Masakazu Ishikawa, Nobuo Adachi, Mitsuo Ochi

Poster No. 1299

The Influence of Hydroxyapatite Coating Techniques On Osseointegration: An Animal Study

Farhad Ghadami, Saeed Saber Samandari, Gholamreza Rouhi, Mohsen Amani Hamedani, Mohammad Mehdi Dehghan, Saeed Farzad Mohajeri, Fatemeh Mashhadi Abbas

Poster No. 1300

The Effect of High Temperature Sintering on the High Cycle Fatigue Performance of Metal Injection Molded Ti-6Al-4V

Oscar A. Quintana, Sophie Yang, Bernice Aboud Gatrell

Poster No. 1301

Bone-Cement Adhesion of Metal Injection Molded CoCrMo Tibial Tray Components with Varying Surface Roughness

Oscar A. Quintana, Timothy Corbett, Andrew Kelly, Shouchen Dun, Claire O'Brien, Bernice Aboud Gatrell

Poster No. 1302

Dimensional Change Of UHMWPE After In-Vivo Simulation

Nick Dong, Zhonglin Zhu, Lin Song, Aiguo Wang, Yixin Zhou

Poster No. 1303

A Comparison Study of in vivo Bone Ingrowth between Porous Tantalum Biomaterial and New Porous Titanium Scaffold

Myung Chul Lee, Sahngchoon Lee, Hyuk-Soo Han, Jung-il Kim

Poster No. 1304

Synergistic Action of Interleukin-8 And Bone Marrow Concentrate On Cartilage Regeneration Through Up-regulation of Chondrogenic Transcription Factors

Seong Mi Choi, Dong Suk Yoon, Kyoung-Mi LEE, Sung-Hwan Kim, Su Hee Kim, Youngmee Jung, Soo Hyun Kim, Kwang Hwan Park, Yoorim Choi, Hyun Aae Ryu, Woo Jin Choi, Jin Woo Lee

PS2 Biomaterials—Bone

Poster No. 1305

Screw Pull Out Under Cyclic Fatigue Loading in Synthetic, Cadaveric, and Canine Bone

Molly Baumann, Alan Litsky

Poster No. 1306

Oxygen Releasing Microspheres For Regeneration Of Bone Tissue

Arina T. Buizer, Hilde Steg, Sjoerd K. Bulstra, Albert G. Veldhuizen, Roel Kuijer

Poster No. 1307

Performance Assessment of an Automated Segmentation System for Knee MRI Scans

Jose Tamez-Pena, Patricia Gonzalez, Antonio Martinez-Torteya, Joshua M. Farber, Saara Totterman, Edward Schreyer, Bryan Morrison

Poster No. 1308

Allogenic and Autogenous Bone Graft is Affected by Historical Donor Environmental Exposure

Caleb Behrend, Paul W. Millhouse, Jonathon J. Carmouche, Lauren M. Ritter, Joseph T. Moskal, Paul T. Rubery, Edward Puzas

Poster No. 1309

Nanoscale Mechanical Evaluation of Electrochemically Generated Tribolayer on CoCrMo Alloy for Hip Joint Application

Gina Quiram, Danieli Rodrigues, Izabelle Gindria, Mathew Mathew, Shelley Kerwell, K Shull

Poster No. 1310

Stiffness and Shock-absorbing Ability of Subchondral Bone Under High-Rate Compression

Fatemeh Malekipour, Peter V. S. Lee, Chris R. Whitton

Poster No. 1311

Surface Porous PEEK Implants Resist Instability in an Unconstrained Femoral Defect

F Brennan Torstrick, Angela Lin, Christopher Lee, Kenneth Gall, Robert Guldborg

Poster No. 1312

WITHDRAWN

Poster No. 1313

Application of Ultrasound Accelerates the Decalcification of Human Bone Sample for Histological Analysis

Dick H. Chow, Lizhen Zheng, Le Huang, Li Tian, Kam-Sing Ho, Ling Qin, Xia Guo

Poster No. 1314

In Vivo Evaluation of the PLGA/TCP/Mg Porous Scaffold Fabricated by 3D-printing for Bone Regeneration

Ye Li, Huijuan Cao, Long Li, Ling Qin, Xinlun Wang, Yuxiao Lai

Poster No. 1315

Unidirectional Porous β -tricalcium Phosphate is Better Bone Formation than Unidirectional Porous Hydroxyapatite as a Bone Substitute For Bone Defects Under a Stress Shielding Environment

Hiroshi Noguchi, Masataka Sakane, Takeshi Makihara, Masashi Yamazaki

Poster No. 1316

Optimization of the Design of an Amphiphilic Biodegradable Polymer for Tissue Engineering Applications

Ben Zhang, Tera Filion, Jie Song

Poster No. 1317

Release and Activity of Adenosine Incorporated Into Calcium Sulfate

Ravi Patel, Elizabeth Duncan, Allen Mamaril, Parwinder Singh, Jessica Amber Jennings, Warren Haggard

Poster No. 1318

Porous Bioactive Three-dimensional TiO₂ With Localized Drug Delivery System Using Biodegradable Gamma-polyglutamic Acid And PLGA

Chiu Fang Chen

Poster No. 1319

Evaluation of Multiple Formulations of Polycaprolatone for Use in Tissue Engineering Applications

Ferris M. Pfeiffer, Jacob Harris, A. Sharif El-Gizawy

Poster No. 1320

Overcoming Challenges in Quantifying Critical Bone Defect Healing in Patients via Longitudinal Radiology: A 10-Year Clinical CB-CT Pilot Study of Massive Vascularized Autografts vs. Allografts

Wakenda Tyler, Kohei Nishitani, Zachary Mietus, Allison McIntyre, Hani Awad, Edward M. Schwarz

Poster No. 1321

Combination Of Bioceramic And A Controlled-release Simvastatin-encapsulated Microsphere Enhances Bone Repair In Rat Critical-sized Calvarial Bone Defects

Yin-Chih Fu, Chung-Hwan Chen, Chih-Kuang Wang, Gwo-Jaw Wang, Mei-Ling Ho

Poster No. 1322

γ -Irradiation Sterilized Cortical Bone Allograft with Superior Fracture Toughness Due to Ribose Protectant

Thomas Willett, Mitchell Woodside

Poster No. 1323

Dynamic Analysis of 3D Printed Dual Modulus Scaffolds for Improvement of Bone Graft Incorporation and Stability

Rebecca Chung, Corinne Casey, Veronica Pidduck, Antonio Valdevit

Poster No. 1324

Differences between Buccal and Lingual Bone Quality of Peri-implant Regions

Do-Gyoon Kim, Kathy Elias, Yong-Hoon Jeong, Hyun-Jung Kwon, Matthew Clements, William A. Brantley, Damian J. Lee, Jung-Suk Han

Poster No. 1325

An Antioxidative Fullerene Derivative Enhances Osteogenesis of Human Adipose Derived Stem Cells

Xinlin Yang, Emily Ching-Ju Li, Pinar Smith, Guojun Ma, Xiaodong Li, Quanjun Cui

Poster No. 1325A

Microencapsulated Rabbit Adipose Stem Cells Can Initiate Ectopic Bone Formation

Shirae K. Leslie, David Cohen, Barbara D Boyan, Zvi Schwartz

Poster No. 1326

Regulation of Osteoclasts by Osteoblast Lineage Cells is Titanium Surface Dependent

Ethan Lotz, Michael Berger, Sharon Hyzy, Zvi Schwartz, Barbara D Boyan

PS2 Biomaterials—Tendon and Ligament

Poster No. 1327

Effect Of Elastin On Healing Of The Medial Collateral Ligament in Rabbits

Naoya Ito, Masahiro Hasegawa, Hironori Unno, Yoshiaki Suzuki, Yoshihiro Miura, Yuriyo Matsui, Keiichi Miyamoto, Akihiro Sudo

Poster No. 1328

Osmotic Stress as a Potent Regulator of Individual Collagen Fibril Stiffness

Sylvia Desissaire, Orestis G. Andriotis, Philipp J. Thurner

Poster No. 1329

Correlation between Change in Muscle Excursion and Collagen Content After Tendon Rupture and Delayed Repair

Yun-Rak Choi, Il-Hyun Koh, Ho-Jung Kang

Poster No. 1330

The Effects of Irradiation On The Viscoelastic Properties of Acellular Porcine Super Flexor Tendons: The Influence of Irradiation Dosage and Storage Time Following Treatment

Anthony Herbert, Jennifer Edwards, Eileen Ingham, John Fisher

Poster No. 1331

The Effects of Irradiation Sterilisation on the Biological and Biomechanical Properties of an Acellular Porcine Superflexor Tendon Graft

Jennifer H. Edwards, Anthony Herbert, Gemma L. Jones, Iain W. Manfield, John Fisher, Eileen Ingham

Poster No. 1332

Evaluation of Tendon Derived Matrix (TDM) Crosslinking Techniques for Electrospun Multi-Layered Scaffolds

Sean Meehan, Reid D'Amico, Harrison Ferlauto, Christopher R. Rowland, Dianne Little

Poster No. 1333

Electrospun PLGA Nanofiber Scaffolds Release Ibuprofen Faster and Degrade Slower after In Vivo Implantation

Corinne N. Riggan, Feini Qu, Dong Hwa Kim, Julianne Huegel, David R. Steinberg, Louis J. Soslowsky, Robert L. Mauck, Joseph Bernstein

Poster No. 1334

Effects Of Gamma Irradiation on the Biomechanical Properties Of Peroneus Tendons

Chris Aguila, Gaetan J. Delcroix, David Kaimrajh, Edward Milne, H. Thomas Temple, Loren Latta

PS2 Biomaterials—Cartilage

Poster No. 1335

Mechanical Properties of Agarose Hydrogels Containing Proteoglycan-Mimetic Graft Copolymers

Hannah Pauly, Laura Place, Matthew Kipper, Tammy Haut Donahue

Poster No. 1336

Role Of Mechanical Stimulation In The Pharmacologically Active Microcarriers And Cartilage Microparticles-induced Hyaline Cartilage Differentiation Of Miami Cells

Gaetan Jean-Robert Delcroix, Gianluca D'Ippolito, Teresita Reiner, Theodore Malinin, H. Thomas Temple, Chun-Yuh Huang, Claudia N. Montero-Menei, Paul C. Schiller

Poster No. 1337

Implications of Low Stiffness Biomaterials on Contact Mechanics of Joint Hemiarthroplasty

Sarah DeDecker, Daniel Langohr, Alana Khayat, Graham King, James Johnson

Poster No. 1338

Nanoscale Self-Assembled Monolayers of Phosphonates to Promote Chondrocyte Adhesion on Polymer Surfaces

Patrick E. Donnelly, Tony Chen, Erika M. Paguirigan, Miguel Otero, Russell F. Warren, Mary B. Goldring, Suzanne Maher

Poster No. 1339

Cartilage Molecular Engineering Using Biomimetic Aggrecan Shows Infiltration and Distribution of Biomimetic Aggrecan throughout the Cartilage Extracellular Matrix

Evan R. Phillips, Maria Lefchak, Mary Mulcahey, Katya Prudnikova, Michele Marcolongo

Poster No. 1340

Biomimetic Aggrecan Molecularly Engineers Articular Cartilage Following Intra-Articular Injection in an OA Rabbit Model In Vivo: A Pilot Study

Evan R. Phillips, Diego Galindo, Mickey Bui, Adam Taylor, Richard Huneke, Emily Reimold, Katya Prudnikova, Michele Marcolongo, Mary K. Mulcahey

Poster No. 1341

ADAM10 Inhibitor Suppresses Chondrogenic Dedifferentiation in Bovine Primary Chondrocyte Cells

Yasumori Sobue, Nobunori Takahashi, Toshihisa Kojima, Naoki Ishiguro

Poster No. 1342

A Multiscale Model Of Articular Cartilage Failure

Malek Adouni, Yasin Y. Dhaher

Poster No. 1343

The effects of Matrix Stiffness on Mesenchymal Stem Cell Chondrogenesis in 3D is Dependent on Crosslinking Mechanisms and Biochemical Cues

Tianyi Wang, R Lane Smith, Fan Yang

Poster No. 1344

The Effects of Low Dose Radiation on Articular Cartilage

Hannah Cash

Poster No. 1345

Mimicking Cartilage Tissue Zonal Organization by Engineering Hydrogels With Gradient Niche Cues

Danqing Zhu, Xinming Tong, Fan Yang

Poster No. 1346

Evaluation Of Intra-articular Acetylgucosamine And Hyaluronan Injection Combined With Plga Scaffolds For Osteochondral Defect Repair In Rabbit

Hsueh Chun Wang, Shu-Wei Wu, Tzu-Hsiang Lin, Horng-Chaung Hsu, Chih-Chan Lin, Ming-Long Yeh

Poster No. 1347

Effective rAAV-mediated Transduction of Human Articular Chondrocytes Via Polymeric PEO-PPO-PEO Micelles In Vitro and in an Experimental Model Of Osteochondral Defect In Situ

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PS2 Cartilage, Synovium & Osteoarthritis—Cell and Molecular Imaging

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Expression of Mustn1 During MSC Chondrogenic Differentiation

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Temperature is a Time Cue to Cartilages

Naoki Okubo, Yoichi Minami, Hiroyoshi Fujiwara, Tatsuya Kunimoto, Toshihiro Hosokawa, Ryo Oda, Toshikazu Kubo, Kazuhiro Yagita

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Synovial Fluid Exosomal MicroRNA Profiling Of Osteoarthritis Patients And Identification Of Synoviocyte–Chondrocyte Communication Pathway

Joseph Withrow, Cameron Murphy, Amy Dukes, Sadanand Fulzele, Yutao Liu, Monte Hunter, Mark Hamrick

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Nanopiece Delivery Of IL-1R siRNA into Cartilage to Treat Post-Traumatic Osteoarthritis

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Within Subject Differences In Femoral Cartilage Thickness Four Years Post Acl-injury and reconstruction

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Validation of Bioluminescent Reporter Mouse for Detection of Early Cartilage Degeneration in Osteoarthritis

Jeremiah Johnson, Sarah Mailhiot, Audrey Stoltzfus, Olivia Firth, Daniel Miller, Ronald K. June

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Identification of a Novel Target, Foxa2, in the Onset and Development of Osteoarthritis

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Tibial Cartilage and Subchondral Bone Surface Mean Curvature Differences Between Anterior Cruciate Ligament Injured and Uninjured Knees Four Years Post Injury and Reconstruction

Mack Gardner-Morse, Erin C. Argentieri, Michael Desarno, Timothy Tourville, James Slauterbeck, Bruce Beynnon

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Intra-articular Rhprg4 Mitigates Cartilage Damage Following DMM In A Porcine Model

Kimberly A. Waller, Erin Teeple, Scott McAllister, Tannin Schmidt, Gregory Jay, Braden Fleming

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Osteoarthritis in Porcine Intraarticular Fracture Model Reveals Mitochondrial Features Similar to Human Disease

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Bilateral Assessment of Cartilage with UTE T2* Quantitative MRI and Relationships with Serum-Derived Biomarkers of Osteoarthritis Two Years after Anterior Cruciate Ligament Reconstruction

Matthew R. Titchenal, Ashley A. Williams, Smritee Dadhwal, Subbu Dhulipala, Thomas P. Andriacchi, Constance R. Chu

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A Handheld Device for Creating Cartilage Blunt Impact Injuries

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Adam M. Wegner, Michael A. Robbins, Nestor R. Campos, Andrew F. Haddad, Blaine A. Christiansen, Jasper H. Yik, Dominik R. Haudenschild

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Functional Gait Analysis After Anterior Cruciate Ligament Rupture in Mice

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Hyaluronan Promotes TRPV4-induced Chondrogenesis via ICAM-1

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Collagen Type II Scaffolds and Microfracture

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Prevention Of Cartilage Degeneration And Repairing Cartilage Using Tenascin-c

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Treatment With NFkB Decoy Of Chondrogenic Cells Cultured In A High-throughput Three-dimensional System Stimulates Extra-cellular Matrix Synthesis

Kenji Kato, Koichiro Murata, Mary E. Lenz, Hal Sternberg, Francois Binette, Jun Mizutani, Takahiro Nakazawa, Koichi Masuda

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Articular Chondrocytes Respond Differently to Afferent vs. Efferent Nerve Factors

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Physiological Endoplasmic Reticulum Stress Regulates Chondrocyte Function and Differentiation Via Atf6 Pathway

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Obesity Alters Growth Plate Thickness and Strength in Immature Rats

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Charles A. Baumann, Aaron M. Stoker, Kamryn S. Chastain, Elliott E. Voss, Matthew J. Smith, James L. Cook

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A Puzzle Piece Strategy for Fabrication of Large Tissue Engineered Cartilage Constructs

Adam B. Nover, Brian K. Jones, William T. Yu, Daniel S. Donovan, Jeremy D. Podolnick, James L. Cook, Gerard A. Ateshian, Clark T. Hung

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Micro-Scale Chondrocyte-Seeded 'Noodle-Like' Constructs to Promote Cartilage Repair with Microfracture

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Effect of PTH on Mesenchymal Stem Cell Chondrogenic Differentiation in a Cartilage-Derived Matrix

Sara Nowacki, Michael Zuscik, Hani Awad

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Chondrogenic Differentiation Of Mouse Induced Pluripotent Stem Cells (iPSCs) Using The Three Dimensional Culture With Ultra-purified Alginate Gel (UPAL Gel)

Kazutoshi Hontani, Tomohiro Onodera, Daisuke Momma, Masatake Matsuoka, Rikiya Baba, Zenta Joutoku, Shinji Matsubara, Kentaro Homan, Ryosuke Hishimura, Kim WooYoung, Norimasa Iwasaki

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Enhancing Adipose-derived Stem Cell-based Cartilage Regeneration Using Macroporous Microribbon Scaffolds

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Hypoxia Enhances Chondrogenic Potential Of Tissue Engineered Construct Derived From Synovial Mesenchymal Stem Cell

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An Optimized Indentation Method For Cartilage Stiffness Measurement With Spatial Distribution

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Tnf- α Enhances Proliferation of Synovial MSCs Derived from OA Patients

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The Effect of Superimposed Vibrations on the Mechanical Sensitivity of Aged Chondrocytes

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MicroRNA-7 Prevents Hypertrophic Differentiation Without Compromising Chondrogenesis

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Articular Cartilage Tissue can be Bioengineered In Vitro from Passaged Human Osteoarthritic Chondrocytes

Vanessa J. Bianchi, David Backstein, Rita Kandel

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Change Of Cell Surface Marker And The Chondrocyte Differentiation Related Gene Among Passages: Comparison Between Chondrocytes Derived From Osteoarthritis and from Normal Joints

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The Effect Of Systemic Administration Of Granulocyte-colony Stimulating Factor (G-CSF) On An Old Full Thickness Cartilage Defect In A Rabbit

Toshihide Sasaki, Ryuichiro Akagi, Hiroko Hoshi, Yohei Yamamoto, Takahiro Enomoto, Yusuke Sato, Ryosuke Nakagawa, Kazuhisa Takahashi, Satoshi Yamaguchi, Takahisa Sasho

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Enzymatic Treatment to Improve Integrative Repair of Articular Cartilage

Powe Lee, Brian Chen, Alex McNally, Chris Chapman, Lee Krengel, Kurt Sly, Steve Lin

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Viability of Hand Cut and Mechanically Particulated Porcine Cartilage Fragments

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Effect of Persistent Controlled Release of Transforming Growth Factor Beta 1 Using Collagen Vitrigel on Articular Cartilage Repair

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Photochemical Crosslinking Enhances the Wear Resistance of Articular Cartilage

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Poroelastic Model to Explain Time-dependent Cell Injury in Articular Cartilage Subjected to Extreme Sub-impact Loading

Alexander Kotelsky, Mark Buckley

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Kevin A. Taylor, Gangadhar Utturkar, Amber T. Collins, Charles E. Spritzer, Trevor M. Owen, William E. Garrett, Louis E. DeFrate

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Multiphasic Finite Element Models Enable Determining Fixed Charge Density and the Diffusion Coefficient of Charged Solutes In Articular Cartilage

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Dynamic Gait Profiles of the Medial Meniscus Transection Model and Monoiodoacetate Injection Model of Knee Osteoarthritis in Rodents

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Micro-features Affect the Transport of Solutes at the Interface of Cartilage and Subchondral Plate

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The Mechanical Stress Loading Can Induce the Fragmentation of Cd44 by Increased ADAM-10 expression in a Chondrocyte Cell Line

Tomonori Kobayakawa, Nobunori Takahashi, Toshihisa Kojima, Naoki Ishiguro

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Evaluation Of Chondrogenesis In Human Bone Marrow Aspirates Upon rAAV-mediated FGF-2 Gene Transfer And Overexpression

Janina Frisch, Ana Rey Rico, Jagadeesh K. Venkatesan, Gertrud Schmitt, Henning Madry, Magali Cucchiari

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A Comparative Evaluation of the Genetic Modification of Human And Murine Musculoskeletal Cells Via rAAV Vectors In Vitro and Ex Situ

Souad Daamouch, Ana Rey-Rico, Janina Frisch, Jagadeesh K. Venkatesan, Matthias W. Laschke, Henning Madry, Pascal Reboul, Magali Cucchiari

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Effect Of Anti- Nerve Growth Factor Neutralizing Antibody On Pain And Osteoarthritis Progression In Mono-iodoacetate-induced Osteoarthritis Rat

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Restoration of Prg4 mRNA and Chondroprotection by rhprg4 in IL-1 α Stimulated Cartilage Explants

Katherine Larson, Khaled A. Elsaid, Tannin Schmidt, Braden Fleming, Gregory Jay

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Evaluation of Adalimumab (Humira) and Methotrexate on Catabolic and Anabolic Functions of Human Chondrocytes in Vitro

Lauren Tufts, Jun Chang, Justin Quinn, Elisabeth Wondimu, Kirsty Culley, Miguel Otero, Mary B. Goldring

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Weekly Injections Of Hylan G-f 20 Delay Cartilage Degeneration In Rat Partial Meniscectomized Knees

Katsuaki Yanagisawa, Takeshi Muneta, Nobutake Ozeki, Yusuke Nakagawa, Mio Udo, Ryusuke Saito, Hideyuki Koga, Kunikazu Tsuji, Ichiro Sekiya

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Rabbit Xenotransplantation Model for Evaluating Human Chondrocyte Sheets for Articular Cartilage Repair

Takumi Takahashi, Masato Sato, Eriko Toyoda, Hideyuki Maruki, Daichi Takizawa, Eri Okada, Miki Maehara, Yoshiharu Kato, Joji Mochida

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Thermally Responsive Nanocapsules with Dual Drug Release Profiles for Combined Cryotherapy of Osteoarthritis

Mi-Lan Kang, Ji-Eun Kim, Ji-Min Lee, Gun-Il Im

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Parathyroid Hormone (1-34) Improved Knee Osteoarthritis and Function in Rats With Anterior Cruciate Ligament Transection by Decreasing Chondrocyte Apoptosis Via Autophagy

Chung-Hwan Chen, Je-Ken Chang, Ling-Hua Chang, Shun-Cheng Wu, Yin-Chih Fu, Sung-Yen Lin, Mei-Ling Ho

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Acetabular Labrum Blood Flow in Patients with Developmental Dysplasia of the Hip during Periacetabular Osteotomy: An Intraoperative In Vivo Study Using Laser Doppler Flowmetry

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Open-Wedge High Tibial Osteotomy Changes In Vivo Stress Distribution Patterns of the Patellofemoral Joint Using Computed Tomography Osteoabsorptiometry

Toshiaki Kameda, Eiji Kondo, Jun Onodera, Tomohiro Onodera, Koji Yabuuchi, Kazunori Yasuda, Norimasa Iwasaki

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Poly-beta-amino-esters as Pro-drug Delivery System in Cartilages

Stefano Perni, Polina Prokopovich

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Transplantation of Synovial Mscs With Centralization for Extruded Meniscus Prevented Cartilage Degeneration in Rats

Yasumasa Tokumoto, Ichiro Sekiya, Ryusuke Saito, Nobutake Ozeki, Yusuke Nakagawa, Mio Udo, Katsuaki Yanagisawa, Kunikazu Tsuji, Takeshi Muneta

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Collagen Hydrolysates affect the Activity of Aggrecanases and the Release of Proteoglycans from Human Osteoarthritic Articular Cartilage

Saskia Schadow, Viktor S. Simons, Hans-Christian Siebert, Guenter Lochnit, Juergen Steinmeyer

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Characterization of a Biomimetic Polymer Network Cartilage Lubricant and Its Resistance to Enzymatic Degradation

Shikha Sharma, Benjamin G. Cooper, Brian Snyder, Mark Grinstaff

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Enhanced Chondrocyte Out-Migration from Cartilage Explants for Use in Cartilage Resurfacing

Jolanta B. Norelli, Dawid P. Plaza, Hixiang Liang, Daniel A. Grande

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Intra-articular Injection Of Humanized Monoclonal Anti-vegf Antibody In An Osteoarthritis Rabbit Model Is Related To

Gianluca Vadala, Fabrizio Russo, Antonino Giacalone, Maria Musumeci, Caterina Cattani, Vincenzo Denaro

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Depletion of High-mannose Type N-glycans Lead to Cartilage Degradation

Kentaro Homan, Tomohiro Onodera, Rikiya Baba, Daisuke Momma, Masatake Matsuoka, Kazutoshi Hontani, Shinji Matsubara, Zenta Joutoku, Ryosuke Hishimura, Kim WooYoung, Norimasa Iwasaki

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Wisp1, a Potent Downstream Mediator of Canonical Wnt Signaling, Induces Pathology in Experimental Osteoarthritis and Predicts Progression of Early Human Symptomatic Osteoarthritis

Martijn H. Van den Bosch, Arjen B. Blom, Azusa Maeda, Tina Kilts, Wim B. Van den Berg, Floris P. Lafeber, Peter L. Van Lent, Marian F. Young, Peter M. Van der Kraan

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Monoiodoacetic Acid Induces Arthritis and Synovitis Dose- and Time- Dependently In Rats

Mio Udo, Takeshi Muneta, Kunikazu Tsuji, Nobutake Ozeki, Yusuke Nakagawa, Toshiyuki Ohara, Ryusuke Saito, Katsuaki Yanagisawa, Hideyuki Koga, Ichiro Sekiya

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Calcium and Activation of the Extracellular Calcium-Sensing Receptor Induce Articular Cartilage Degeneration in Osteoarthritis

Omar Salem, Michael Grant, Laura M. Epure, Olga L. Huk, David J. Zukor, John Antoniou, Jackson Mwale

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Impacts of Osteoarthritis-induced Enzymatic Activities on the Nanomechanics of Murine Cartilage

Qing Li, Chao Wang, Liu Ouyang, Wei Tong, Ling Qin, Lin Han

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Single-cell RNA FISH Analysis Of Chondrocyte Dedifferentiation Challenges Traditional Definitions Of Phenotype

Claire M. McLeod, Allison J. Cote, Arjun Raj, Robert L. Mauck

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Introducing Wnt16 Attenuates The Severity Of Osteoarthritis

Wenxue Tong, Yujie Deng, Walter Yeung, Kinglun Kingston Mak, Ling Qin

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Replication of Established Osteoarthritis Risk Loci in the Greek Population: The Argo-Iarissa Study

Jeremy M. Wilkinson, Eleni Zengini, Lydia Anastasopoulou, Konstantinos Malizos, George Babis, Eleftheria Zeggini, Aspasia Tsezou, Konstantinos Hatzikotoulas

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Correlation of Biomarker Production to Biomechanical, Biochemical, and Histological Properties of Osteoarthritic Osteochondral Tissue Obtained From Patients Undergoing Total Knee Replacement

Nicole C. Werner, Aaron M. Stoker, Ferris M. Pfeiffer, James T. Stannard, Chantelle C. Bozynski, B. Sonny Bal, James L. Cook

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Alterations in Articular Cartilage Deformation Following Labral Tears

Yoonjin Kim, Choongsoo Shin, Yongnam Song

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Biomechanics and MechanoBiology of Human Cartilage Articulation

Felix H. Hsu, Eloy Alonso, Aimee R. Raleigh, Abdulelah Saleh, Koichi Masuda, Martin K. Lotz, Albert C. Chen, Robert L. Sah

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Transcriptomic Response of an In Vitro Tribological Model of Cartilage Surface Damage

Robert L. Trevino, Deva D. Chan, Carol A. Pacione, Anna Plaas, Markus A. Wimmer

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Abnormal Cartilage Matrix in Mice does not Influence the Response of the Knee Joint to Mechanical Loading

Derek T. Holyoak, Miguel Otero, Kirsty L. Culley, Timothy M. Wright, Steven R. Goldring, Mary B. Goldring, Marjolein C.H. Van der Meulen

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Mechanical Preconditioning of Articular Cartilage to Protect Chondrocytes from Injury In Vitro and the Role of Extracellular Ca²⁺

Alexander Kotelsky, Mary Bucklin, Mark Buckley

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Impact Of Intact Knee Joint Loading On Site-specific Cartilage Gene Expression In A Porcine Model

Baaba S. Otoo, LePing Li, Walter Herzog, David A. Hart

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Effects of Dynamic Stretch on Caveolin Phosphorylation and Focal Adhesion Dynamics

Hung-Yu Chang, Pen-hsiu Grace Chao

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Diabetes, AGEs, and RAGE Agonist Induce Chondrocyte Softening Associated With Actin Disruption and Pro-inflammatory Phenotype

Jenny Y. Liu, Jennifer W. Liu, Alisa Moyer, Adam C. Abraham, Simon Y. Tang

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Metabolic Response of Tissue Engineered Cartilage During Articulation: Influence of Synovial Fluid and Its Viscosity

Yabin Wu, Martin Stoddart, Karin Wuertz-Kozak, Sibylle Grad, Mauro Alini, Stephen Ferguson

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Collagen Antibody Induced Arthritis is Attenuated by the Gene Deletion of Nardilysin

Takayuki Fujii, Hiromu Ito, Eiichiro Nishi, Hiroyuki Yoshitomi, Shuichi Matsuda

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Sigles9 Suppresses Arthritis in Collagen-induced Mice Model and Inhibits M1 Activation Of Raw264.7 Macrophages

Takuya Matsumoto, Nobunori Takahashi, Toshihisa Kojima, Naoki Ishiguro

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IL4-10 Synerkine Induces Direct and Indirect Structural Cartilage Repair in Osteoarthritis

Simon C. Mastbergen, Maartje F. Pustjens, Cristine Steens-Louw, Marianna Tryfonidou, Joel A. Van Roon, Eric Hack, Floris P. Lafeber

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Progranulin Ameliorates Inflammatory Arthritis in Mice by Inducing Reciprocal Regulation Of Th17 and Treg Cells

Wenyu Fu, Lei Shi, Chuanju Liu

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Diet-induced Obesity May Initiate Advanced Glycation End-product-mediated Inflammation in Articular Cartilage

Lennox H. Yu, Elwyn C. Firth, Claire N. Barker, Samuel S. Haysom, Sophia Leung, Mark H. Vickers, Sue R. McGlashan

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High Fat High Sucrose Diet Results in Early Morphological and Pro-inflammatory Changes in the Vastus Lateralis Muscle - Implications for Metabolic Osteoarthritis

Kelsey Helen-Marie Collins, David A. Hart, Raylene A. Reimer, Walter Herzog

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WITHDRAWN

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Friction-induced Inflammation Influences Joint Deterioration in Prg4 Knockout Mice

Kimberly A. Waller, Ling X. Zhang, Gregory D. Jay

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Toward Understanding Mechanisms of Cartilage Particulate-Mediated Synovial Inflammation

Amy M. Silverstein, Eric L. Tong, Robert Stefani, Mukundan G. Attur, Gerard A. Ateshian, J Chloe Bulinski, Clark T. Hung

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Effective of Insulin on Inflammatory Cytokines Dependent on Cartilage Degrading Enzymes in Human Fibroblast Like Synoviocytes of Osteoarthritis and Rheumatoid Arthritis

Keizo Wada, Daisuke Hamada, Ichiro Tonogai, Takahiko Tsutsui, Tomohiro Goto, Naoto Suzue, Tetsuya Matsuura, Shoji Fukuta, Michael J. Zuscik, Robert A. Mooney, Koichi Sairyo

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Chondro-protective Effect of Bisphosphonate On In Situ Chondrocytes Exposed to IL-1 β

Mengxi Lv, Yilu Zhou, Kalani Picho, Grace Gong, Liyun Wang, Lucas X. Lu

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Synovial Inflammation Results in Increased IL-1 mediated NF- κ B Activity in Isolated Porcine Joint Capsule Cells

Daniel Cunningham, Bridgette D. Furman, Jonathan M. Brunger, Amy McNulty, Farshid Guilak, Steven A. Olson

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Connective Tissue Growth Factor (ctgf) Increases IL-17 Production In Human Synovial Fibroblasts By Reducing Mir-655 Expression

Hsuan-Chih Liu

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Expression of TNF-like Ligand 1A (TL1A) in Rheumatoid Synovial Fibroblasts

Toshihisa Maeda, Yasushi Miura, Koji Fukuda, Shinya Hayashi, Masahiro Kurosaka

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The Importance of the Endoplasmic Reticulum Stress Transducer, IRE1, in Rheumatoid Synovitis

Soutarou Izumi, Tomoyuki Nakasa, Shigeru Miyaki, Mitsuo Ochi

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Comparison of Gene Expression Alteration Between Non-OA and OA-derived Chondrocytes by Cyclic Compressive Loading in Three-dimensional Culture

Yasuhiro Take, Shinya Yatani, Hiroyuki Yokoi, Tomoko Okamoto, Ken Nakata

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Knee Effusion Of Suprapatellar Pouch Positively Correlates With Serum Hyaluronan Concentration: Ultrasonographic Evaluation In General Japanese Population

Daisuke Chiba, Eiichi Tsuda, Yuji Yamamoto, Shugo Maeda, Ryo Inoue, Eiji Sasaki, Ippei Takahashi, Shigeyuki Nakaji, Yasuyuki Ishibashi

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Anti-Inflammatory Properties of the Output of an Autologous Bone Marrow Concentrating Device

William King, Matthew Tan, Michael Ponticello, Jennifer Woodell-May

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CCPA Suppressed Expressions of Cartilage Degrading Enzymes Such As MMP-3, MMP-13 and ADAMTS-4 in Inflammatory Synovial Fibroblasts and Articular Chondrocytes Induced by IL-1 Beta and/or TNF Alfa

Ikuko Masuda, Kodo Okada, Hisashi Yamanaka, Shigeki Momohara

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Chondrocyte Metabolic and Cellular Stress Markers During Early-Stage Osteoarthritis in Mice Fed a High-Fat Diet

Elise L. Donovan, Joanna Hudson, Timothy Griffin

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Xanthine Oxidase Inhibitor Febuxostat Attenuate High Fat Diet-induced Osteoarthritis

Aibibula Zulipiya

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Primary Human Articular Chondrocytes Exhibit Age-Dependent PRG4 Secretion and TGF- β 1 Responsiveness

Laurence C. Chen, Felix H. Hsu, Alexander Y. Hui, Barbara L. Schumacher, Robert L. Sah

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The Novel Role Of Ghrelin Signaling In Articular Cartilage Maintenance

Tomoya Uchimura, Carrie Hui, Andrea Foote, Tong Shi, Weiping Ren, Li Zeng

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Cartilage, Synovium & Osteoarthritis—Osteoarthritis—Clinical

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Knee Joint Distraction Compared With Total Knee Prosthesis: A Randomized Controlled Trial (Preliminary results)

Jan-Ton A. Van der Woude, Karen Wiegant, Ronald J. Van Heerwaarden, Sander Spruijt, Peter M. Van Roermund, Roel J. Custers, Simon C. Mastbergen, Floris P. Lafeber

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Contributions Of Wnt/ β -catenin-responsive Cells to Articular and Growth Plate Cartilage Growth

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Yields And Chondrogenic Potential Of Synovial MSCs Are Comparable Between RA And OA Patients Who Undergo TKA

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Cyclosporine A Suppresses Chondrogenesis and Induces Oxidative Stress in Bone Marrow Mesenchymal Stem Cells

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Chondrogenic Differentiation Of Platelet-lysate Expanded Clinical Grade Adipose-tissue Derived Human Mesenchymal Stem Cells In Hypoxia

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Effect of Anisotropy, Compressive Strain, and Tissue Region On Electrical Conductivity in Porcine Meniscus

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Kartogenin (kgn) Treated Tendon Graft Enhanced Injured Meniscus Healing

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Stimulating Angiogenesis With Desferoxamine in a Subdermal Collagen Foam Model

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Meniscal Healing Using Pre-differentiated Human Bone Marrow Stromal Cells And Platelet-rich Plasma Pretreated PLGA Scaffold

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Enhanced Proteoglycan Production of Primary Human Meniscal Fibrochondrocytes Cultivated in Biomedical-Grade, High Mannuronic Acid Content (BioMVM) Alginate 3-D Hydrogel Culture

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Yukichi Kabuto, Toru Morihara, Tsuyoshi Sukenari, Yoshikazu Kida, Ryo Oda, Yuji Arai, Koshiro Sawada, Ken-ichi Matsuda, Mitsuhiro Kawata, Yasuhiko Tabata, Hiroyoshi Fujiwara, Toshikazu Kubo

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Stoyna Novakova, Vasudevan Mahalingam, Delta Leeper, Ellen Arruda, Answorth Allen, Asheesh Bedi, Lisa Larkin

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Intravital Imaging of Inflammatory Cell Recruitment to a Ligament Injury

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Anterolateral and Posteromedial Bundles of the PCL Exhibit Similar Microstructural and Mechanical Properties

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Molecular Level Detection and Localization of Mechanical Damage in Collagen Using Collagen Hybridizing Peptides

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Evidence of Patellar Tendon Buckling during Passive Extension

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Disuse Affects the Viscoelastic Response of Intact Achilles Tendons

Hanifeh Khayyeri, Parmis Sepanloo, Malin M. Hamnerman, Per Aspenberg, Hanna Isaksson

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Confirmed Presence of Bacterial 16S rRNA in Achilles' Tendon Rupture Samples: A Novel Aetiology of Tendinopathy?

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Loss of Homeostatic Cellular Tension in Rat Tail Tendons Increases Prostaglandin-E2 and Substance-P Production

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A Link Between Mechanical Load, Inflammation and Tendon Healing

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Biochemical Characteristics of Dermal Fibroblasts Affect Postoperative Flexion in Total Knee Arthroplasty

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Analysis of 3D Ultrastructure and Cellular Distribution at Normal Supraspinatus Tendon Insertion and Tendon-bone Interface After Rotator Cuff Repair In Rat

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Atsuyuki Inui, Hanako Nishimoto, Takeshi Kokubu, Yutaka Mifune, Fumiaki Takase, Yasuhiro Ueda, Takeshi Ueha, Yoshitada Sakai, Masahiro Kurosaka

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Shawn M. O'Connor, Elton J. Cheng, Samuel R. Ward, Richard L. Lieber

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Anisotropy and Rigor Effects of Skeletal Muscle

Benjamin Wheatley, Gregory Odegard, Kenton Kaufman, Tammy L. Haut Donahue

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Muscle Activity in the Lower Limbs During a Push-down Movement Using a New Active Exercise Apparatus for the Leg

Kenta Tanaka, Hiroshi Kamada, Yukiyo Shimizu, Masataka Sakane, Shun Irie, Naoyuki Ochiai, Masashi Yamazaki

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Multiple Specific Cell Types Produce Type 1 Collagen During Skeletal Muscle Fibrosis

Mark A. Chapman, Richard L. Lieber

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Allogeneic Placental Cell Therapy After Skeletal Muscle Trauma Improves Function and Volume: A Phase I/II Study

Tobias Winkler, Carsten F. Perka, Philipp Von Roth, Alison Agres, Henning Pläge, Bernd Preininger, Esther Lukasiewicz Hagai, Petra Reinke, Hans-Dieter Volk, Georg N. Duda

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Thomas Laumonier, Pierre Hoffmeyer, Jacques Menetrey

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Masashi Koide, Yoshihiro Hagiwara, Akira Ando, Yutaka Yabe, Kenji Kanazawa, Takuya Sekiguchi, Nobuyuki Itaya, Shinichiro Yoshida, Eiji Itoi, Makoto Kanzaki, Hiroyasu Hatakeyama, Masahiro Tsuchiya

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Muscle Degeneration Associated with Rotator Cuff Tendon Release and / or Denervation in Sheep

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Effects of Mechanical Strain On Muscle-derived Stem Cells And Adipose Derived Stem Cells: Implications for Regenerative Medicine

Sudheer Ravuri, Alex Scibetta, Andi Liebowitz, Jeff Green, Lizzie Morris, Xiaodong Mu, Aiping Lu, Xueqin Gao, James Cummins, Johnny Huard

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Human Muscle-derived Stem Cells Prevent Cardiac Muscle Dysfunction in Aged Dystrophic Mice through a Paracrine Effect—In Vivo Tracking of Donor Cells

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Addressing New Questions with Old Models: Repurposing the Low Calcium Lactation Model to Study Bone Matrix Maturation

Ryan D. Ross, D. Rick Sumner

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Ezh2 Promotes Osteogenic Differentiation But Is Dispensable for Normal Cartilage Development

Emily Camilleri, Amel Dudakovic, Scott Riester, Catalina Galeano-Garces, Megan McGee-Lawrence, Elizabeth Bradley, Jennifer Westendorf, Aaron Krych, A. Noelle Larson, Hee-Jeong Im, Andre Van Wijnen

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Evaluating Bone Mineralization of the Vertebral body in Pediatric Patients Less Than 6 Years Old

Joyce H. Keyak, Liliane Gibbs, Sandra J. Murray, Antoine Hamed-Sangsari, Diana Lubyantaya, Ruohong Li

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Bone Robusticity in Two Skeletal Dysplasias: Evaluation of the Second Metacarpal, a Surrogate for Bone Strength

Cathleen L. Raggio, Josephine Marino, Cosmo Venezia, Erin Carter, Karl Jepsen

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Kazumasa Minami, Andy B. Chen, Nariaki Matsuura, Masahiko Koizumi, Hiroki Yokota

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Madison S. Doutre, John G. Skedros, Eric M. Brown, Gregory A. Skedros, Roy D. Bloebaum, Chad S. Mears

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Increased $\text{Nf-}\kappa\text{B}$ Activity In Bone Marrow-derived Mesenchymal Stem Cells From Aged Mice

Tzu-hua Lin, Emmanuel Gibon, Florence Loi, Luis Cordova, Laura Lu, Jukka Pajarinen, Akira Nabeshima, Zhenyu Yao, Stuart B. Goodman

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Mapping Distributions of Bone Density in the Proximal Tibia: A Comparison of Osteoarthritic and Cadaver Knees

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Preoperative Bone Mineral Density and Bone Turnover in Women before Primary Knee Arthroplasty

Yoshinori Ishii, Hideo Noguchi, Junko Sato

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Connexin43-dependent Intercellular Communication of cAMP Regulates Osteoblast Signaling and Gene Expression

Aditi Gupta, Hidayah M. Anderson, Joseph P. Stains

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The Soluble Netrin G1-ligand Inhibits Osteogenesis and Promotes Osteoclast Formation

Bryan S. Margulies, Sean D. DeBoyace

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Conditional Alleles of *Sost* along the Mesenchymal Lineage Show varying Levels of Bone Formation

Cristal Yee, Deepa Muruges, Aris Economides, Alexander Robling, Gabriela Loots

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Stable Transfection of mRuby2 Fluorescence Gene in C3H10T1/2 Fibroblasts for Musculoskeletal Tissue Engineering

Dai Fei Elmer Ker, Rashmi Sharma, Evelyn Wang, Yunzhi Peter Yang

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Atoh8, a Direct Target Gene of BMP-Smad1/5/8 Signaling, Negatively Regulates Osteoblastic Bone Formation

Yuhei Yahiro, Shingo Maeda, Masato Morikawa, Daizo Koinuma, Naohiro Shinohara, Kanehiro Matsuyama, Ichiro Kawamura, Yasuhiro Ishidou, Ryoichiro Kageyama, Kohei Miyazono, Setsuro Komiya

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Angiopoietin-like 4 Inhibits Triglyceride-rich Lipoprotein Lipolysis Product- Induction of ATF-3 in Osteoblasts

Clare Yellowley, Alice Wong, Jennifer Rutkowski, John Rutledge

PS2 Bone—Osteoclasts

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Sensory Neurotransmitters Substance P And α -Calcitonin Gene-related Peptide Modulate Osteoclast Metabolism

Tanja Niedermair, Raphael Seebröker, Stephan Schirner, Anja Pasoldt, Rainer H. Straub, Joachim Grifka, Susanne Grässel

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Bone Abnormalities of Dystrophin/Utrophin Double Knockout Mice Is Associated With Impaired Bone Remodeling

Xueqin Gao, Ying Tang, Bing Wang, Johnny Huard

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The Role Of 222-3p Microrna On Osteoclastogenesis

Shinya Takigawa, Andy Chen, Akihiro Sudo, Kazunori Hamamura, Hiroki Yokota

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Enhanced Activation and Fusion of Human Osteoclasts After Exposure to Metallic and Ceramic Particles

Juliane Pasold, Jana Markhoff, Jenny Tillmann, Philipp Pisowocki, Rainer Bader

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Orthopedic Particles Induce Inflammatory Osteolysis Through Transcriptional Inhibition Of Treg Cells And Subsequent Stimulation Of Osteoclastogenic Burden

Yousef Abu-Amer, Tim Chen, Gaurav Swarnkar

PS2 Bone—Bone Osteocytes and Mechanobiology

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Role of Calcium Pathways in Dynamic Fluid Flow Stimulation induced Calcium Oscillations within In-Situ Osteocytes of Intact Mouse Femurs

Melissa Wang, Minyi Hu, Daniel Gibbons, Jian Jiao, Yi-Xian Qin

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Human Trabecular Bone Response to Mechanical Load is Dependent on Endothelin-1 Signaling

Luisa A. Meyer, Michael G. Johnson, Everett L. Smith, Matthew W. Squire, Karen E. Hansen, Robert D. Blank, Heidi-Lynn Ploeg

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Subchondral Microdamage and Remodeling after Acute Knee Injury: A Potential Role in PTOA

Austin Ramme, Kevin Voss, Jurinus Lesporis, Matin Lendhey, Oran D. Kennedy

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Osteocytes are Sensitive to the Reynolds Number of Fluid Flow Given a Constant Fluid Shear Stress and Flow Rate

Kevin Middleton, Avinash Kondiboyina, Yi Cui, Michael Borret, Xueting Mei, Lidan You

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Osteocytes' Response to Mechanical Loading Supports Cancer Cell Growth and Migration, but Reduces Osteoclasts' Support of Cancer Cells

Yu-Heng Ma, Shreyash Dalmia, Peter Gao, Jacob Young, Chao Liu, Lidan You

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Fluid Flow and Dextran Concentration Modulate Osteoclast and Osteoblast Activity

Karen Howard, Megan Elizabeth Oest, Kenneth Mann

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Supraphysiological Loading stimulates Osteocytes to Enhance Osteoclast Differentiation

Cornelia Bratengeier, Cornelis M. Semeins, Jenneke Klein-Nulend, Astrid D. Bakker, Anna Fahlgren

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Sclerostin Expression by Osteocytes during Low Magnitude Mechanical Stimulation

Thomas R. Coughlin, Kimberly Curtis, Tyler Kreipke, Glen Niebur

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Activation Of G Protein-coupled Estrogen Receptor-1 (GPER-1) Promotes Cell Proliferation Via p-CREB/cAMP/PKA Pathway in Murine Bone Marrow Mesenchymal Stem Cells

Shu-Chun Chuang, I Chun Tai, Mei-Ling Ho, Je-Ken Chang

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TGF β 1-induced Chemotaxis in Human Mesenchymal Stem Cells requires the Primary Cilium and is Defective in Osteoporosis

Marie-Noelle Labour, David A. Hoey, Siobhan Coyle, Soren T. Christensen, Brian Lenehan

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The Effect Of Static And Dynamic Pressure On Osteoprogenitor And Osteoblast Gene Expression And Cytoskeleton In Vitro

Elena Stavenschi, Marie-Noelle Labour, David Hoey

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The Role of Adenylyl Cyclase 6 in Mesenchymal Stem Cell Mechanotransduction

Gillian P. Johnson, Michele A. Corrigan, David A. Hoey

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Quantification of Mechanical Effects on Periosteal Stem Cell Niche Quiescence

Nicole Y.C. Yu, Connor A. O'Brien, Iveta Slapetova, Renee Whan, Melissa L. Knothe Tate

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Synthetic mRNA to Dedifferentiate Equine Adult Multipotent Stromal Cells

Javier Jarazo, Kenneth Bondioli, Glen Gentry, Mandi J. Lopez

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Perfusion Flow Enhances Matrix Deposition by Stem-Cell Derived Hypertrophic Chondrocytes

Jonathan C. Bernhard, Susanna Betti, Gordana Vunjak-Novakovic

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A Magnesium Transporter Regulates the Interaction of Magnesium And Mesenchymal Stromal Cells During Osteogenic Differentiation

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Thomas Patterson, Cynthia Boehm, Chizu Nakamoto, Richard Rozic, Nicolas Piuze, Esteban Walker, George Muschler

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Tetsuro Ohba, Heather Cole, Jonathan Schoenecker, Hirotaka Haro

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Ryan Porter, Rodolfo De la Vega, Lennart A. Brown, Soumya Ullas, Elisabeth Ferreira

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Wnt16 Enhances the Osteogenesis of Periosteum Cells in the Regeneration of Bone Defect

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Kartogenin Regenerates Wounded Tendon-Bone Junction

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Theodore Koreckij, Meagan Salisbury, Abigail Davidson, Michael Newton, Tristan Maerz, Jeffrey Fischgrund, Daniel Park, Kevin Baker

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Daniel W. Griffin, Youngmi Ji, Ronald P. Goodlett, Patrick E. Jones, Leon J. Nesti

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Shunsuke Takahara, Sang Yang Lee, Takahiro Niikura, Takashi Iwakura, Takahiro Waki, Michio Arakura, Yoshitada Sakai, Ryosuke Kuroda, Masahiro Kurosaka

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Systemically Administered Zoledronate Prevents Collapse In Mechanically Loaded Osteochondral Grafts

Jan Juréus, Magnus Tagil

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Multiple Notch Ligands Promote Osteoblast Differentiation

Katelyn E. Gagne, Larissa Soares de Oliveira, Kurt Hankenson

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Cadherin 11 is Expressed in Chondrocytes and Osteoblasts During Fracture Healing

Debbie Y. Dang, Sanjay Reddy, Sandeep K. Agarwal, Ralph Marcucio, Alfred C. Kuo

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Assessment of Changes in Collagen Associated With Advanced Glycation End-products in Human Bone Using Vibrational Spectroscopy

Felix N. Schmidt, Elizabeth A. Zimmermann, Klaus Püschel, Michael Amling, Deepak Vashishth, Simon Tang, Björn Busse

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Alejandro Marquez-Lara, Ian Hutchinson, Yasin Obeidat, Hamdi E. Tamimi, Anna N. Miller, Thomas Smith

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Brittle or Better? Failure Characteristics of Carbon Fiber Composite Plates versus Stainless Steel Plates for Comminuted Distal Fibula Fractures

William K. Wilson, Vinod K. Panchbhavi, Nikoletta L. Carayannopoulos, Randal P. Morris, Adam J. Ward

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Do-Gyoon Kim, Yong-Hoon Jeong, Cheol-Min Han, Amanda M. Agnew

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Amir H. Qureshi, Ali Alhandi, David Kaimrajh, Loren Latta

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Jessica E. Goetz, Zachry G. Ries, S. Blake Dowdle, Benjamin J. Miller

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Schatzker Classification Of Tibial Plateau Injury Severity Corresponds To Objective Fracture Energy Assessment

Kevin Dibbern, Thomas F. Higgins, Laurence B. Kempton, Todd McKinley, John Lawrence Marsh, Donald Anderson

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Novel Biomechanical Test Method for Cancellous Bone Screws and Screw Augmentation with Cements

Kevin L. Lancaster, Lonnie Douglas, Michael J. Voor

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Sasidhar Uppuganti, Mathilde Granke, Mary Kate Manhard, Mark Does, Daniel S. Perrien, Donald H. Lee, Jeffry S. Nyman

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John Morellato, Hakim Louati, William Desloges, Steven Papp, JW. Pollock

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Corey Burke, Scott Epperly, Wojtek Dajnowicz, Hrayr Basmajian, Serkan Inceoglu, Gary Botimer

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Jamie J. Alexander, Randal P. Morris, David N. Kaimrajh, Edward L. Milne, Loren L. Latta, Adam Flink, Ronald W. Lindsey

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Emily Allen Lalone, Hannah Shannon, Simon R. Deluce, Joshua William Giles, James A. Johnson, James A. Johnson, Graham King

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Christina MR Garman, Adam Graf, Joseph Krzak, Angela Caudill, Peter Smith, Gerald Harris

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Tanner D. Langston, Chad S. Mears, Colton M. Phippen, S. Taylor Brady, John G. Skedros

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Ad Injury in Mice Leads to Increase in Load to Failure in the Femoral Diaphysis After 6 Weeks

Lynn Chi, Nicholas Peairs, Zara Butte, Jaewon Yoon, Daniel Mai, Alexis B.C. Dang

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Nicole C. Corbiere, Stacey L. Zeigler, Kathleen A. Issen, Laurel Kuxhaus, Arthur J. Michalek

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Mirjam V. Neumann, Pelin Tufekci, Jan Henkel, Siamak Saifzadeh, Michael Schuetz, Devakar Epari

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Kevin Stockwell, Colin Burnell, Trevor Gascoyne, Jason Morrison

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Apolipoprotein E in Hematopoietic Cells Regulates Fracture Repair

Manoj Sekar, Linda Vi, Gurpreet Bhat, Puviindran Nadesan, Vijitha Puviindran, Benjamin Alman

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Optimizing Soft Tissue Management and Spacer Design In Segmental Bone Defects

Viviane Luangphakdy, Elizabeth Pluhar, Terri A. Zachos, Cynthia Boehm, Xiaobo Liu, Cathy Carlson, Joan E. Bechtold, Jean-Claude D'Alleyrand, George Muschler

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BMP-2-Coated Mineral Coated Microparticles Improve Bone Repair In Atrophic Non-Unions

Marcel Orth, Natalie Kruse, Benedikt Braun, Tina Histing, Joerg H. Holstein, Andrew Khalil, Xiaohua Yu, William Murphy, Tim Pohlemann, Matthias W. Laschke, Michael D. Menger

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Effects Of Local Vanadium Delivery On Diabetic Fracture Healing

Joseph A. Ippolito, Jessica Cottrell, Ethan Krell, Dan Nguyen, Elisha Lim, Richard Vincent, Phillip Lin, TJ Lee, Kristen Pacific, Suleiman Sudah, Joseph Benevenia, Sheldon S. Lin

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Interplay Between the Adaptive Immune and Bone System In Fracture Healing: How Valid are Our Animal Systems?

Claudia Schlundt, Hans-Dieter Volk, Georg N. Duda, Katharina Schmidt-Bleek

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Thrombospondin-1 And CD47 Function In Fracture Healing

Patrick Allison, Jason Ashley, Jaimo Ahn, Kurt Hankenson

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The Role of Osteoactivin in Bone Regeneration: A Sheep Model for Cancellous Bone Healing

Scott McDermott, Michael Erossy, Lythe Albakri, Shawn Mercer, Gregory Sondag, Fouad Moussa, Thomas Mbimba, Kimberly Novak, Lucas Upperman, Afif Sanyurah, Stanley Dannemiller, Assad Al-adlaan, Nazar Hussein, Elliot Reed, Fayez Safadi

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Effect of External Beam Irradiation on the Pathway of Bone Fracture Healing

Yongren Wu, Evan L. Hanna, William R. Barfield, Zilan Lin, Daniel G. McDonald, Kenneth N. Vanek, Hai Yao, Vincent D. Pellegrini, Jr

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The Use of Callos®, a Calcium Phosphate Cement, in Open Reduction and Internal Fixation (ORIF) for Tibial Plateau Fractures: A Comparison With Non Supplemented ORIF

Miguel E. Perez-Viloria, Paolo De Angelis, Kempland C. Walley, Edward K. Rodriguez, Paul Appleton

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Optimizing Connective Tissue Progenitor Harvest Using a Novel Bone Marrow Excavation Device

Nicholas Gajewski, Viviane Luangphakdy, Cynthia Boehm, Terri A. Zachos, George Muschler

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Novel Pre-mixed PMMA-CaP Composite Bone Cements for Vertebroplasty

Shant Aghyarian, Vidyalakshmi Jayaraman, Victor Kosmopoulos, Isador H. Lieberman, Danieli Rodrigues

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Low-intensity Pulsed Ultrasound Promotes Endochondral Ossification Through Downregulation Of Sclerostin

Ken Kumagai, Yasuteru Yamaguchi, Hironori Tanabe, Sosuke Imai, Tomoyuki Saito

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A Model Of Congenital Tibia Dysplasia Associated With Neurofibromatosis Type 1

Aaron Schindeler, Nikita Deo, Tegan Cheng, David Little

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A Novel Bioactive and Degradable Magnesium Screw With Polymer Coating Developed for Osteoporotic Fracture Fixation

Li Tian, Yifeng Sheng, Dick, Ho-Kiu Chow, Le Huang, Chi Wu, To Ngai, Ning Tang, Kwok Sui Leung, Ling Qin

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Bone Targeted Delivery of Mscs for Fracture Healing and Sex Difference

Wei Yao, Evan Ya Lay, Hongliang Zhang, Nancy E. Lane

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Targeting the Adaptive Immune System to Enhance Bone Healing—Possible Strategies

Claudia Schlundt, Georg N. Duda, Sebastian Wendler, Hans-Dieter Volk, Katharina Schmidt-Bleek

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Evaluation of Bone Regeneration Methods Using the Canine Femoral Multi-Defect Model

Terri A. Zachos, Viviane Luangphakdy, Cynthia Boehm, George F. Muschler

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Hypothermia Reduces VEGF-165 Gene Expression, But Does Not Affect Osteogenic Differentiation of Human Adipose Mesenchymal Stem Cells Under Hypoxia

Nick C. Leegwater, Astrid D. Bakker, Jolanda Hogervorst, Peter A. Nolte, Jenneke Klein-Nulend

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Impact Test Method Development for Distraction Osteogenesis Ring System based on Gait

Dana J. Coombs, Michael J. Wahl, Michael Bushelow

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Effect Of Parathyroid Hormone On Osteogenic Differentiation Ability In Dedifferentiated Fat Cells

Gouki Kinoshita, Taro Matsumoto, Shinsuke Kikuta, Tomohiko Kazama

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Simvastatin Attenuates High Glucose-suppressed Osteogenic Differentiation in Bone Marrow Mesenchymal Stem Cells by PI3k/AKT Signaling Pathway

Yan-Hsiung Wang, Mei-Ling Ho, Yin-Chih Fu, Chih-Kuang Wang, Chia-Hsin Chen

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Transcriptomic Analysis of Whole Bone Marrow Cultures Stimulated with BMP2 (bone morphogenetic protein 2) or TPO (Thrombopoietin): Two Bone Healing Agents

Paul J. Childress, Nabarun Chakraborty, Duncan E. Donahue, Rasha Hammamieh, Todd O. McKinley, Melissa A. Kacena

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Piyush Walia, Anthony Miniaci, Morgan Jones, Stephen Fening

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Christian W. Müller, Ronny Pfeiffer, Manuel Krämer, Sebastian Decker, Karen Meier, Anna-Katharina Marten, Volker Wesling, Claudia Neunaber, Christof Hurschler, Christian Krettek

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Nicholaus J. Meyers, Matthias Sukopp, Rudolf Jäger, Bernd Lapatki, Anita Ignatius, Lutz Claes

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Three Dimensional Analysis Of Midshaft Clavicle Fracture

Satoshi Oki, Noboru Matsumura, Yoshimori Kiriyama, Takeo Nagura

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Martin Preutenborbeck, Eleanor Freeman, Alison Jones, Ondrej Holub, Richard Hall, Sophie Williams

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Imke A. K. Fiedler, Baptiste Depalle, Andre Duarte, Xizhe Zhao, Luis Cardoso, Shi Jin, Jean-Philippe Berteau

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Hugo Giambini, Dan Dragomir Daescu, Ahmad Nassr, Michael Yaszemski, Chunfeng Zhao

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EMG Based Loading Model on L4/L5 Joint

Pablo J. Dopico, Michael Braman, Audrey Zucker-Levin, Kunal Singhal, William Mihalko

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Effect of Total Disc Replacement in a Spine With a Degenerated Segment

Raghu N. Natarajan, Sithichai Chaichanavitchakij

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Improvement in Loosening of the Pedicle Screws in the Posterior Instrumentation Due to PEEK/Titanium Screw Concepts—A Finite Element Analysis

Mohammad S. Asadollahi, Amey Kelkar, Manoj Kodigudla, Aakash Agarwal, Vijay Goel

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Sushil Sudershan, Manoj Kodigudla, Dhanvin Desai, Aakash Agarwal, Narjes Momeni, Anand Agarwal, Vijay Goel, Christian Schultz

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Noriyuki Watanabe, Tomoyuki Takigawa, Yoshiaki Oda, Koji Uotani, Kensuke Shinohara, Shinya Arataki, Yoshihisa Sugimoto, Masato Tanaka, Toshifumi Ozaki

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In Vivo Analysis of Asymptomatic and Symptomatic Subaxial Cervical Spine Dimensions

Evan Zheng, Adam Bacon, Yu Yan, Thomas D. Cha, Kirkham B. Wood, Guoan Li

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Computational Method to Evaluate Compressive Bending Performance in Static and Fatigue Loading for Pediatric Non-Fusion Devices

Mary H. Foltz, Vahhab Zarei, David Polly, Robert Morgan, Joan E. Bechtold, Victor Barocas

PS2 Spine—Scoliosis

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Fretting Corrosion Behavior of Nitinol Spinal Rods in Conjunction With Titanium Pedicle Screws

Elena Lukina, Jay Meswania, Mikhail Kollerov, Wai Yoon, Gordon W. Blunn

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William Wood, Wade Schrader, Miranda Falk, Lee Segal, Carla Boan, Greg White

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An In-Vivo Animal Validation of a Self-Adaptive Growing Rods System for Early Onset Scoliosis

Ching-Ting Lin, Po-Liang Lai, Zong-Xing Chen, Frank Li, Andy Chien, Tzu-Chiao Yang, Yu-Tang Shih, Jaw-Lin Wang

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Abnormal Trabecular Rod-plate Configuration and Calcium Content in Osteopenic Adolescent Idiopathic Scoliosis—In Vitro Bone Biopsy Study

Wayne Y. Lee, Zhiwei Wang, Huanxiong Chen, Bin Zhou, Simon K.M. Lee, Bobby K.W. Ng, Tsz Ping Lam, Yong Qiu, X. Edward Guo, Jack Chun-yiu Cheng

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Stress in Rod and Connector of Dual Growing Rods Procedure For Early Onset Scoliosis: Biomechanical Analysis of Titanium Construct Versus Cobalt-chromium Construct

Kensuke Shinohara, Tomoyuki Takigawa, Masato Tanaka, Yoshihisa Sugimoto, Shinya Arataki, Toshifumi Ozaki

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Surgical View Of Lumbar Segmental Arteries During Lateral Transposas Approach In Patients With Lumbar Scoliosis

Yoichiro Takata, Toshinori Sakai, Fumitake Tezuka, Mitsunobu Abe, Kazuta Yamashita, Kosaku Higashino, Koichi Sairyo

PS2 Spine—Peripheral Nerve and Spinal Cord Injury

Poster No. 1704

Correlation of loading parameters between New York University Impactor and Infinite Horizon Impactor in Contusion Spinal Cord Injury Model

Batbayar Khuyagbaatar, Kyungsoo Kim, Yoon Hyuk Kim

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A New Rehabilitation Technique Using the Robot Suit Hal For Patients With Severe Myelopathy Due to Thoracic Ossification of Posterior Longitudinal Ligament (opll)

Shigeki Kubota, Tetsuya Abe, Aiki Marushima, Kengo Fujii, Keita Nakayama, Kousei Miura, Yukiyo Shimizu, Hisashi Sugaya, Tomokazu Yoshioka, Yoshiyuki Sankai, Masashi Yamazaki

Poster No. 1706

Comparison of Radiographic and Mechanical Parameters between Contusion, Dislocation, and Distraction In Spinal Cord Injury Mechanisms

Batbayar Khuyagbaatar, Kyungsoo Kim, Won Man Park, Yoon Hyuk Kim

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Ccl20 Regulate Neuroinflammation Following Spinal Cord Injury Through Th17 Cells Recruitment

Hongbin Lu, Jianzhong Hu, Zhiming Yang

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Matrix Metalloproteinase-12 (mmp-12) Expression in an Neuropathic Pain Rodent Model, from Biomarker Quantification to Probe Prototype Development

Raymond Wing Moon Lam, Shi Hui Priscilla Goh, Sanjay Khanna, Thiam Huat Andy Lee, Kishore Bhakoo, Yulin Lam, Ming Wah, Richard Wong, Nurul Dinah Binte Kadir, Roger Chun Man Ho, Hee Kit Wong

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Risk Factors for Dysphagia in Acute Cervical Spinal Cord Injury

Tetsuo Hayashi, Hiroaki Sakai, Takeshi Maeda, Keiichi Shiba

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Motor Function Recovery After Spinal Cord Injury in the Gabaa Receptor-defective Mice

Taku Fujita, Gentaro Kumagai, Xizhe Liu, Kanichiro Wada, Toshihiro Tanaka, Masato Hirata, Takashi Kanematsu, Yoshikazu Nikaido, Shinya Ueno, Yasuyuki Ishibashi

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Effects of Gamma-secretase Inhibitor on Neural Stem/Progenitor Cells Derived from Tumorigenic Human Induced Pluripotent Stem Cells

Toshiki Okubo, Akio Iwanami, Jun Kohyama, Go Itakura, Morio Matsumoto, Hideyuki Okano, Masaya Nakamura

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The Branches of the Lumbar Artery Running Vertically on the Intervertebral Disc of the Lower Lumbar Spine: Anatomical Study

Hidetoshi Nojiri, Kei Miyagawa, Samii Banno, Masato Koike, Mamiko Sawa, Yoshiyuki Iwase, Kazuo Kaneko

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Extracorporeal Shock Wave Treatment Can Selectively Destroy Acetylcholine Receptors In NMJs

Tomonori Kenmoku, Noriko Nemoto, Nobuyasu Ochiai, Genyo Miyajima, Naoshige Nagura, Mitsufumi Nakawaki, Takashi Saisu, Masashi Takaso

PS2 Spine—Disc Mechanics

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Intervertebral Disc and Facet Joint Contributions to the Six Degree of Freedom Mechanical Properties of Degenerated Human Spine Segments

Isaac Lawless, Dhara Amin, Dana Sommerfeld, Richard Stanley, Boyin Ding, John Costi

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Evaluation of Water Retention in Lumbar Intervertebral Disks Before and After Exercise Stress With T2 Mapping

Kou Chokan, Hideki Murakami, Hirooki Endo, Daisuke Yamabe, Itsuko Tsukimura, Minoru Doita

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Herniations and Lesions in the Intervertebral Disc Can Be Induced Under Complex Loading Conditions in a New Dynamic Disc-loading Simulator and Detected With Ultra Highfield 11.7 Tesla MRI

Hans-Joachim Wilke, Nikolaus Berger-Roscher, Sebastian Maile, Volker Rasche, Annette Kienle

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Biomechanical and Structural Properties of the Human Intervertebral Disc-Vertebra Interface

Britta Berg-Johansen, Aaron J. Fields, Ellen C. Liebenberg, Jeffrey C. Lotz

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In Vivo Deformation of the Lumbar Intervertebral Discs During Standing in Humans

Christian I. Weber, Simon Y. Tang

PS2 Spine—Spine Therapeutics (Clinical)

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Diagnosis and Neurological Status as predictors of Surgical Site Infection in Primary Cervical Spinal Surgery

Paul W. Millhouse, Sleiman Haddad, Mitchell Maltenfort, Camilo Restrepo, Christopher K. Kepler, Alexander R. Vaccaro

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A Clivus Plate Fixation For Reconstruction Of Ventral Defect Of The Craniovertebral Junction: A Novel Fixation Device For Craniovertebral Instability

Wei Ji, Zhiping Huang, Ganggang Kong, Xiuhua Wu, Jianting Chen, Qingan Zhu

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PCA Use for Inpatient Posterior Lumbar Spine Fusion: Opioid-related Complications and Costs

Kevin L. Ong, Clinton Devin, Edmund Lau, Scott Lovald, Matthew McGirt

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Effect of Indirect Decompression in Lumbar Spinal Canal Through Extreme Lateral Interbody Fusion (XLIF) Procedure is Gradually Increasing Over Time: Radiographic Analysis

Seiji Otsuka, Muneyoshi Fukuoka, Jun Mizutani, Nobuyuki Suzuki, Yoshihisa Matsumoto, Akira Kondo, Takanobu Otsuka

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The Difference of Regional Bone Strength in Cervical Vertebra: Find a Trajectory for Freehand Technique of Pedicle Screw Fixation

Dai-Soon Kwak, Ho-Jung Cho, In-Beom Kim, Moon-Kyu Kim

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Antibiotic-Loaded Bone Graft for Infection Prevention and Bone Regeneration in Posterolateral Spinal Fusion

Stefanie M. Shiels, Patrick B. Patterson, Brian R. Barnes, Vivek P. Raut, Joseph C. Wenke

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Assessment of Activity and Cell Persistence of a Novel Cell Therapy for the Treatment of Degenerative Disc Disease in a Gottingen Minipig Model: Xenogenic Versus Allogeneic Considerations

Lara I. Silverman, Galina Dulatova, Terry Tandeski, Melissa De los Reyes, Kevin Foley

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Trisulfated-Glycosylated Peptide Amphiphile Nanofiber for Spinal Fusion

Danielle S. Chun, Sungsoo S. Lee, Timmy Fyrner, Mark T. McClendon, Joseph Weiner, Ryan D. Freshman, Ralph Cook, Michael S. Schallmo, Sameer Singh, Jonghwa Yun, Chawon Yun, Samuel I. Stupp, Erin L. Hsu, Wellington K. Hsu

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New Heparin Based Polyelectrolyte Enhances Therapeutic Efficiency of Low Dose rhBMP-2 in Porcine Posterolateral Spinal Fusion

Ming Wang, Raymond Wing Moon Lam, Sunny Akogwu Abbah, Tao Hu, Simon Cool, Kishore Bhakoo, Jun Li, James CH Goh, Hee-Kit Wong

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Peptide Amphiphile Nanogel as an Improved BMP-2 Carrier for Spinal Arthrodesis

Joseph Weiner, Danielle S. Chun, Sungsoo S. Lee, Mark T. McClendon, Ryan Freshman, Ralph Cook, Michael S. Schallmo, Sameer Singh, Jonghwa Yun, Chawon Yun, Samuel I. Stupp, Erin L. Hsu, Wellington Hsu

PS2 Spine—Disc, Tissue Engineering and Repair

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Effect of Hypoxia On 2D and 3D Culture of Human MSCs Used for Tissue Engineering of Whole Intervertebral Discs

Katherine Hudson, Lawrence Bonassar

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The Impact of Cryopreservation on In Vitro and In Vivo Potency and Safety of A Novel Cell Therapy in a Rabbit Model of Degenerative Disc Disease

Lara I. Silverman, Galina Dulatova, Terry Tandeski, Kevin Foley

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Epigenetic CRISPRi Cell Engineering for Treatment of Intervertebral Disc Degeneration

Niloofer Farhang, Jonathan Brunger, Joshua Stover, Pratiksha Thakore, Brandon Lawrence, Charles Gersbach, Farshid Guilak, Lori Setton, Robby Bowles

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Oxygen Tension, 3D Configuration, and Inflammatory Media Regulate NPC Synthetic and Catabolic Activity

Ann Ouyang, Alec Cerchiarì, Tamara Alliston, Zev Gartner, Jeffrey Lotz

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Predicting Cell Damage within Musculoskeletal Tissue Scaffold under Equiaxial Strain using Multi-length Scale Finite Element Model

Mostafa S. Elsaadany, Karen C. Yan, Eda Yildirim-Ayan

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Selective Inhibitor Of C-fos/activator Protein-1 Inhibits the Gene Expression Of Catabolic Factors and Protects the Progression of Intervertebral Disc Degeneration

Hiroto Makino, Shoji Seki, Hiraku Motomura, Yasuhito Yahara, Makiko Nogami, Kenta Watanabe, Shunichi Shiozawa, Tomoatsu Kimura

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Polyphenol Metabolites Potentially Alleviate Painful Behavior Induced by Annular Injury—An In-vivo Rat Model

Alon Lai, Hironobu Watanabe, Lap Ho, Samuel Cho, Andrew Hecht, Giulio Pasinetti, James Iatridis

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Oxygen Consumption Rates of Human Intervertebral Disc Cells

Sarah Cisewski, Yongren Wu, Barton Sachs, Hai Yao

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Analysis of the Viable Pool of Endogenous Stem Cells Within the Human Annulus

Helen Elizabeth Gruber, Frank Riley, Gretchen Hoelscher, Jane A. Ingram, Edward N. Hanley

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Hepatocyte Growth Factor/c-Met Suppresses Apoptosis and Matrix Degradation Induced By TNF- α In Rabbit Nucleus Pulposus Cells In Vitro

Hideobu Ishibashi, Hitoshi Tonomura, Takumi Ikeda, Masateru Nagae, Ryota Takatori, Munehiro Sakata, Takashi Tanida, Ken-Ichi Mastuda, Toshikazu Kubo

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Can Human Mesenchymal Stem Cells Reduce the Inflammatory Changes Associated with Disc Degeneration?

Gregory Schroeder, Dessislava Markova, John D. Koerner, Paul W. Millhouse, Jeffrey A. Rihn, Alexander Vaccaro, Alan Hilibrand, D. G. Anderson, Christopher K. Kepler

PS2 Spine—Disc Biology

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The Role Of Adamts5 In Mediating Tobacco Smoking-induced Disc Aggrecanolysis

Kevin Ngo, Prashanti Patil, James Kang, Gwendolyn Sowa, Nam Vo

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L51P Rescues Osteogenic Differentiation of human Mesenchymal Stem Cells In Presence of Intervertebral Disc Cells

Adel Tekari, Samantha CW Chan, Daniela A. Frauchiger, Lorin M. Benneker, Paul F. Heini, Benjamin Gantenbein

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Effects of Osmolarity on Nucleus Pulposus Matrix and Cellular Phenotype in a Mouse Whole IVD Organ Culture Model: Contributions of TRPV4 and Aquaporins

Noelle Aly, Paolo Palacio-Mancheno, James Iatridis, Marina Tadros, Devina Purmessur

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Lactate Uptake Inhibition Alter Intervertebral Disc Cell Bioenergetics

Robert A. Hartman, Prashanti R. Patil, Robert Tisherman, Bennett Van Houten, James D. Kang, Nam Vo, Gwendolyn Sowa

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The Alterations of Adiponectin Receptor Expression With Disc Degeneration in Rat Intervertebral Disc Cells

Yoshiki Terashima, Kenichiro Kakutani, Toru Takada, Takashi Yurube, Hiroaki Hirata, Koichiro Maeno, Shingo Miyazaki, Masaaki Ito, Yuji Kakiuchi, Masahiro Kurosaka, Kotaro Nishida

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Highly Reproducible In Vivo Mouse Intervertebral Disc Degeneration Model Based On Newly Developed Histological Classification

Takashi Ohnishi, Hideki Sudo, Koji Iwasaki, Takeru Tsujimoto, Norimasa Iwasaki

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A Developmental Genomic Analysis of Pax1 and Pax9 In Embryonic Intervertebral Disc Development

V Sivakamasundari, Wenjie Sun, Petra Kraus, Shyam Prabhakar, Thomas Lufkin

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Psychological Stress Enhances Gait Disturbance and Allodynia Induced by Lumbar Facetectomy in the Rat

Daisuke Fukui, Koichi Masuda, Mamoru Kawakami

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An Association Of Human Intervertebral Disc Degeneration With Enhanced Myofibroblast Activity

Yan Peng, Fengjuan Lv, Victor YL. Leung, Kenneth MC. Cheung

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Injury-related Changes to the Ivd Phenotype Are Associated With Aquaporin Expression, Independent Of Trpv4, in the Inner Annulus Fibrosus

Marina Tadros, Paolo Palacio-Mancheno, Faraz Ahmed, Noelle Aly, Devina Purmessur, James Iatridis

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Matrix Metalloproteinase 12 MMP12 Expression in Degenerated Intervertebral Disc is Accompanied with Myofibroblast Marker Expression

Fengjuan Lv, Yan Peng, Kenneth Cheung, Victor Leung

Poster No. 1751

Intervertebral Disc Nucleus Pulposus is a Major Autophagy-Involved Musculoskeletal Organ and its Degeneration is Linked With Decreased Autophagy

Takashi Yurube, Hiroaki Hirata, Masaaki Ito, Yuji Kakiuchi, Kenichiro Kakutani, Koichiro Maeno, Toru Takada, Shingo Miyazaki, Yoshiaki Terashima, Masahiro Kurosaka, Kotaro Nishida

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Contribution Of Il-6-stat3 Pathway To Intervertebral Disc Degeneration

Satoshi Suzuki, Nobuyuki Fujita, Kota Watanabe, Takashi Tsuji, Ken Ishii, Keisuke Horiuchi, Takeshi Miyamoto, Masaya Nakamura, Morio Matsumoto

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Localization of Type IIA Collagen in Annulus Fibrosus of Mature Bovine Intervertebral Disc

Jiann-Jiu Wu, Audrey McAlinden, David R. Eyre, Russell J. Fernandes

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Bioenergetics of Intervertebral Disc Aging

Robert A. Hartman, Robert Tisherman, Zhongying Zhang, Qing Dong, Kevin Ngo, Prashanti Patil, Yingchao Han, Adam Olsen, Gwendolyn Sowa, Bennett Van Houten, Fabrisia Ambrosio, James Kang, James Kang, Nam Vo

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Decreased Elastic Fibers and Increased Proteoglycans in the Ligamentum Flavum of Patients with Lumbar Spinal Canal Stenosis

Yutaka Yabe, Yoshihiro Hagiwara, Masahiro Tsuchiya, Masahito Honda, Kouki Hatori, Kazuaki Sonofuchi, Kenji Kanazawa, Masashi Koide, Takuya Sekiguchi, Nobuyuki Itaya, Eiji Itoi

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Anatomical Feature and Glycophenotype of Coccygeal Intervertebral Disc in Healthy and In Vivo Injury Pain Model

Isma Liza Mohd Isa, Michelle Kilcoyne, Sunny A. Abbah, Oliver Carroll, Akshay Srivastava, David Tiernan, Peter Owens, David P. Finn, Peter Dockery, Abhay Pandit

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The Effects Of Sintered Dicalcium Pyrophosphate (sdcp) On Osteoporosis and Intervertebral Disc Degeneration

Yi-Jie Kuo, Wei-Chuan Chen, Chih-Hwa Chen, Yang-Hwei Tsuang

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Effects of Dynamic Cyclic Loading on Intervertebral Disc Using a Whole Organ in vitro Culture Model

James T. Stannard, Aaron M. Stoker, Ferris M. Pfeiffer, Theodore J. Choma, James L. Cook

PS2 Spine—Mechanics

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Interbody Cage Footprint Sizes That Extend To Endplate Peripheral Region Provide Better Resistance To Subsidence

Sushli Sudershan, Jacob Forstat, Palguna Thalla, Anand Agarwal, Vijay Goel, Christian Schultz

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Kinematics And Load-sharing Of An Anterior Thoracolumbar Spinal Reconstruction Construct With PEEK Rods: An In Vitro Biomechanical Study

Ruozhou Zhou, Zhiping Huang, Xiang Liu, Jie Tong, Wei Ji, Sheting Liu, Qingan Zhu

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In Vivo Dynamic Changes in the Foraminal Dimensions During Neck Extension and Rotation

Yener N. Yeni, Timothy Baumer, Daniel Oravec, Azam Basheer, Michael Bey, Victor Chang, Stephen W. Bartol

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Pre-operative Templating for TDR Predicts Post-operative ROM and Could Improve Clinical Outcomes

Justin F. Hollenbeck, Christopher Cain, Jill Fattor, Vikas Patel, Evalina Burger, Paul Rullkoetter

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Biomechanical Comparison of Lumbar Segmental Stability With Lateral Stand-alone Cage Fusion System

Danaa Ganbat, Kyungsoo Kim, Won Man Park, Yoon Hyuk Kim

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Biomechanical Loads on the Spine as Patients are Prepared for Mechanical Transfers: Have Patient Lifts Completely Solved the Problem?

Steven A. Lavender, Shasank Nagavarapu, William S. Marras

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Dynamic Analysis of 3D Printed Trans-modular PLA Scaffolds for Bone Tissue Engineering Applications in the Spine

Constance Maglaras, Victoria Maglaras, Veronica Pidduck, Antonio Valdevit

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In-vivo Dimensional Changes of Lumbar Intervertebral Foramina in Patients with Degenerative Disc Disease During Flexion-extension Motion

Weiye Zhong, Zhan Liu, Tsung-Yuan Tsai, Jing-Sheng Li, Thomas Cha, Kirkham Wood, Guoan Li

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Hybrid Fusion Technique of Standard Pedicle and Cortical Bone Screws in Lumbar Spine Fusion

Philip J. Brown, Gregory J. Gillispie, Jared D. Mitchell, James L. West, Joel D. Stitzel, Wesley Hsu

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Comparison of Spino-pelvic Alignment during Walking With That in Standing Position in Elderly Patient with Spinal Kyphosis

Kumi Kamata, Hiroshi Ozawa, Yusuke Sekiguchi, Toshimi Aizawa, Shinichi Izumi, Eiji Itoi

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Strains in Trussed Spine Interbody Fusion Implants Are Modulated by Load and Design

Jason P. Caffrey, Eloy Alonso, Esther Cory, Van W. Wong, Koichi Masuda, Albert C. Chen, Timothy M. Ganey, Robert L. Sah

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Does a Compressive Follower Load Alter the Range of Motion of the Sacroiliac Joint?

Leo Brossollet, Robin M. Parrish, William Camisa

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Investigating Osteoporotic Vertebral Compression Fractures Using Acoustic Emission Technique

Thomas Mazahery, Melanie Pham, Ronald Childs, Mark Theiss, Jihui Li

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Increase in Risk of Proximal Junctional Failure and Kyphosis Dependent on Fusion Level in the Lumbar Spinal Fusion Surgery

Won Man Park, Yoon Hyuk Kim, Yongjung J. Kim, Kyungsoo Kim

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Direct Repair of Lumbar Spondylolysis with a Hook Screw

Anand Agarwal, Marcel Ingels

PS2 Spine—Biology

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Pseudoarthrosis After A Surgical Site Infection in the Spine: The Risk Factors

Susan Lammers, Douglas Hollern, Paul W. Millhouse, Barrett I. Woods, Kristen Radcliff, Alan S. Hilibrand, Christopher Kepler, Greg D. Anderson, Alexander R. Vaccaro

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High-resolution Tomographic Microscopy of Intramedullary Arteries in Rat Spinal Cord: Comparison of Absorption and Phase Contrast Imaging Using Synchrotron Radiation

Hongbin Lu, Yong Cao, Jianzhong Hu

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In Vivo Patch-clamp Analysis of Descending Facilitation of Excitatory Transmission in the Spinal Dorsal Horn by the Anterior Cingulate Cortex Activation

Wataru Taniguchi, Manabu Yamanaka, Mayumi Sonekatsu, Naoko Nishio, Shunji Tsutsui, Hideto Nishi, Hiroshi Hashizume, Hiroshi Yamada, Terumasa Nakatsuka, Munehito Yoshida

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3d Digital Anatomical Characteristic of the Spinal Cord Microvasculature in Rat Model By Sr μ Ct

Yong Cao, Hongbin Lu, Jianzhong Hu

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3d Quantification Of Microvascular Regeneration After Spinal Cord Injury in Rat Model By Sr μ Ct

Yong Cao, Hongbin Lu, Jianzhong Hu

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Evaluation of Paraspinal Muscle in Chronic Low Back Pain Patients using MR Spectroscopy

Hiroyuki Takashima, Tsuneo Takebayashi, Izaya Ogon, Mitsunori Yoshimoto, Yoshinori Terashima, Rui Imamura, Toshihiko Yamashita

Poster No. 1781

Three-dimensional Reconstruction and Visualization of Lumbar Facet Joint in Rats Model by Sr μ Ct

Hongbin Lu, Jianzhong Hu, Chunyue Duan, Yi Zhang, Yong Cao

PS2 Knee—Kinematics and Gait

Poster No. 1782

Are Kinematics and Kinetics of the Knee Normalized After Anterior Cruciate Ligament Reconstruction?

Yuhei Ohsumi, Yasumitsu Ohkoshi, Takumi Ino, Satoshi Kotake, Kengo Ukishiro, Kouta Miura, Keiji Ohmori, Toshinori Yoshida, Kensaku Kawakami, Sho'ji Suzumi, Tatsunori Maeda, Ko Suzuki

Poster No. 1783

Are Knee Kinematics Based On Sensor-guided Technology Correlated With Patient Outcomes?

R. Michael Meneghini, Marshall Ishmael, Evan Deckard, Mary Ziemba-Davis

Poster No. 1784

A Low-Cost, Wearable Magnet-Based Detection System to Assess Joint Kinematics in Humans and Large Animals

Feini Qu, Brendan D. Stoeckl, Peter M. Gebhard, Robert L. Mauck

Poster No. 1785

Effectiveness of Valgus Braces for Knee Osteoarthritis Can be Predicted by Unbraced Static and Dynamic Measures

Allison L. Clouthier, Elizabeth A. Hassan, Allison Tucker, Scott CE Brandon, Michael J. Rainbow, Kevin J. Deluzio

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The Pelvic Lateral Tilting at Ground Contact Increases the Knee Abduction Moment During a Single Leg Landing Task

Ryohei Ikuta, Tomoya Ishida, Harukazu Tohyama, Shohei Taniguchi, Ryo Ueno, Yuta Koshino, Mina Samukawa, Hiroshi Saito, Masanori Yamanaka

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Gait Characteristics In Patients With Snapping Of Discoid Lateral Meniscus

Kengo Harato, Aiko Sakurai, Yutaka Kudo, Yuji Kuroyanagi, Takeo Nagura, Ko Masumoto, Toshiro Otani, Yasuo Niki

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The Effects Of Fatigue On The Biomechanics Of Drop Vertical Jump In Male Amateur Recreational Players

Ryutaro Tanaka, Kengo Harato, Keita Sonoda, Yutaro Morishige, Aiko Sakurai, Satoshi Imai, Yasuo Niki, Toshiro Otani, Hideo Mastumoto, Takeo Nagura

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Knee Mega-prosthesis For Limb Salvage After Distal Femur Tumors: How Do Axial Deviation and Muscular Activation Affect Gait Cycle And Function in Other Lower Limb Joints?

Corrado Bertolo, Michele Boffano, Valentina Agostini, Marina Carlone, Marco Knaflitz, Lucia Marcantonio, Giuseppe Massazza, Raimondo Piana

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Gait Analysis - Objective Differentiator of Surgical and Non-surgical Candidates for Arthroplasty

Michael Dunbar, Alex Fuentes, Hilary Macdonald, Sara Whynot, Glen Richardson

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Comparison of In-Vivo 6-DOF Knee Kinematic between Osteoarthritic and Normal Healthy Knees During High Flexion Lunge

Tsung-Yuan Tsai, Dimitris Dimitriou, Jing-Sheng Li, Ali Hosseini, Ming Han Lincoln Liow, Guoan Li, Young-Min Kwon

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Long Term In Vivo Kinematics of the Ovine Stifle Joint Following Anterior Cruciate Ligament Transection

Kristen Barton, Jessica Norman, Bryan Heard, Mehdi Shekarforoush, Mohammad Atarod, John Sevvick, Yamini Achari, Cyril Frank, David Hart, Nigel Shrive

PS2 Knee—Mechanics

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Peak Muscle Forces Around the Knee Joint Do Not Significantly Contribute to the Peak Valgus Knee Moment During a Drop Vertical Jump Task in Female Subjects

Ryo Ueno, Masanori Yamanaka, Tomoya Ishida, Shohei Taniguchi, Ryohei Ikuta, Harukazu Tohyama

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The Effect of Patella Geometry on Patella Kinematics and Measures of Extensor Efficiency in Total Knee Replacement

Fallon G. Fitzwater, Sami Shalhoub, Chadd Clary, Lorin Maletsky

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Evaluation of a Passive Resonator-Based Force Sensor for Orthopaedic Smart Implants: Simulated In Vivo Testing

John F. Drazan, Michael T. Wassick, Matthew K. Dion, Omar T. Abdoun, Luke A. Beardslee, Nathaniel C. Cady, Reena Dahle, Eric H. Ledet

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Mechanical Strength of the Proximal Tibia Based On Bone Density and Resection Level Following Total Knee Arthroplasty

Tatsuya Sueyoshi, Scott R. Small, Jeffrey B. Elliott, Grace E. Gibbs, Ryan B. Seale, Michael E. Berend, Merrill A. Ritter

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Characterization of Tapers in TKA Revisions from a 16-year Retrieval Database

Jacob L. Cartner, Patrick Aldinger, Michael Newman

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Malrotation of the Tibial Component Effects On Soft Tissue Balance

Shigeki Asada, Yafei Ouyang, Hugh Jones, Jonathan E. Gold, Sabir Ismaili, Philip C. Noble

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The Relationship Between the Mechanical Axis and the Femoral Bowing

Kenichiro Takashiba, Gen Uehara, Futoshi Kuga, Koichiro Tanaka, Motoki Tanaka, Kei Osano, Masayoshi Oga, Junji Konishi

PS2 Knee—Computational Modeling

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Influence Of Subject-specific And Activity-specific Knee Kinematics On Muscle Moment Arms

Alessandro Navacchia, Vasiliki Kefala, Kevin B. Shelburne

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Dynamic Simulation of the Effects of Graft Fixation Errors During Medial Patellofemoral Ligament Reconstruction

John J. Elias, Michael J. Kelly, Katherine E. Smith, Ken Gall, Jack Farr

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Three-dimensional Lower Extremity Alignment in Patients With Recurrent Patella Dislocation in Weight Bearing Standing Position

Shigeru Takagi, Takashi Sato, Satoshi Watanabe, Osamu Tanifuji, Tomoharu Mochizuki, Go Omori, Naoto Endo

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Comparison of the Contact Force Distribution in the Knee Joint before and After High Tibial Osteotomy during Gait

Tserenchimed Purevsuren, Kyungsoo Kim, Yoon Hyuk Kim

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Movement Of The Infrapatellar Fat Pad Between 30 And 0 Degrees Of Knee Flexion In Asymptomatic Knee Joints Using Mri-derived 3-dimensional Models: Laboratory Cross-sectional Study

Ryohei Miura, Hiroyuki Oba, Masashi Morimoto, Yusuke Takefuji, Yuriko Okita, Kei Sato, Kento Shirai, Kazuya Ito, Tatsuya Kusano, Toshihiro Sadamatsu, Kazuyoshi Gamada

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The Effect of Surgical Positioning of the Tibial Tuberosity on Patellar Kinematics in Total Knee Replacement: A Finite Element Study

Marcel Ingels, Vijay Goel, Kamal Deep, Amirhesam Amerinatanzi, Edward Nyman, Anil Gupta, Anand Agarwal, Timothy Hewett

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Computer Simulation of In Vivo Graft Bending Angle Changes After Outside-in, Trans-portal and Trans-tibial Anterior Cruciate Ligament Reconstruction

Yasutaka Tashiro, Sebastián Irrarrázaval, Kanji Osaki, Yukihide Iwamoto, Freddie H. Fu

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A Novel Approach for Measuring Tibial Slope

Amirhesam Amerinatanzi, Rodney Summers, Vijay Goel, Timothy Hewett, Edward Nyman, Jr

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Co-activation of Antagonist Muscles Surrounding the Knee Joint

Hossein Mokhtarzadeh, Denny Oetomo, Chen Hua Yeow, Peter V. S. Lee

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The Biomechanical Influence of the Plate Positioning on Opening Wedge High Tibial Osteotomy

Kentarō Shinohara, Naoto Mitsugi, Naoya Taki, Masato Aratake, Hirohiko Ota, Tomoyuki Saito

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Comparing Ligament Strain In Total Knee Arthroplasty Designs Using A Computational Model

Nathaniel Lenz

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Design Of Reverse Materials Resurfacing Implants for Medial Osteoarthritis of the Knee

Peter S. Walker, Hao Yang Chan, Aaron Lerner, Joseph Bosco, Miriam Chaudhary

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Amir Lebaschi, Nathan Coleman, Jianchun Zong, Camila Carballo, Andrew Carbone, Xiang-hua Deng, Scott Rodeo

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Biomechanical Evaluation of the Knee Stability Under ACL Partial Tear

Yusuke Sasaki, Masataka Fujii, Monica Linde-Rosen, Patrick Smolinski, Freddie H. Fu

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Volker Musahl, Amir Ata Rahnamaei-Azar, Joanna Costello, Justin W. Arner, Freddie H. Fu, Yuichi Hoshino, Nicola Lopomo, Kristian Samuelsson, James J. Irrgang

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In Situ Forces of the Anterior Cruciate Ligament's Two Bundles

Yusuke Sasaki, Masataka Fujii, Brandon Marshall, Junjun Zhu, Monica Linde, Patrick Smolinski, Freddie Fu

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Morphology of the Superficial Medial Collateral Ligament and Posterior Oblique Ligament

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The Relationship Between EMG Activity and Psychological Outlook Following ACL Reconstruction

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Kaitlyn E. Chin, Matthew R. Akelman, Naga Padmini Karamchedu, Kimberly A. Waller, Ata M. Kiapour, Jakob T. Sieker, Gregory Jay, Benedikt L. Proffen, Martha M. Murray, Braden C. Fleming

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Increased Lateral Tibial Slope Predicts High-Grade Rotatory Knee Laxity Pre-operatively in ACL-Injured Patients

Ermias Abebe, Amir Ata Rahnamaei Azar, Paul Johnson, Joseph O. Labrum, Freddie H. Fu, James J. Irrgang, Volker Musahl

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In-Vivo 6-DOF Knee Kinematics during High Flexion Lunge: Comparison of Bi-Cruciate Retaining Total Knee Arthroplasty and Normal Healthy Knees

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Kiyokazu Fukui, Ayumi Kaneuji, Tadami Matsumoto

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The Effects of Cam Femoroacetabular Impingement on Subchondral Bone Stresses during Squatting

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Ashley Lynn Kapron, Stephen K. Aoki, Jeffrey A. Weiss, Daniel L. Jones, Travis G. Maak

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So Nakamura, Naomi Kobayashi, So Kubota, Yohei Yukizawa, Hyonmin Choe, Yoko Matsuda, Tomoyuki Saito, Tomoyuki Saito, Yutaka Inaba

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A Pedal with Spindle Translation Alters Hip Kinematics: Normative Data for Femoroacetabular Impingement Comparisons

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Carly E. Jones, Anthony P. Cooper, Jonathan Doucette, Lawrence L. Buchan, David R. Wilson, Kishore Mulpuri, Agnes G. D'Entremont

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Kohei Yabuno, Noriyoshi Sawada, Yuki Etani, Motonori Kanazawa

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Functional Assessment Of Bicruciate And Posterior-Cruciate Retaining TKR Using Downhill Walking

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Preliminary Evaluation of a Customized Surface-guided Knee Implant

Shabnam Pejhan, Ida Khosravipour, Jan-Mels Brandt, Eric Bohm, Yunhua Luo, Urs Wyss

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Evaluation of Native Knee Kinematics and the Effect of Arthroscopy

Cyril Hamad, Amaury Jung, Jean-Yves Jenny, Michael Cross, Laurent Angibaud, Nicolas Hohl, Yifei Dai

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Yifei Dai, Laurent Angibaud, Jean-Yves Jenny, Michael Cross, Amaury Jung, Cyril Hamad

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The Effect of Posterior Tibial Slope on the Kinematics of PCL-retaining Total Knee Arthroplasty

Jean-Yves Jenny, Michael Cross, Cyril Hamad, Fabrice Bertrand, Laurent Angibaud, Yifei Dai

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Self-Adapting Electronic Intraoperative Ligament Balance Predicts Postoperative Knee Kinematics

Clifford Colwell Jr, Adam Bun n, Shantanu Patil, Albert Hsu, Darryl D. D'Lima

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In-Vivo Articular Contact Kinematic Analysis During Strenuous Functional Activities in Patients With Bi-Cruciate Retaining Total Knee Arthroplasty

Tsung-Yuan Tsai, Ali Hosseini, Jing-Sheng Li, Dimitris Dimitriou, Ming Han Lincoln Liow, Guoan Li, Young-Min Kwon

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Design and Evaluation of Guided Motion Total Knees to Replicate Anatomic Kinematics

Peter S. Walker, Ilya Borukhov

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CT Confirmation of Component Rotation in a Cadaver Model of Nanosensor-balanced TKA

Jacob Riis, Peter Haar, Philip Reynolds, Shane Hess, John R. Owen, Jennifer S. Wayne, Gregory Golladay

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In Vivo Three Dimensional Kinematics During Stair Motion in Mediolateral Single-radius Total Knee Arthroplasty

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Laxity Envelope Before and After Tka: Is There a Relationship Between the Contact Forces on the Tibial Plateau and the Laxity of the Knee After Surgery?

Gaia Salvadore, Matthias Verstraete, Patrick A. Meere, Jan Victor, Peter Walker

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Biomechanical Effects of Femoral Component Flexion in TKA; A Musculoskeletal Modeling Analysis

Marco A. Marra, Marta Strzelczak, Sebastiaan Van de Groes, Petra J.C. Heesterbeek, Ate B. Wymenga, Bart Koopman, Dennis Janssen, Nico Verdonchot

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Patellar Strains after Total Knee Arthroplasty are Correlated to Patellar Volume, Density and Patient Body Weight

Adeliya Latypova, Elham Taghizadeh, Fabio Becce, Philippe Buechler, Brigitte M. Jolles, Dominique P. Pioletti, Alexandre Terrier

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Electrical Isolation of SIGMA® Knee Compartments for RF-Induced Heating in an MR Environment

Beth Hess, Paul Tomaszewski, Yen-Shuo Liao

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Is Retention of Native ACL the only Option for Addressing Abnormal Anteroposterior Kinematics of Cruciate Retaining TKA?

Kartik Mangudi Varadarajan, Thomas Zumbunn, Michael Duffy, Harry E. Rubash, Henrik Malchau, Orhun Muratoglu

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A Parametric Rigid Body Knee Simulation for the Evaluation of Total Knee Replacement Constraint

Kyle Beebe, Ryan Willing

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The Effects of Component Alignment and Knee Laxity on Passive Kinematics During a Supine Range of Motion Test After TKA: Insights from Simulation

Joseph Ewing, Katelyn Woodling, Jeffrey Granger, Stephen Piazza, Robert A. Siston

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Using Anatomical Data Mining to Facilitate Femoral Resection Block Design in TKA Instruments

Bo Gao, Jason Lansdown, Morganne Theobald, Doug Begin, Laurent Angibaud

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Optimal Amount of Femoral Distal Resection for Total Knee Arthroplasty

Osamu Tanifuji, Tomoharu Mochizuki, Takashi Sato, Hiroshi Yamagiwa, Satoshi Watanabe, Hiroshi Koga, Naoto Endo

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How Should We Select the Clinical Worst Case for TKA Implant Testing?

Bo Gao, Laurent Angibaud

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Effect of Cement Layer on Tibial Component Alignment and Joint Height During Total Knee Arthroplasty

Yifei Dai, Laurent Angibaud, Cyril Hamad, Amaury Jung, Jean-Yves Jenny, Michael Cross

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Investigation of the PCL Tibia Attachment In CR TKA Using a Three Dimensional Bone Models

Yoshinori Inou

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Finite Element Investigation of Wear Scar Areas in Total Knee Replacements: Generic Walking vs. Patient Derived Inputs

Steven P. Mell, Markus A. Wimmer, Hannah J. Lundberg

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Finite Element Analysis of Cementless Femoral Stem Based on Mid-term and Long-term Radiological Evaluations

Kanehiro Matsuyama, Yasuhiro Ishidou, Yong-Ming Guo, Hironori Kakoi, Naohiro Shinohara, Yuhei Yahiro, Ichiro Kawamura, Takao Setoguchi, Shingo Maeda, Setsuro Komiya

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Micromotion-Induced Fluid Flow at the Bone-Implant Interface Around a Straight Cementless Femoral Stem

Valérie Malfroy Camine, Hannes Rüdiger, Dominique P. Pioletti, Alexandre Terrier

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Anatomically Contoured Dual Mobility Liner Reduces Stress and Contact Pressure On Surrounding Soft-Tissues Compared to Conventional Designs: A Finite Element Analysis

Rajan Patel, Thomas Zumbunn, Harry Rubash, Andrew Freiberg, Henrik Malchau, Orhun Muratoglu, Kartik Mangudi Varadarajan

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Effect of the Hook of Acetabular Reinforcement Ring for Various Types of Bone Grafting Clarified by Three-Dimensional Finite Element Analysis

Koji Totoribe, Etsuo Chosa, Go Yamako, Xin Zhao, Hiroaki Hamada, Koki Ouchi, Gang Deng

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Polyethylene Debris Migration May Not Cause Loss of Cement-Bone Interlock in Well Fixed TKAs

Karen I. Howard, Megan Elizabeth Oest, Kenneth A. Mann

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Performance of Dome-Shaped Patellar Components in Total Knee Arthroplasty

Ivan DeMartino, Chelsea Koch, Peter Sculco, Marcella Elpers, Daniel O'Brien, Timothy Wright

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XLPE Wear Increases in Liners Articulating with Scratched OXINIUM™ Femoral Heads: A Retrieval and Simulator Study

Alberto Carli, Chelsea Koch, Christina Esposito, Timothy Wright, Douglas Padgett

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The Effect of Taper-Trunnion Angular Mismatch and Surface Finish on Trunnion Fretting: An Experimental Model

Timothy L. Norman, Harrison A. Martin, Samuel P. Harris, Philip M. Lawrence, Amber L. Lee, Dathan S. Erdahl, Marylea Barlow, Thomas S. Fehring

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Stability and Self-sustainability of Electrochemically Generated Film on CoCrMo Alloy In the Presence of Molybdates : In-vitro Tribocorrosion Hip Simulator Study

Pamela Saborio, Shelley Kerwell, Dmitry Royhman, Elizabeth Martin, Markus A. Wimmer, Kenneth R. Shull, Mathew Mathew

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Role Of Machining Lines on the Fretting-corrosion Behavior at Hip Taper Modular Junctions: An In-vitro Study

Dmitry Royhman, Bhavani Patel, Maria J. Runa, Markus A. Wimmer, Joshua Jacobs, Nadim Hallab, Mathew Mathew

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Heat Treatment of CoCrMo alloy Can Reduce Corrosion in Hip Implant Modular Junctions

Bojan Mitevski, Alfons Fischer

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The Combined Effect of Head and Cup Centres Mismatch and Different Cup Inclination Angles on the Occurrence and Severity of Edge Loading and Wear in Hip Replacement

Oscar O'Dwyer Lancaster-Jones, Mazen Al-Hajjar, Sophie Williams, Louise M. Jennings, Jonathan Thompson, Graham H. Isaac, John Fisher

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Wear and Deformation of Metal-on-Polyethylene Hip Replacements Under Variations in Surgical Positioning

Murat Ali, Mazen Al-Hajjar, Louise M. Jennings, John Fisher

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Damage and Wear Of Polyethylene Hip Replacements Subjected to Edge Loading During Hip Simulator Testing

Susan Partridge, Joanne Tipper, John Fisher, Graham Isaac, Sophie Williams

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CT as a Useful Tool in Implant Retrieval Analysis

Jesse Lou, Chelsea Koch, Joseph Lipman, Darryl Sneag, Timothy Wright, Douglas Padgett

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Steep-cup Wear Mechanisms In Mom Bearings: An Edge-wear Algorithm Utilized In Simulator Tests With Inverted-cups

Ian C. Clarke, Thomas Halim, Michelle Burgett-Moreno, Thomas K. Donaldson, Christina Savisaar, John Bowsher

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Abrasion Resistance, Wear Performance, and Taper Corrosion of a New Composition of Ceramicised Metal

Amit Parikh, Carolyn Weaver, Jeff Sprague, Vivek Pawar

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A Multi-station Independent Electromechanically Driven Knee Simulator for the Investigation of Wear of Total Knee Replacements, a Comparison to Pneumatically Controlled Simulators

Abdellatif Abdelgaid, John Fisher, Louise Jennings

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Joint Line Elevation is associated with increased Polyethylene Wear in Cruciate Retaining Total Knee Replacements

Robin Pourzal, Johannes Cip, Elmira Rad, Michel P. Laurent, Joshua Jacobs, Markus A. Wimmer

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The Influence of Environmental Conditions on the Wear of an All-Polymer Knee Implant

Raelene M. Cowie, Adam Briscoe, John Fisher, Louise M. Jennings

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Fretting-Corrosion Behavior of CoCrMo-CoCrMo Couple in Modular Hip Junctions: A Parametric and Mechanistic Study

Bhavani Patel, Dmitry Royhman, Joshua Jacobs, Markus A. Wimmer, Nadim Hallab, Mathew Mathew

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The Effect of Taper-Trunnion Angular Mismatch and Surface Finish on Trunnion Fretting: Finite Element Analysis

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Toxicity and Oxidative Stress of Nano- and Micro-CoCrMo Particles in Human Cells are Cell Specific

Bingyun Li, Andrea Armstead

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Effect of Assembly Impaction and Cyclic Loading Forces on the Micromotion of the Modular Neck-Stem Interface

Saty A. Nambu, Morgan Ewing, Michael Roark, David Fitch, Irina Timmerman

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Liquid Nitrogen Disassembly of Polyethylene Components for Weight Measurements during Wear Testing

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Hip Femoral Stem Insertion Simulation With Biomimetic TiO₂ Nanotube Decorated Ti6Al4V Surface

Sweetu B. Patel, Cortino Sukotjo, Christos Takoudis, Mathew Mathew, Farid Amirouche, Craig Friedrich, Tolou Shokuhfar

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Comparison of Simulator Wear Measured by Gravimetric vs. Optical Surface Methods for Two Millions Cycles

L. Russell Alberts, Vanesa Martinez-Nogues, Richard B. Cook, Christian Maul, Martin Stolz, Robert J. Wood

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Embedded 3rd Body Debris in Retrieved Polyethylene Liners

Michelle Burgett-Moreno, Thomas K. Donaldson, Ian C. Clarke, William E. Leon

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Retrieval Analysis of Titanium Niobium Nitride Coated Metal-on-Metal Hips

Danielle De Villiers, Harry Hothi, Harman Khatkar, Jay Meswania, Gordon Blunn, John Skinner, Alister Hart

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Evaluation of Friction and Wear Behavior of PVA Hydrogels as Artificial Articular Cartilage Material

Seido Yarimitsu, Ayumi Yoshida, Saori Sasaki, Teruo Murakami, Atsushi Suzuki

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Persistent Postoperative Pain More Common for Total Knee Arthroplasty Patients With an Intact Anterior Cruciate Ligament at the Time of Surgery

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Sex-Specific Difference in Dynamic Balance Following Total Hip Replacement

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Peripheral Artery Disease in Orthopaedic Patients With Asymptomatic Popliteal Artery Calcification On Plain X-ray

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The Risk Of Opioid-related Adverse Events After Primary and Revision Total Knee Arthroplasty

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Complications Following Revision THA in the Medicare Population

Kevin L. Ong, Doruk Baykal, Edmund Lau, Arthur Malkani

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Clinical Outcomes Of Biocompatible Phospholipid Polymer-grafted Highly Cross-linked Polyethylene Liners

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What Is The Natural History of 'Asymptomatic' Pseudotumors in MoM Tha? Minimum 4-year Mri Longitudinal Study

Dimitris Dimitriou, Tsung-Yuan Tsai, Guoan Li, Andrew A. Freiberg, Harry E. Rubash, Young-Min Kwon

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Patient-Reported Allergies: Do the Numbers Affect Outcomes Following Primary Total Hip and Knee Arthroplasty?

Jesse E. Otero, Christopher Graves, Tyler Olson, Chris Dickinson, Rhonda Chalus, David Vittetoe, Devon Goetz, John Callaghan

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Pre-Opioid Use: Is There an Association with Outcomes Following THA?

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Samuel Carlson, Devon Goetz, Steve Liu, John Callaghan

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Open Distal Radius Fracture Cost and Complications: A Large National Study

William C. Pannell, Pavel Moldavskiy, Lakshmanan Sivasundaram, Nathanael D. Heckmann, Ram K. Alluri, Joseph M. Hahn, J. Ryan Hill, Braden McKnight, George F. "Rick" Hatch III, Alidad Ghiassi

Poster No. 2060

Force in the Scapholunate Interosseous Ligament During Simulated Push-Ups

Frederick W. Werner, Laura Scordino, Brian J. Harley

Poster No. 2061

Biomechanical Analysis of All-Inside, Arthroscopic Suture Repair versus Extensor Retinaculum Capsulorrhaphy for Triangular Fibrocartilage Complex Tears with Instability

Amar Patel, Ali Alhandi, Christopher Dy, Eric Wherley, Edward Milne, Anna-Lena Makowski, David Kaimrajh, Loren Latta, Elizabeth Ouellette

Poster No. 2062

Analyzing Compression Forces of Internal Fixation Methods for Transverse Proximal Third Scaphoid Fractures

Samik D. Patel, Nate Tiedeken, Lars M. Qvick, Richard E. Debski, John R. Fowler

PS2 Hand, Wrist and Elbow—General

Poster No. 2063

Balloon Carpal Tunnel-Plasty versus Endoscopic Carpal Tunnel Release: A Cadaveric Assessment of Median Nerve and Compartment Pressure Changes

Ali Alhandi, Amar Patel, Edward Milne, Anna-Lena Makowski, Evilio Prendes, Loren Latta, Elizabeth Ouellette

Poster No. 2064

Characterizing Ulnocarpal Instability In The General Population

Eric Wherley, Christopher Dy, Elizabeth Ouellette, Anna-Lena Makowski, Arianna Trionfo, Loren Latta, Edward Milne

Poster No. 2065

Motion of the Elbow During Activities Daily Activities

John P. Haverstock, G. Daniel G. Langohr, George Athwal, Graham J. King, James Johnson

Poster No. 2066

Relationship Between Shoulder Rotation And Elbow Joint Loads At Stride Foot Contact In Youth Pitchers

Yohei Takagi, Takanori Oi, Hiroshi Tanaka, Hiroaki Inui, Katsuya Nobuhara, Shinichi Yoshiya

Poster No. 2067

Apparent Density of Trapezial Subchondral Bone Varies by Facet Region, But Not as a Function of Age, Sex or the Presence of Early CMC Osteoarthritis

Anna Fass, Tarpit Patel, Douglas Moore, Amy Ladd, Arnold-Peter Weiss, Joseph (Trey) Crisco

Poster No. 2068

Would Relaxin Be a Suitable Therapeutic Treatment for Dupuytren's Disease? A Preliminary Report of Relaxin Receptor Expression in Dupuytren's Nodules

Timothy E. Cooney, Charles Eaton, John Lubahn

Poster No. 2069

Thickness and Stiffness Changes of the Transverse Carpal Ligament in Carpal Tunnel Syndrome Patients

Tamara L. Marquardt, Joseph N. Gabra, Peter J. Evans, William H. Seitz, Zong-Ming Li

Poster No. 2070

Down-Regulation of Collagen Synthesis and Up-Regulation of Matrix Metalloproteinase Expression in Subsynovial Fibroblasts from Carpal Tunnel Syndrome using Adenovirus-mediated Relaxin Gene Therapy

Young-Mi Kang, Yun-Rak Choi, Won-Taek Oh, Il-Hyun Koh, Seong-Hwan Moon, Ho-Jung Kang

Poster No. 2071

Mesenchymal Stem Cells in Subsynovial Connective Tissue in Carpal Tunnel

Takako Chikenji, Yuki Saito, Yuka Mizue, Kanna Nagaishi, Mineko Fujimiya, Toshihiko Yamashita, Kousuke Iba

Poster No. 2072

Platelet-derived Growth Factor Receptor alpha Positive Mesenchymal Cell Accumulate in the Subsynovial Connective Tissue of Patients With Idiopathic Carpal Tunnel Syndrome

Yuki Saito, Takako Chikenji, Yuka Mizue, Kanna Nagaishi, Mineko Fujimiya, Toshihiko Yamashita, Kousuke Iba

Poster No. 2073

Cost Minimization Analysis of Endoscopic and Open Approaches in Carpal Tunnel Treatment

Steven Zhang, Molly Vora, Robin Kamal

PS2 Foot and Ankle

Poster No. 2074

Multi-segmental Foot Kinematics During Walking in Subjects With Medial Tibial Stress Syndrome

Takumi Okunuki, Yuta Koshino, Harukazu Tohyama, Masato Igarashi, Yuya Ezawa, Mina Samukawa, Hiroshi Saito, Masanori Yamanaka

Poster No. 2075

Effects Of Medial Calcaneal Oblique And Calcaneal "z" Osteotomies On Subtalar Joint Contact Pressures: A Cadaveric Flatfoot Model

Nathan Patrick, Gregory S. Lewis, Evan Rousch, Allen Kunelsman, Jarrett Cain

Poster No. 2076

3D CT Analysis of Distal Tibiofibular Syndesmosis Symmetry

Kylie M. Edinger, Matthew Kindig, Connor M. Pihl, Bruce J. Sangeorzan, William R. Ledoux

Poster No. 2077

The Role of Tranexamic Acid in Total Ankle Arthroplasty

Keely Boyle, Scott R. Nodzo, Christopher A. Ritter

Poster No. 2078

Wear of a Total Ankle Replacement

Alexandra Smyth, John Fisher, Alison Traynor, Claire Brockett

Poster No. 2079

Revision Total Ankle Arthroplasty Results in Similar Outcomes to Primary Total Ankle Arthroplasty

Robin M. Queen, Abigail C. Schmitt, Samuel B. Adams

Poster No. 2080

The Effects of Age and Gender on Bone Mineral Density Distribution at the First Metatarsophalangeal Joint

Graeme M. Campbell, Michael Morlock

Poster No. 2081

A Retrospective Comparison of Operative vs. Non-Operative Treatment of Diabetic Charcot Neuroarthropathy of the Foot and Ankle

David Sadoskas, Mitchell S. Fourman, Nicholas Vaudreuil, Dane K. Wukich

Poster No. 2082

The Factors for Recurrences of Hallux Valgus Deformity After Implant Surgery for Greater Toe in Rheumatoid Arthritis

Yuichi Mochida, Katsushi Ishii, Hiroyuki Miyamae, Naoya Taki, Naoto Mitsugi, Tomoyuki Saito

PS2 Foot and Ankle—Mechanics

Poster No. 2083

Effect of Cheilectomy with and Without Moberg Osteotomy On First Metatarsophalangeal Joint Loading

Rajshree Mootanah, Jennifer Boyd, Eloise Billot, Sarah Chehah, Emilien Jouandou, Jérôme Boussier, Sophie Bruneau, Franziska Reisse, Paul Kim, Xiang Chen, Joshua Baxter, Matthew Koff, Scott Ellis, Jonathan Deland, Howard Hillstrom

Poster No. 2084

Risk Of Falls In Patients With Hallux Valgus

Katsunori Mori, Tsuyoshi Jotoku, Toshito Yasuda, Hiroaki Shima, Momoko Kizawa, Masashi Neo

Poster No. 2085

The Effect of Ankle Bracing on the Ipsilateral and Contralateral Limb in Individuals With Stage II Posterior Tibial Tendon Dysfunction

Nathaniel R. Ordway, Alanna Weisberg, Gary Brooks, Frederick Lemley, Christopher Neville

Poster No. 2086

Evaluation of Contribution of Ankle Plantarflexion and Dorsiflexion to Lateral Ankle Ligament Sprain

Yoon Hyuk Kim, Myagmarbayar Batbaatar, Tserenchimed Purevsuren, Kyungsoo Kim

Poster No. 2087

Evaluation of Hallux flexion Torque in Patients with Hallux Valgus: Short Term Results after Operation

Hiroki Hashimoto, Eiichi Uchiyama, Hideji Kura

Poster No. 2088

Evaluation of Foot Arch Structure In Gait from Plantar Skin Measurements With the High Speed Camera and Synchronous Fluoroscopic Imaging

Shinichi Kosugi, Hiroshi Takemura, Koji Imai, Takayuki Shiina, Takeshi Yamakoshi, Yasuhiro Tanaka, Atsutoshi Ikeda, Tsukasa Ogasawara

PS2 Infection and Inflammation

Poster No. 2089

Comparison of Ultrasound Frequencies and Durations to Increase Antibiotic Elution from PMMA Cement

Damon Mar, Alex Wendling, David Anderson, Terence McIlff

Poster No. 2090

Local Rifampin Powder Decreases Staphylococcal Infections in a Traumatic Fracture Model

Stefanie M. Shiels, David J. Tennent, Carlos J. Sanchez, Krista L. Niece, Kevin S. Akers, Daniel J. Stinner, Joseph C. Wenke

Poster No. 2091

Does Local Vancomycin Powder Reduce Infection Following Total Joint Arthroplasty?

Adam I. Edelstein, Danielle Chun, Joseph Weiner, Ralph Cook, Erin L. Hsu, S. David Stulberg

Poster No. 2092

Role of Implant Material and Surface Topography on Infection Susceptibility in a Rabbit Fracture Model

Willem-Jan Metsemakers, Tanja Schmid, Stephan Zeiter, Iris Keller, Nicolo Cosmelli, Daniel Arens, Fintan Moriarty, Geoff Richards

Poster No. 2093

Quantification and Analysis of Local Gentamicin Release In Vitro and in an Animal Model

Sophie Nast, Mirja Fassbender, Nicole Bormann, Stefan Beck, Andrea Montali, Martin Lucke, Gerhard Schmidmaier, Britt Wildemann

Poster No. 2094

Refining Intra-articular and Intramedullary Injection Techniques to Establish Joint, Bone and Periprosthetic Joint Infection in Mice

Xu Yang, Vinicius Craveiro, Alberto Carli, Matthew B. Shirley, Olufunmilayo Adebayo, Marjolein C.H. Van der Meulen, F. Patrick Ross, Mathias P.G. Bostrom

Poster No. 2095

Complete Protection from Methicillin-Resistant Staphylococcus aureus (MRSA) Implant-Associated Osteomyelitis in Mice Passively Immunization with Anti-Autolysin Monoclonal Antibodies as Determined by Inhibition of Osteolysis, Biofilm and Staphylococcal Abs

Sheila N. Bello-Irizarry, Kohei Nishitani, John J. Varrone, Karen L. De Mesy Bentley, Masahiro Ishikawa, Christopher W. Farnsworth, James Brodell, Elaine M. Gersz, Sarah Mack, Stephen L. Kates, John L. Daiss, Edward M. Schwarz

Poster No. 2096

Surface Characterization and Biofilm Quantification of CoBlast Surface Modifications

Sarah Helms, Shayesteh Beladi-Behbahani, Nathan Smith, Liam O'Neill, John O'Donoghue, Tzuen-Rong Tzeng, Marian S. Kennedy, John D. Desjardins

Poster No. 2097

Metabolic Activity Decreases with Growth Time in Staphylococcus Epidermidis Biofilms In-Vitro

Luke Hosack, Richard Gerkin, Alexander McLaren, Ryan McLemore

Poster No. 2098

Characterization of the Adherence Patterns and Biofilm Density of Commonly Encountered Bacterial Pathogens to Spinal Instrumentation of Differing Compositions

Dioscaris R. Garcia, Alan H. Daniels, Alexandra Zega, David Deckey, Ayano Kondo, John Jarrell, Craig Ebersson, Andrew Green, Roman A. Hayda, Christopher Born

Poster No. 2099

Fabrication and Preliminary Evaluation of Antigen-Sensitive Hydrogels to Enable Wireless Infection Sensors

Elizabeth A. Capogna

PS2 Trauma

Poster No. 2100

Analysis of Medial Cortical Support Using Postoperative X-ray Assessment of Reduction And Three Dimensional Multiplanar Reconstruction Computed Tomography Images After Trochanteric Femoral Fractures

Tomohiro Yasuda, Shu Obara, Junji Hayashi, Keisuke Hiratsuka

Poster No. 2101

Socioeconomic Status and Trauma Center Care- An Analysis of a Custom NTDB Dataset

Erik McDonald, Saam Morshed

Poster No. 2102

Towards The Development of a Fracture Plate Which Allows for Non-invasive Stiffness Alteration

Manuel Krämer, Ronny Pfeifer, Christian W. Müller, Sebastian Decker, Christof Hurschler

Poster No. 2103

The Influence of Preinjury Activity Of Daily Life to the Outcomes in Patients With Hip Fractures

Masaki Kawamura, Naomi Kobayashi, Yohei Yukizawa, Hyonmin Choe, Taro Tezuka, So Kubota, Yoko Matsuda, Tomoyuki Saito, Yutaka Inaba

Poster No. 2104

Relating Fracture Severity to Post-Traumatic Osteoarthritis Risk after Intra-Articular Calcaneal Fractures

Karan Rao, Kevin Dibbern, Phinit Phisitkul, J Lawrence Marsh, Donald D. Anderson

Poster No. 2105

The Mortality Benefit of Trauma Centers and Trauma Systems: A Systematic Review and Meta-Analysis

Erik McDonald, Katherine Telischak, Saam Morshed

Poster No. 2106

Survey Of The Groin Pain Among Youth Football Players

Kenji Murakami

Poster No. 2107

Increased Body Weight and Sarcopenic Obesity: Causes of Intertrochanteric Fracture in Non-Osteoporotic Female Patients

Hyung-Min Ji, Jun Han, Dong San Jin, Ye-Yeon Won

Poster No. 2108

Limb Salvage in Diabetic Ankle Fractures after Failed Initial Operative Management

Nicholas J. Vaudreuil, Mitchell S. Fourman, Dane K. Wukich

PS2 Cancer, Tumors—Bone Tumors

Poster No. 2109

Expression of Paternally Expressed Gene 10 (PEG10) is Negatively Associated with Malignancy Grading of Human Chondrosarcoma; the Role of PEG10 to Prevent Bone Morphogenetic Protein (BMP)-p38 MAPK Signaling-mediated Induction of Matrix Metalloproteinase

Naohiro Shinohara, Shingo Maeda, Kanehiro Matsuyama, Yuhei Yahiro, Katsuyuki Imamura, Ichiro Kawamura, Takao Setoguchi, Satoshi Nagano, Yasuhiro Ishidou, Setsuro Komiya

Poster No. 2110

DBC1/CCAR2 is Involved in The Stabilization Of Androgen Receptor and the Progression of Osteosarcoma

Jung Ryul Kim, Kyu Yun Jang, See-Hyung Park

Poster No. 2111

Gene Expression Profiling Identifies a Transcriptional Role for CDK11 in the Regulation of CBF β Expression in Osteosarcoma

Yong Feng, Yunfei Liao, Yan Gao, Jacson Shen, Gregory Cote, Edwin Choy, Henry Mankin, Francis Hornicek, Zhenfeng Duan

Poster No. 2112

Microrna-29 Suppresses Cell Proliferation, and is Regulated by Beta-catenin and Glucocorticoids in Desmoid Tumors

Mushriq Al-Jazrawe, Jillian Loree, Jessica Liu, Benjamin Alman

Poster No. 2113

Cholesterol Processing Genes Act Downstream of Hedgehog (Hh) Signaling in Chondrosarcoma: Implications for Therapy

Qingxia Wei, Eyal Ramu, Heather Whetstone, Raymond Poon, Jay Wunder, Benjamin Alman

Poster No. 2114

The Role Of XBP1 As A Tumor Growth Factor In Ewing's Sarcoma Revealed By Proteomic Analyses

Yu Tanabe, Yoshiyuki Suehara, Shinji Kohsaka, Kenta Mukaihara, Keisuke Akaike, Midori Ishii, Daisuke Kubota, Saiko Kazuno, Reiko Mineki, Tsutomu Fujimura, Kazuo Kaneko, Marc Ladanyi, Tsuyoshi Saito

Poster No. 2115

Characterizing Prostate Cancer Bone Metastasis Using Tissue Engineered Matrices

Sum Ying Chiu, Damian C. Genetos

Poster No. 2116

Embolization as a Preoperative Tool To Reduce Blood Loss in Spinal Tumour Surgery

Naresh Kumar, Aye Sandar Zaw, Anil Gopinathan

Poster No. 2117

Novel Monoclonal Antibody Smab-2 Specifically Detects IDH2-R172S Of Chondrosarcoma

Ryusuke Honma, Xing Liu, Hiroharu Oki, Satoshi Ogasawara, Mika Kaneko, Yukinari Kato, Michiaki Takagi

PS2 Cancer, Tumors—Osteosarcoma and Soft Tissue

Poster No. 2118

The Regulation of Malignant Transformation by PPP2R1A in Alveolar Rhabdomyosarcoma Based on a Proteomic Approach Corresponding to the PAX3-FOXO1 Fusion Gene

Keisuke Akaike, Yoshiyuki Suehara, Shinji Kohsaka, Kenta Mukaihara, Midori Ishii, Daisuke Kubota, Yu Tanabe, Saiko Kazuno, Reiko Mineki, Tsutomu Fujimura, Kazuo Kaneko, Marc Ladanyi, Tsuyoshi Saito

Poster No. 2119

Global Micrnas Profiling of Tumor Tissues and Blood Samples from Myxofibrosarcoma Patients

Takuya Morita, Tomohiro Fujiwara, Koji Uotani, Aki Yoshida, Yutaka Nezu, Tadashi Komatsubara, Kazuhisa Sugiu, Takenori Uehara, Toshinori Omori, Ken Takeda, Toshiyuki Kunisada, Akira Kawai, Takahiro Ochiya, Toshihumi Ozaki

Poster No. 2120

Effect of Chronic Hypoxic Environment on Fibrosarcoma Cell Line (HT1080)

Takahiro Iino, Akihiko Matsumine, Takao Matsubara, Kazuma Okuno, Katsura Chiba, Yuki Yada, Takuya Kakimoto, Tomoki Nakamura, Kunihiro Asanuma, Akihiro Sudo

Poster No. 2121

Impact of Thrombomodulin on Metastasis and Prognosis in High Grade Soft Tissue Sarcoma Patients

Kunihiro Asanuma, Akihiko Matsumine, Takao Matsubara, Tomoki Nakamura, Yumiko Asanuma, Takuya Kakimoto, Yuuki Yada, Akihiro Sudo

Poster No. 2122

Immunohistochemical Expression and Clinicopathological Assessment of Cancer Testis Antigens (NY-ESO-1, MAGE-A4) in High Grade Soft Tissue Sarcoma

Takuya Kakimoto, Akihiko Matsumine, Kunihiro Asanuma, Takao Matsubara, Tomoki Nakamura, Yuki Yada, Takahiro Iino, Akihiro Sudo

Poster No. 2123

The Role of the Vacuolar Type H⁺ Atpase in the Liposarcoma

Ryo Miyagi, Toshihiko Nishisho, Shunichi Toki, Koichi Sairyo

Poster No. 2124

Patient-Derived Osteosarcoma Cells Are Resistant to Methotrexate

Walter Meohas, Ana Cristina S. Lopes, Amanda S. Cavalcanti, Ema S. Torrado, Gabriele O. Ribeiro, Maria Eugenia L. Duarte, Suzana A. Kahn

Poster No. 2125

Combination Treatment with Doxorubicin and Tumor-Specific P53-Expressing Oncolytic Adenovirus in Doxorubicin-Resistant Osteosarcoma Cells

Kazuhiisa Sugiu, Hiroshi Tazawa, Joe Hasei, Shuhei Osaki, Yasuaki Yamakawa, Toshinori Omori, Tadashi Komatsubara, Kouji Uotani, Tomohiro Fujiwara, Toshiyuki Kunisada, Yasuo Urata, Toshiyoshi Fujiwara, Toshifumi Ozaki

Poster No. 2126

Clinical Relevance of Circulating Cell-Free microRNAs in Osteosarcoma

Tomohiro Fujiwara, Koji Uotani, Aki Yoshida, Takuya Morita, Tadashi Komatsubara, Kazuhisa Sugiu, Takenori Uehara, Toshinori Omori, Ken Takeda, Toshiyuki Kunisada, Yutaka Nezu, Akira Kawai, Takahiro Ochiya, Toshifumi Ozaki

Poster No. 2127

The Use of Selective Laser Sintered Components in Enhancing Osteointegration of Endoprostheses: A FEA and Histological Study

Aadil Mumith, Melanie J. Coathup, Anand Shah, Paul Fromme, William Aston, Tim Briggs, Mukai Chimutengwende-Gordon, Gordon Blunn

Poster No. 2128

Apoptosis and Anti-tumor Effect Induced by Mtor Inhibitor and Autophagy Inhibitor in Human Osteosarcoma Cells

Ryosuke Horie, Osamu Nakamura, Masaki Mori, Hideki Nishimura, Tetsuji Yamamoto

Poster No. 2129

Sclerostin Expression and Biologic Function in Skeletal Sarcomas

Jia Shen, Swati Shrestha, Carolyn A. Myers, Gregory LaChaud, Greg Asatrian, Arun Singh, Noah Federman, Sarah M. Dry, Kang Ting, Chia Soo, Aaron W. James

Poster No. 2130

Basal and Inducible Osterix Expression Reflects the Osteogenic Capacity of Human Osteosarcoma Cells

Matthew Stewart, Vivian Okamura, Sushmitha Durgam

Poster No. 2131

Insensitivity of a Subpopulation of CD133+ Osteosarcoma Cells to VEGF Receptor Blockage and Hypoxia

Shang-You Yang, Elka S. Garcia, Anyu Wang

Poster No. 2132

Human Pulmonary Artery Endothelial Cells – Derived Cxcl1 Enhances Vcam-1 Expression and Increases Osteosarcoma Metastasis

Ju-Fang Liu, Sheng Mou Hou, Chun Han Hou

Poster No. 2133

Ccl2 Enhances Mmp-12 Expression and Cell Migration via Ccr2 Dependent Signaling Pathway In Human Osteosarcoma Cells

Ju-Fang Liu, Sheng Mou Hou, Chun Han Hou

PS2 Diagnostic Imaging

Poster No. 2134

Cartilage Quantitative MR After ACL Injury: Results from a Multicenter Study

Keiko Amano, Valentina Pedoia, Alan Li, Benedikt Schwaiger, Kimberly Amrami, Matthew F. Koff, Aaron J. Krych, Hollis Potter, Xiaojuan Li, C Benjamin Ma, Thomas M. Link, Scott Rodeo, Sharmila Majumdar

Poster No. 2135

Three-Dimensional Reconstructed MRI Evaluation of Arthroscopic Centralization Technique for Extruded Lateral Meniscus

Yusuke Nakagawa, Hideyuki Koga, Takeshi Muneta, Shinji Kiuchi, Hideo Ono, Tsuyoshi Nagata, Toshifumi Watanabe, Masafumi Horie, Masafumi Horie, Tomomasa Nakamura, Koji Otabe, Mai Katakura, Hisako Katano, Ichiro Sekiya

Poster No. 2136

Detection of Early Changes After Growth Plate Injury Using MRI

Masashi Nakase, Wook-Cheol Kim, Kazuya Ikoma, Motoo Hosokawa, Takashi Yoshida, Yoshinobu Oka, Naotake Yamada, Yoshihiro Kotoura, Atsushi Nishida, Kouichi Yokozeki, Ken-ichi Matsuda, Toshikazu Kubo

Poster No. 2137

In Vivo Visualization of Induced Osteochondrosis and Osteochondritis Dissecans Lesions in Goats Using MRI T2 Mapping

Ferenc Toth, Frederic David, Luning Wang, Jutta M. Ellermann, Elizabeth LaFond, Cathy S. Carlson

Poster No. 2138

Evaluation of Articular Cartilage in Early Stage of OA Using Second Harmonic Generation

Hiroshi Kiyomatsu, Hiromasa Miura

Poster No. 2139

Are 2d Measurements of Muscle Atrophy and Degeneration Valid in Patients with Hip Disease?

Takeshi Ogawa, Masaki Takao, Takashi Sakai, Takashi Nishii, Nobuhiko Sugano

Poster No. 2140

Leg Comorbidity in Patients with Chronic Anterior Compartment Syndrome Affects Intramuscular Pressure

Jorma Styf, Andreas Nilsson

Poster No. 2141

Risk Management for Avoidance of Major Vascular Injury Due to Lateral Transposes Approach

Toshinori Sakai

Poster No. 2142

Assessing Pathologic Vertebral Fracture Severity: Semi-Automated CT Based Quantification

Michael R. Hardisty, Trinette Wright, Mikki Campbell, Curtis Caldwell, Arjun Sahgal, Cari Whyne

Poster No. 2143

Correlation Between Bone Mineral Density of the Acetabulum and Force Profiles During Activities of Daily Living

Reginald Lee, Xiangyi (Cheryl) Liu, Jason Longaray, Sally LiArno

Poster No. 2144

Bone Shape Features Are Correlated with Abnormal Kinematics Following ACL Injury and After ACL Reconstruction

Drew Lansdown, Valentina Padoia, Keiko Amano, Musa Zaid, Richard Souza, C Benjamin Ma, Xiaojuan Li

Poster No. 2145

Computed Tomography Assessment of Distal Femoral Torsion in Normal and Osteoarthritic Knees: Is the Anterior Femoral Surface a Reliable Landmark?

Keiko Goto, Nobuto Kitamura, Susumu Wada, Shuken Kai, Kazumoto Kasai, Kazunori Yasuda

Poster No. 2146

Current Methods for Measuring Proximal Humerus Morphology from Clinical Radiographs are Unreliable: Establishing a Reproducible Method for Measuring the Proximal Humerus for Clinical and Biomechanical Studies

Chad S. Mears, Tanner D. Langston, Colton M. Phippen, S. Taylor Brady, John G. Skedros

Poster No. 2147

Evaluation of the Rotational Kinematics of the Knee Joint Using 4D-CT

Daisuke Hamada, Keizo Wada, Tomohiro Goto, Takahiko Tsutsui, Shoji Fukuta, Koichi Sairyo

Poster No. 2148

Clinical Radiographic Projections of the Upper Humerus Can Result in Substantial Errors When Quantifying the Deltoid Tuberosity Index, Cortical Index, and Other Morphological Characteristics: A Controlled Study in Cadaveric Humeri

Colton M. Phippen, Tanner D. Langston, Chad S. Mears, Alex J. Drew, Kent N. Bachus, Mark T. Nielsen, John G. Skedros

Poster No. 2149

In-Vivo Cervical Spine FSU Dynamic Motion Measured by Dual Ultrasound: The Effect of Muscle Activation

Mingxin Zheng, Aidin Masoudi, Daniel Buckland, Thomas Szabo, Brian Snyder

Poster No. 2150

Low-Dose CT to Detect Dorsal Screw Penetration After Distal Radius Volar Plating

Kevin J. Leffers, Ronald W. Lindsey, John W. Kosty, Glenn M. Garcia, Stephen Dryden

Poster No. 2151

Is Ultrasound as Useful as MARS MRI in the Longitudinal Surveillance of Metal-on-Metal Total Hip Arthroplasty Patients?

Dimitris Dimitriou, Neil T. Dion, Valentin Antoci, Tsung-Yuan Tsai, Guoan Li, Harry E. Rubash, Andrew A. Freiberg, Young-Min Kwon

Poster No. 2152

Comparison of Lumbar Foraminal Dimensions Measured by 3D CT Bony Model and 3D MRI Foraminal Cast Model

Jade He, Jia Liu, Xinwei Zhu, Alejandro A. Espinoza Orias, Howard S. An, Nozomu Inoue

Poster No. 2153

Can Dysplasia Be Measured on Axial CT? A Measurement for Trauma Surgeons

Eric R. Barnard, Andrea M. Anderson, Jason J. Halvorson, Eben A. Carroll, Anna N. Miller

Poster No. 2154

In Silico Validation of an MRI-based Bone Marrow Model of Vertebral Geometry

Alejandro A. Espinoza Orias, Sayuri Kitahata, Jenna Peterson, Nozomu Inoue

LATE BREAKING POSTERS

POSTER SESSION 1

Posters will be displayed Saturday and Sunday.

Poster No. 2163

In Vivo Biocompatibility of Titania Nanotube Surfaces Developed for Enhancing Osseointegration

Erin A Baker, Alexander Vara, Mackenzie Fleischer, Paul Fortin, Tolou Shokuhfar, Sachin Bhosle, Craig Friedrich

Poster No. 2164

Injectable Nucleus Pulposus Replacement Based on Polyvinyl Alcohol and Gelatin Theta-Gels

Sarah Blatt, Cnaan McKenzie, Patrick Charron, Rachael Oldinski

Poster No. 2165

Surface Functionalization of Titanium Alloy with miR-29b Nanocapsules to Enhance Bone Regeneration

Yubin Meng, Xue Li, Zhaoyang Li, Jin Zhao, Yunde Liu, Xubo Yuan, Zhenduo Cui, Xianjin Yang

Poster No. 2166

Injectable Polyphosphate Bone Cements: New Formula and Advantages

Weiping Ren, Wei Song, Joseph Seta, Tong Shi, David Markel

Poster No. 2166A

Mks1 Can Facilitate Limb Bud Chondrogenesis via Hedgehog Signal Pathway

Jingtao Gao, Mark Langhans, Bing Wang, Rocky Tuan

Poster No. 2167

Biomarker Changes In Acl Deficient Knees Compared With Contralaterals

Daniel J Kaplan, Laith Jazrawi, Eric Strauss

Poster No. 2168

Spatial and Temporal Evolution of Impact-Induced Mitochondrial Dysfunction in Cartilage

Lena Bartell, Michelle L Delco, Lawrence Bonassar, Itai Cohen, Lisa Fortier

Poster No. 2169

Chondrocyte-Specific RUNX2 Overexpression Accelerates Cartilage Degeneration Following Traumatic Injury

Sarah E Catheline, Martin E Chang, Matthew J Hilton, Michael J Zuscik, Jennifer H Jonason

Poster No. 2170

Impact-induced Fissuring In Articular Cartilage: Multi-scale Strain As A Damage Predictor

Corinne R Henak, Lena Bartell, Itai Cohen, Lawrence Bonassar

Poster No. 2171

Structural Deformation in a Center-Compressed Articular Cartilage by Polarized Light Microscopy

Daniel J Mittelstaedt, David Kahn, Yang Xia

Poster No. 2171A

Time Dependent Effects of High Compressive Loading on Tissue Engineered Cartilage

Erica Kahn, Bahar Bilgen

Poster No. 2172

Human-Scale Engineered Cartilage with Nutrient Channels Reaches Native Mechanical and Biochemical Properties

Alexander D Cigan, Robert J Nims, Gordana Vunjak-Novakovic, Clark T Hung, Gerard A Ateshian

Poster No. 2173

A Novel Peptide Inhibitor Attenuates Joint Inflammation Mediated by Low Molecular Weight Hyaluronan

Claire Shortt, Karan Patel, Shoshana Mond, Youjin Lee, Han Yuan, Shivani Arora, Xiyun Huang, Mary Cowman, Thorsten Kirsch

Poster No. 2174

Decrease of Subchondral Trabecular Rods Dictates Progression of Early Osteoarthritis

Yan Chen, Yizhong Jenny Hu, Y Eric Yu, Bin Zhou, Ji Wang, Ting Wang, Weiwei Zhao, Frankie KL Leung, Xu Cao, William W Lu, X Edward Guo

Poster No. 2175

Feasibility Of A Unique Internet-based Self-managing Program for Patients with Osteoarthritis

Leif E Dahlberg, Daniel Grahn, Jakob E Dahlberg, George R Dodge, Carina Thorstensson

Poster No. 2176

Mitoprotection as a Strategy to Prevent Chondrocyte Death and Cartilage Degeneration Following Mechanical Injury

Michelle L Delco, Edward D Bonnevie, Hazel H Szeto, Lawrence Bonassar, Lisa A Fortier

Poster No. 2177

The Effects of Continuous Pressure on the Chondrogenic Potential of Human Muscle-derived Stem Cells: Implication for Articular Cartilage Repair

Elizabeth R Morris, Andrea B Liebowitz, Alexandra C Scibetta, Ryan J Warth, Johnny Huard, Ping Guo

Poster No. 2178

Factors Associated With Extrusion of The Meniscus Body On Knee MRI In Middle-aged Women

Martin Englund, Fan Zhang, Edwin Oei, Aleksandra Turkiewicz, Sita Bierma-Zeinstra, Jos Runhaar

Poster No. 2179

Cord Blood-Derived Mononuclear Cells May Improve Early Markers of Healing in Degenerative Tendinopathy

Anne Gingery, Ramona Reisdorf, Andrew R Thoreson, Chunfeng Zhao, Peter C Amadio

Poster No. 2180

Cyclic Uniaxial Strain Increases Modulus but Does Not Influence Low-Load Behavior of Engineered Scaffold-Free Tendon Fibers

Kuwabo Mubyana, David T Corr

Poster No. 2181

Age-related Changes In Matrix Proteoglycans Affect The In Situ Toughness Of Human Bone

Ann Y Huang, Haoren Xu, Sumin Gu, Abu Saleh Ahsan, Jean Jiang, Xiaodu Wang

Poster No. 2182

3d Synchrotron X-ray Micro-tomography Reveals That Cochlea Suppress Osteocyte-mediated Perilacunar Remodeling to Maintain Hearing

Claire Acevedo, Emmanuel J Jáuregui, Omar Akil, Faith Hall-Glenn, Hrishikesh Bale, Robert Ritchie, Lawrence R Lustig, Tamara Alliston

Poster No. 2183

Differentiation of Human Induced Pluripotent Stem Cells (iPSCs) to Nucleus Pulposus-Like Cells in vitro

Ruhang Tang, Liufang Jing, Vincent P Willard, Farshid Guilak, Lori A Setton, Jun Chen

Poster No. 2184

A Clinically Viable Noninvasive Method for Direct Measurement of Mechanical Strains in Vertebral Bone

Daniel Oravec, Roger Zauel, Michael Flynn, Yener N Yeni

Poster No. 2185

Mechanical Characterization of a Novel External Fixator for Dynamizing Ovine Osseous Defects

Nicholas P Quirk, Andrew Thoreson, Rodolfo E De la Vega, Michael J Coenen, Miguel Trujillo, Mohamed Morsy, Anita T Mohan, Yoo J Sur, Slobodan Tepic, Christopher H Evans

Poster No. 2185A

Proteomics and Functional Benchmarking of Platelet Rich Plasma (PRP)

Ling He, Mo Chen, Lusai Xiang, Jiarong Liu, Jinxuan Zheng, Michael Shelanski, Juan Zhong, Junqi Ling, Jeremy Mao

Poster No. 2186

Mechanisms of Bone Brittleness and Treatment Targets Revealed By G610c Mouse Model of Osteogenesis Imperfecta

Edward L Mertz, Elena Makareeva, Lynn S Mirigian, Katrina Y Koon, Joseph E Perosky, Kenneth M Kozloff, Sergey Leikin

Poster No. 2187

The Effect of Phosphate Availability on Chondrocyte Metabolic Function

Kevin C Blank, Amira I Hussein, Margaret Cooke, Louis Gerstenfeld

Poster No. 2188

Regional Variations in Distal Clavicle Bone Mineral Density (BMD) and Cortical Thickness

Rami El-shaar, Sandeep Soin, Gregg Nicandri, Hani Awad, Michael Maloney, Ilya Voloshin

Poster No. 2189

The Influence of Loading Frequency on the Compressive Fatigue Behavior of Bovine Cortical Bone

Lindsay L Loundagin, Tannin Schmidt, William B Edwards

Poster No. 2190

MicroRNA-503 Promotes Bone Formation in Distraction Osteogenesis through Targeting Smurf1

Yuxin Sun, Jinfang Zhang, Tianyi Wu, Yunfeng Chen, M Phil, Xiaohua Pan, Gang Li

Poster No. 2191

Shape Optimization of a Lumbar Intervertebral Cage

Chaochao Zhou, Khalid Sethi, Ryan Willing

Poster No. 2192

Intradiscal Pressure Changes of a Rib-to-Spine Construct in a Cadaver Model

Sarah Galvis, Josh Arnold, Erin M Mannen, Benjamin Wong, Hadley Sis, Eileen Cadel, Dennis Anderson, Paul Arnold, Elizabeth Friis

Poster No. 2192A

Induction of Cd146+ Phenotype by Tgfb1 From Human Annulus Fibrosus Cells For Annulus Repair

Rose Long, Tomoko Nakai, Daisuke Sakai, James Iatridis, Mauro Alini, Sibylle Grad, Zhen Li

Poster No. 2193

The Kinematics and Spondylosis of the Lumbar Spine Vary Depending On The Levels Of Motion Segments In Individuals With Low Back Pain

Bryce A Basques, Grant D Shifflett, Michael P Fice, Alejandro Espinoza-Orias, Nozomu Inoue, Howard An

Poster No. 2194

Investigation of the Prevalence of Lower Extremity Work-Related Musculoskeletal Disorders in Distribution Center Workers

Mohini Dutt, Steven Lavender, Carolyn M Sommerich, Ajit MW Chaudhari

Poster No. 2195

Development of Clinically Relevant Pre-Clinical Experimental Constraint Measurement of Total Knee Replacement Implants

Scott N Anderson, Peter Walker, Ryan Willing

Poster No. 2195A

Effect Of Femoral Tunnel Placement On The Outcome Of Single Bundle Acl Reconstruction—3d Finite Element Study

Kimmo Halonen, Antti Joukainen, Juha Töyräs, Rami Korhonen

Poster No. 2196

Macrophage Migration during the Remodeling of Engineered Ligament Constructs Used for Anterior Cruciate Ligament Reconstruction

Shelby E Florida, Keith W VanDusen, Vasudevan Mahalingam, Christopher J Larkin, Edward Wojtys, Deneen Wellik, Lisa Larkin

Poster No. 2197

Hip Brace as a Possible Conservative Treatment Option for Femoroacetabular Impingement

Savan Patel, John C Myers, Jonathan Rylander

Poster No. 2198

Assessing Taper Corrosion Susceptibility of CoCrMo and a New Composition of Ceramicised Metal Femoral Heads Utilizing Accelerated Corrosion Testing

Patrick Aldinger

Poster No. 2199

A Comparison of In-Vivo Wear: 0mm and 4mm Offset Total Hip Arthroplasty (THA) Acetabular Liners

Ryan M Chapman, Douglas Van Citters, Danielle Chapman, David F Dalury

Poster No. 2200

Fretting and Corrosion at the Backside of Modular Cobalt Chromium Acetabular Inserts: A Retrieval Analysis

T David Tarity, Chelsea Koch, Timothy Wright, Geoffrey Westrich

Poster No. 2201

Differences in Peripheral Blood Lymphocyte Subpopulations between Patients with a Symptomatic and an Asymptomatic Pseudotumor Associated with a Metal-on-Metal Hip Implant

Isabelle Catelas, Eric A Lehoux, Ryan Foster, Stephen Baskey, Paul E Beaulé

Poster No. 2202

A Comparison of Double Screw vs. Quadruple Button Fixation for the Latarjet Procedure

Jacob Reeves, George Athwal, James Johnson

Poster No. 2203

Prolonged Macrophage Infiltration is Associated with Muscle Fibrosis and Fatty Infiltration After Massive Rotator Cuff Tears

Michael Davies, Lawrence Lee, Anne Ning, Xuhui Liu, Hubert Kim, Brian Feeley

Poster No. 2204

The H-Taping Method for Prophylactic or Temporary Fixation of Partial A2 Pulley Tears During Rock Climbing: A Biomechanical Study

Rachel Tufaro, Alexander Telis, Dustin Larson, Deana Mercer, Christina Salas

Poster No. 2205

Role of the Interosseous Membrane in Preventing Distal Radioulnar Gapping during Forearm Rotation

Matthew R LeVasseur, Frederick W Werner, Ashley Anderson, Brian J Harley

Poster No. 2206

Interleukin-13 as a Therapeutic Target in Dupuytren's Disease

Moeed Akbar, Kevin J Little, Susan M Kitson, James H Reilly, Shauna C Kerr, Lindsay AN Crowe, Iain B McInnes, Derek S Gilchrist, Neal L Millar

Poster No. 2207

Does Calcaneus Fracture Gap without Step-off Alter Stress Distribution Across the Subtalar Joint?

Brett Barrick, Frederick W Werner, Donald A Joyce, Maria Iannolo

Poster No. 2208

Increased Morbidity and Mortality in Female TNF-Tg Mice With Inflammatory-Erosive Arthritis

Richard Bell, Ronald Wood, Joe Chakkalakal, Christopher Ritchlin, Edward M Schwarz, Homaira Rahimi

Poster No. 2209

Gentamicin Containing Bone Substitute to Prevent Infections During Bone Reconstruction Surgery

Mindaugas Stravinskas, Peter Horstmann, Werner Hettwer, Malin Nilsson, Šarūnas Tarasevičius, Michael M Petersen, Lars Lidgren

Poster No. 2210

Isolation and Characterization of Primary Tumor Infiltrating Lymphocytes in an Orthotopic Murine Model of Osteosarcoma

Brock Lindsey, Phillip Bostian, Jabeen Noore, Tyler Calkins, Joshua Russell

Poster No. 2211

A Novel Near Infrared Fluorescent Agent For Evaluating Cartilage Surface Damage

Kenichi Maeda, Nobuaki Kawaguchi, Yoshinobu Manome, Akihiro Tsuchiya, Shuichi Mizuno

**LATE BREAKING POSTERS
POSTER SESSION 2**

Posters will be displayed Monday and Tuesday.

Poster No. 2212

Effects of Aging and Thermal Treatment on Nanotextured Titanium Orthopaedic Surfaces

Sachin M Bhosle, Craig R Friedrich

Poster No. 2213

A Comparative Analysis of the Mechanical Stability of Carbon-Fiber versus Stainless Steel Proximal Humerus Locking Compression Plates

Ryan Fader, Todd Baldinich, Vivek Chadayammuri, David Hak

Poster No. 2214

Osseointegration Of As-Built Textured Implants Manufactured By EBM And SLM

David S Ruppert, Ola LA Harrysson, Denis J Marcellin-Little, Laurence E Dahners, Melanie A Card, Paul S Weinhold

Poster No. 2215

New Strategy To Rescue The Inhibition Of Osteogenesis Of Human Bone Marrow-derived Mesenchymal Stem Cells Under Oxidative Stress: Combination Of Vitamin C And Graphene Foams

Zubin Zhou, Feng Wang, Xiaowei Yu

Poster No. 2216

Impact Of Varying Chitosan Structural Properties On The Release Of IL-1ra And IL-1beta In Human Macrophages

David FongcA, Pascal Grégoire-Gélinas, Marc Lavertu, Sachiko Sato, Caroline D Hoemann

Poster No. 2217

Tribological Testing of Articular Cartilage against Polycarbonate Urethanes

Yusuf Kanca, Piers Milner, Daniele Dini, Andrew A Amis

Poster No. 2218

Hyaluronic Acid and Dexamethasone Interact In Vivo to Influence Their Individual Ability to Protect Cartilage in a Rabbit Model of Post-Traumatic Osteoarthritis

Bryan J Heard, Kristen I Barton, Saleem Abubacker, May Chung, Yamini Achari, Tannin A Schmidt, Nigel G Shrive, David A Hart

Poster No. 2219

Progressive Gross-Anatomical Changes in an Early Stage Osteoarthritis Model

David Kahn, Daniel Mittelstaedt, Ji Hyun Lee, Farid Badar, Clifford M Les, Zhiguo Zhuang, John Matyas, Yang Xia

Poster No. 2220

Longitudinal MRI Reveals Osseous Response Progression After Traumatic Injury

Douglas Pedersen, Daniel R Thedens, David Heckelsmiller, Jim Rudert, Douglas Fredericks, Jessica Goetz

Poster No. 2221

In Vivo Measurement of Localized Patella Cartilage Strain in Response to Running

Alexie D Riofrio, Emily N Vinson, Amber T Collins, Lauren N Heckelman, Gangadhar M Utturkar, Charles E Spritzer, Louis E DeFrate

Poster No. 2222

Effects of Human Serum From Platelet-rich Fibrin (sprf) And Platelet-rich Plasma (prp) on the Chondrogenic Differentiation Potential of Osteoarthritic Chondrocytes

Vivek Jeyakumar, Eugenia Niculescu-Morza, Christoph Bauer, Daniela Kern, Zsombor Lacza, Stefan Nehrer

Poster No. 2223

Differential Effects of Chemical Modification on the Chondrogenesis of iMACs And BMSCs Encapsulated in Photo-crosslinked Hydrogels

Henry Huang, Jie Song

Poster No. 2224

Neo-cartilage Engineered From Primary Chondrocytes is Epigenetically Similar to Autologous Cartilage, in Contrast to Using Mesenchymal Stem Cells

Nils Bomer, Wouter den Hollander, Eka Suchiman, Roderick Sliker, Bas Heijmans, Eline Slagboom, Rob Nelissen, Yolande Ramos, Ingrid Meulenbelt

Poster No. 2225

Evaluation of the viability of Chondrocytes Isolated from Cadaveric Donor for Clinical Application in Cartilage Repair

Anell Olivios Meza, Carmina Ortega Sanchez, Cristina Velasquillo Martinez, Clemente Ibarra

Poster No. 2226

Osteochondral Interface Scaffolds with Opposing Peptide Gradients for Directed Spatial Differentiation

Jennifer L Puetzer, Lesley W Chow, Hélène Autefage, Anu K Solanki, Molly M Stevens

Poster No. 2227

Steroid Receptors in the Synovial Membranes of the Human Knee Osteoarthritis: Expression Profiles and Correlations

Hiroshi Watanabe, Kenji Takahashi, Hirotaka Ishii, Norishige Iizawa, Hidemi Kawaji, Tokifumi Majima, Hitoshi Ozawa, Shinro Takai

Poster No. 2228

Synergistic Effects Of Hyaluronic Acid and Corticosteroid Injections to Delay Knee Arthroplasty in Knee OA Patients

Kevin L Ong, Allen Anderson, Edmund Lau, Faizan Niazi, Steven Kurtz, Roy Altman

Poster No. 2229

Efficacy of Particulate Amniotic Membrane and Umbilical Cord Tissues in Attenuating Cartilage Destruction in an Osteoarthritis Model

Andrew Raines, Mei-Shu Shih, Lorraine Chua, Chen-Wei Su, Scheffer Tseng, Julie O'Connell

Poster No. 2230

What Not to do in Orthopaedic Research: A Systematic Review of Retractions for Research Misconduct

James R Yan, Austin MacDonald, Louis-Philippe Baisi, Nathan Evaniew, Michelle Ghert

Poster No. 2231

Impacts of Maturation on the Nanostructure and Nanomechanics of the Meniscus Extracellular Matrix

Qing Li, Feini Qu, Biao Han, Robert Mauck, Lin Han

Poster No. 2232

PDGFR α + PDGFR β + Progenitor Cells Contribute to Muscle Fibroadipogenesis Following Massive Rotator Cuff Tears in a Murine Model

Andrew R Jensen, Ayelet Dar, Claire Eliasberg, Benjamin Kelley, Sai Devana, David R McAllister, Frank A Petrigliano

Poster No. 2233

Silk-Based Osteoconductive Sheath for Enhanced Osteointegration of Tendon Graft Post Anterior Cruciate Ligament Reconstruction

Thomas KH Teh, Pujang Shi, Xiafei Ren, James HP Hui, Jun Li, James CH Goh

Poster No. 2234

Microrna In Equine Tendinopathy – A Translational Target

Neal L Millar, Ashlee Watts, Moeed Akbar, Tom Hughes, Susan M Kitson, Derek Gilchrist

Poster No. 2235

Mechanically-Induced Calcium Oscillations in Osteocytes Mediate Skeletal Adaptation and Cause Release of Exosomes Containing Sclerostin, RANKL and OPG

Genevieve Brown, Andrea E Morrell, Samuel Robinson, Rachel Sattler, X Edward Guo

Poster No. 2236

Tnf- α Induced Nf- κ B Activation Upregulates Microrna-150 And Inhibits Osteogenesis Of Human Bone Marrow-derived Mesenchymal Stem Cells By Targeting β -catenin

Zubin Zhou, Xiaowei Yu

Poster No. 2237

Stochastic Predictors from Simulated DXA Scans of Human Vertebrae with or without Posterior Elements are Positively Correlated with the Failure Load of Vertebral Body

Xuanliang Neil Dong, Ghislain Maquer, Yongtao Lu, Matthias Krause, Gerd Huber

Poster No. 2238

Functional Measures of Muscle Loading and its Relation to Bone Stiffness and Strength Assessed by HR-pQCT in Postmenopausal Women

Aleen Pangka

Poster No. 2239

Osteocyte Modulation of Local Bone Tissue Mechanical Properties during Reproduction and Lactation

Wei-Ju Tseng, Yihan Li, Chantal de Bakker, Prashant Chandrasekaran, Yonghoon Jeong, Do-Gyoon Kim, Lin Han, X Sherry Liu

Poster No. 2240

Phosphate Deficiency in Mice During Fracture Healing Downregulates Oxidative Metabolism and Several Pathways of Intermediate Metabolism

Deven Carroll, Bachelors, Amira I Hussein, Kyle Lybrand, Heather Matheny, Brenna Hogue, Serkalem Demissie, Louis Gerstenfeld

Poster No. 2241

Gene Expression Profiling Analysis between Bone Marrow and Adipose-derived Stromal Cells during In Vitro Osteogenic Differentiation

Gun-Il Im, EunAh Kim, Mi Lan Kang

Poster No. 2242

Modulation of Macrophages Promotes Bone Regeneration in Aged Animals

Frank Yang, Erene Niemij, Diane Hu, Theodore Miclau, III, Mary Nakamura, Ralph Marcucio

Poster No. 2243

A Biomechanical Comparison of Intrapelvic and Extrapelvic Fixation for Anterior Column with Posterior-Hemitransverse Acetabular Fractures

Gregory Gillispie, Philip J Brown, Sharon Babcock, Kyle McNamara, Joel Stitzel, Eben Carroll

Poster No. 2244

Novel Modifications for Enhancement of Femoral Segmental Defect Atrophic Non-union Mouse Model

Ryan Kelly, Mary McCrackin, Lee Leddy, Amanda LaRue

Poster No. 2245

Rationale for the Use of Bisphosphonates after Surgery for Dysplastic Scoliosis in NF1 Patients

Anna Petryk, Joan Bechtold, Cathy Carlson, Mark Dahl, David Polly

Poster No. 2246

Effect of Intervertebral Disk Degeneration Grade and Gender on Hysteresis in the Human Lumbar Spine

Muturi Muriuki, Robert Havey, Leonard Voronov, Gerard Carandang, Laurie Lomasney, Avinash Patwardhan

Poster No. 2247

Conditional Targeting Of Shh In the Mouse Ivd Causes Premature Intervertebral Disc Degeneration

Chitra L Dahia, Eitan Sosner, Raffaella Bonavita, Elfie De Jesus, Robert Pinelli, Sarthak Mohanty, Christopher Wylie

Poster No. 2248

In Vivo Thoracolumbar Motion in Healthy Adults Analyzed by Individual Motion Units

Eileen S Cadel, Sarah N Galvis, William M Eboch, Paul M Arnold, Sara E Wilson, Elizabeth A Friis

Poster No. 2249

Effect of a Follower Load on the Motion and Stiffness of a Human Cadaveric Thoracic Spine with an Intact Rib Cage

Hadley Sis, Erin M Mannen, Benjamin Wong, Eileen Cadel, Dennis Anderson, Elizabeth Friis

Poster No. 2250

Attenuation Of Atm Signaling Mitigates Matrix Imbalance In Stress-induced Human Nucleus Pulposus Cells And Age-associated Spine Degeneration in a Mouse Model of Accelerated Aging

Yingchao Han, Robert A Hartman, Nam Vo

Poster No. 2251

Gait Adaptions to Pain in Pre-operative Patients with Torn Meniscus

Jessica L Asay, Shannon N Edd, Constance R Chu, Nicholas J Giori, Thomas P Andriacchi

Poster No. 2252

Effects of Proximal Tibia Anterior Closing Wedge Osteotomy on ACL Force and Knee Kinematics

Kent Yamaguchi, Daniel Boguszewski, Edward Cheung, Justin Mathew, Keith Markolf, David McAllister, Frank Petrigliano

Poster No. 2253

Arciero vs. Laprade: A Biomechanical Comparison of Two Techniques for Knee Posterolateral Corner Reconstruction

Gabriel Ortiz, Heather Menzer, George K Gill, Paul Johnson, Robert Schenck, Gehron Treme, Fares Qeadan, Christina Salas

Poster No. 2254

Robust Bernard Quadrant Method Using a Polygonal Knee Model

Cong-bo Phan, Kang-Min Sohn, Joon-Ho Wang, Seungbum Koo

Poster No. 2255

Inflammatory Cell Induced Corrosion in the Comparison of 1501 Historical and Contemporary Hip Bearings

Nathaniel Yuan, Sang-Hyun Park, Pierre Courpron, Edward Ebraamzadeh, Patricia Campbell

Poster No. 2256

Surface Characteristics of Retrieved Cobalt Chromium Femoral Heads and the Influence of Adverse Articular Events

Mitchell Fung, Lindsay Holdcroft, John Currier, Brent Lanting, Douglas Van Citters

Poster No. 2257

Which Activities Generate The Greatest Tibial Interface Micromotion In Cementless TKR?

Jonathan Gold, Rikin Patel, Christopher Lenherr, Hugh L Jones, Sabir Ismaili, Jerry Alexander, Philip Noble

Poster No. 2258

Nano-analyses of Wear Particles from Metal-on-Metal and Non-Metal-on-Metal Dual Modular Neck Hip Prostheses

Giorgio Perino

Poster No. 2259

Have Large Femoral Heads Fixed The Impingement Problem In THA?

Bradford S Waddell, Chelsea Koch, Myra Trivellas, Timothy Wright, Douglas Padgett

Poster No. 2260

A Novel Method for Measuring Circumferential 3D Motion of Cementless Tibial Trays During Simulation of Functional Loading

Rikin Patel, Hugh L Jones, Ryan Kim, Jonathan Gold, Sabir Ismaili, Philip Noble

Poster No. 2261

A Novel Technique for Reconstruction of the Superior Glenohumeral Labrum with Biceps Tendon Autograft: A Cadaveric Biomechanical Study

Sandeep Soin, Alissa Zingman, Edward Shields, Hani Awad, Ilya Voloshin

Poster No. 2262

An Explicit Finite Element Model of Total Elbow Replacement Contact Mechanics

Danial Sharifkia, Ryan Willing

Poster No. 2263

Comparing Different Loading Protocols for In Vitro Durability Testing of Total Elbow Replacements

Ryan Willing

Poster No. 2264

Adjacent Joint Kinematics after Ankle Arthrodesis in Cadaveric Gait Simulation

Daniel R Sturnick, Constantine A Demetracopoulos, Scott Ellis, Jonathan Deland, Joshua R Baxter

Poster No. 2265

Total Ankle Arthroplasty Affects Transverse Plane Ankle Motion in Cadaveric Gait Simulation

Daniel R Sturnick, Constantine A Demetracopoulos, Scott J Ellis, Jonathan Deland, Joshua R Baxter

Poster No. 2266

Analysis of the Pathogenicity of *Propionibacterium acnes* in Orthopaedic Shoulder Infections Using Hemolysis as a Specific Marker

Keely Boyle, Scott R Nodzo, Travis E Wright, John K Crane, Thomas R Duquin

Poster No. 2267

Lung Cells Support Osteosarcoma Cell Migration and Survival

Shibing Yu, Jon Mandell, Jessica Tebbets, Mitchell S Fourman MPhil, David C Hirsch, Adel Mahjoub, Kurt R Weiss

Poster No. 2268

Matrigel Supports Formation and Growth of Sarcospheroids from Primary Patient Tumor Cell Lines

Jon Mandell, Shibing Yu, Jessica Tebbets, Adel Mahjoub, Mitchell S Fourman, David C Hirsch, Kurt R Weiss

Poster No. 2269

Quantitative UTE-T2* MRI Correlates to Patient Reported Symptoms 2 Years After ACL Reconstruction

Ashley Williams, Matthew R Titchenal, Constance R Chu



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ACCELLAB

1635 Blvd. Lionel-Bertrand
Boisbrend, Quebec J7H1N8
Canada
Phone (450) 435-9482
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BONE & JOINT RESEARCH (BJR)

22 Buckingham Street
London WC2 N 6ET
United Kingdom
Phone +44 (0) 20 7782 0010
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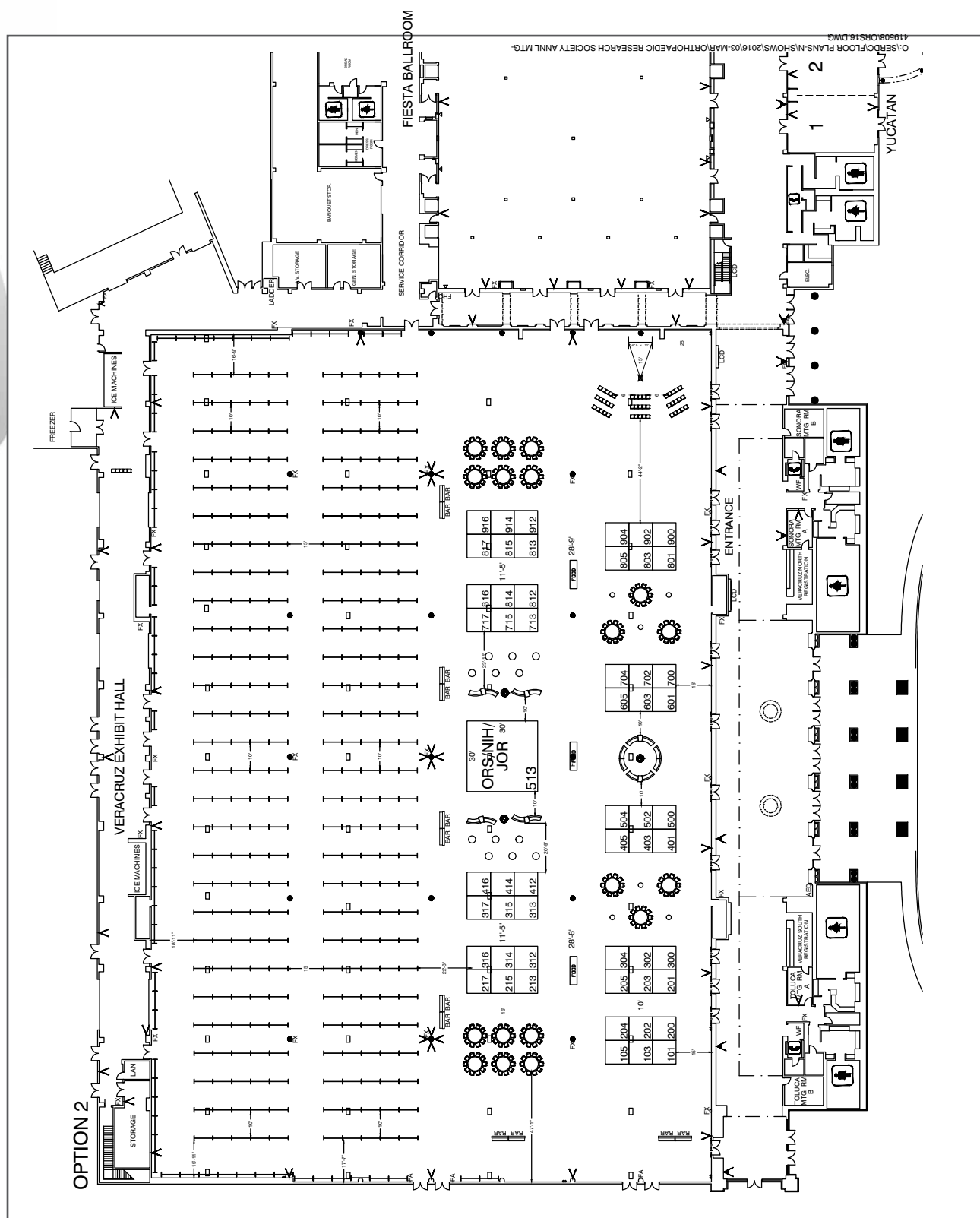
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