



2017 ANNUAL MEETING

POSTER SESSIONS

Mon-Wed, March 20-22, 2017 • San Diego Convention Center • San Diego, California

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2017 POSTER SESSIONS—SAILS PAVILION

MONDAY–WEDNESDAY

ORS WILL HAVE TWO POSTER SESSIONS

Poster Session 1 (PS1):

Posters will be displayed Monday and Tuesday morning

Poster Session 2 (PS2):

Posters will be displayed Tuesday afternoon and Wednesday

MONDAY, MARCH 20 10:00 AM – 5:30 PM

10:15 AM – 11:15 AM Poster viewing

12:15 PM – 2:15 PM Lunch and Poster

Session 1 viewing

Authors at posters to answer questions

EVEN-number poster presenters 1:15 PM – 1:45 PM

ODD-number poster presenters 1:45 PM – 2:15 PM

TUESDAY, MARCH 21

9:00 AM – 11:30 AM; 2:00 PM – 5:00 PM

9:30 AM – 10:30 AM

Poster viewing

11:30 AM – 12:00 PM

Poster Session 1 Dismantle

1:00 PM – 1:30 PM

Poster Session 2 Set-Up

3:45 PM – 4:45 PM

Poster viewing

WEDNESDAY, MARCH 22 10:00 AM – 4:00 PM

10:15 AM – 11:15 AM

Poster viewing

12:15 PM – 2:15 PM

Lunch and Poster Session 2

3:15 PM – 3:45 PM

Poster viewing

Authors at posters to answer questions

EVEN-number poster presenters 1:15 PM – 1:45 PM

ODD-number poster presenters 1:45 PM – 2:15 PM

POSTER CATEGORIES	POSTER SESSION 1 #'S	POSTER SESSION 2 #'S
American Academy of Orthopaedic Surgeons (AAOS) Best Posters	AAOS1–AAOS7	AAOS1–AAOS7
Biomaterial	353–420	1310–1379
Board of Specialty Society (BOS) Best Posters	BOS1–BOS10	BOS1–BOS10
Bone	666–780	1627–1744
Cartilage and Synovium	421–514	1380–1473
Diagnostic Imaging	1272–1299	2231–2246
Foot and Ankle	1175–1200	2136–2160
German Society for Orthopaedics and Trauma (DGOU)	Germany	Germany
Guest Nation - China	CHINA1–CHINA3	CHINA1–CHINA3
Hand and Wrist	1156–1174	2117–2135
Hip	966–998	1933–1961
Hip and Knee Arthroplasty	999–1101	1962–2061
Infection and Inflammation	1201–1226	2161–2187
International Combined Orthopaedic Research Society (ICORS) Best Posters	ICORS1–ICORS12	ICORS1–ICORS12
Knee	898–965	1866–1932
Late Breaking Poster Session	2275–2355	2356–2436
Meniscus	515–533	1474–1490
Muscle	642–665	1602–1626
NIRA Finalists	25–33, 43–51, 70–77, 102–109	25–33, 43–51, 70–77, 102–109
Osteoarthritis and forms of Arthropathy	534–585	1491–1540
Poster Teasers	116–160	287–331
Shoulder and Elbow	1102–1155	2062–2116
Spine	781–897	1745–1865
Tendon/Ligament	586–641	1541–1601
Trauma and Fracture	1227–1271	2188–2230
Tumors	1290–1309	2247–2265
Women's Health Issues Board (WHIAB) Best Poster	WHIAB	WHIAB

POSTERS

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS (AAOS) BEST POSTERS

- AAOS1** *AAOS Best Hip Poster*
The Role of Toll-like Receptor 4 in the Cobalt-mediated Immune Response in Endothelial Cells
Donald Hanson, Dominic Meek, Jon Clarke
- AAOS2** *AAOS Best Knee Poster*
Early Outcomes with a New Primary Total Knee Arthroplasty (TKA) System vs. Contemporary TKA: Interim Results of Two Worldwide, Multi-center Prospective Studies
William Hamilton, Ivan Benkel, Mark Clathworthy, Kimberly Dwyer, Sam Himden, Stephen Kanter
- AAOS3** *AAOS Best Foot and Ankle Poster*
Evaluation of Mobility at the Articulation Between the Medial and Middle Cuneiform Using a 3D Analysis System and Weightbearing CT in Normal Versus Hallux Valgus Patients: Is Arthrodesis of this Articulation Necessary for the Lapidus Procedure?
Todashi Kimura, Makoto Kubota, Tetsuya Taguchi, Noaki Suzuki, Hattari Asaki, Keishi Marumo
- AAOS4** *AAOS Best Hand and Wrist Poster*
A Radiographic Analysis of Closed Reduced Distal Radius Fractures at the Time of Union
Neil Mulchandari, Ari Trouw, Ahmed Eldib, George Banning, Diap Chatterjee, Bharcen Kapadia, Emmanuel Illical, William Urban
- AAOS5** *AAOS Best Shoulder and Elbow Poster*
No Difference in Long-term Development of Rotator Cuff Rupture and Muscle Volumes in Impingement Patients with or without Decompression: A Randomized MRI Study of 140 Patients
Saara Ketola, Janne Lentinen, Ikka Arnalla
- AAOS6** *AAOS Best Spine Poster*
Using Hounsfield Units to Quantify Optimal Fixation Techniques in Spine Surgery: A Biomechanical Study Correlating AP DXA, Lateral DXA, and CT to Pullout Strength
Qosim Zaidi, Olumide Danisa, Serkan Inceoglu, Wayne Cheng
- AAOS7** *AAOS Best Tumor Poster*
Validation of a Rat Model for Analyzing microRNA in Chondrosarcoma
Nicholas Eastley, Timothy Evans, Christopher Dobson, Yun Wang, Albert Levin, Gary Gibson, Michael Mott, Theodore Parsons

BOARD OF SPECIALITY SOCIETY (BOS) BEST POSTER

- BOS1** *American Association for Hand Surgery (AAHS)*
Fixation of Unstable Metacarpal Neck Fractures: Comparison of Crossed K-Wires and Intramedullary Headless Screw Fixation
Eitan Melamed, MD, Omri Ayalon, MD, Matin Lendhey, Msc, Oran Kennedy, PhD, John T. Capo, MD
- BOS2** *American Association of Hip and Knee Surgeons (AAHKS)*
Case Order Has an Effect On Periprosthetic Joint Infection Risk
Michael Kheir, Antonia F. Chen, Josh M. Greenbaum, Camilo Restrepo, Mitchell G. Malrenfort, Jarad Parvizi
- BOS3** *American Orthopaedic Foot and Ankle Society (AOFAS)*
Comparison of Weil Osteotomy and Cheilectomy for Second Metatarsophalangeal Joint Osteoarthritis
Ji-Beom Kim, MD, Young Yi, MD, Jae Young Kim, MD, Woo-Chun Lee
- BOS4** *American Orthopaedic Society for Sports Medicine (AOSSM)*
Perivascular Stem Cells Diminish Muscle Atrophy and Retain Viability in a Rotator Cuff Tear Model
Clarie D. Eliasberg, MD, Ayelet Dar, PhD, Andrew R. Jensen, MD, MBE, Iain R. Murray, MD, PhD, Winter R. Hardy, PhD, Tomasz J. Kowalksi, MD, PhD, Cameron A. Garagozlo, BA, Kyle M. Natsuhara, MD, Adam Z. Khan, MD, Owen J. McBride, BS, Peter I. Cha, BA, Benjamin V. Kelly, BA, Gina Mosich, MD, Denis Evseenko, MD, PhD, Brian T. Feeley, MD, David R. McAllister, MD, Bruno Péault, PhD, Frank A. Petrigliano, MD
- BOS5** *James Robert Gladden Orthopaedic Society (JRGOS)*
Oxidative Metabolism in Bone Marrow Stromal/Stem Cells and the Outcome of Spinal Fusion
Addisu Mesfin, MD, Laura Shum, Brianna Shares, Paul Rubery, MD, Roman Eliseev, MD, PhD
- BOS6** *North American Spine Society (NASS)*
T1 Tilt and Clavicle Angle Are the Best Predictors of Postoperative Shoulder Balance
Vishal Sarwahi, MD, Stephen Wendowski, BS, Rachel Gecelter, BS, Terry Amoral, MD, Beverly Thornhill, MS
- BOS7** *Orthopaedic Trauma Association (OTA)*
Selective Serotonin Reuptake Inhibitors Impair Fracture Healing
Philipp Leucht, MD, Vivian Bradaschia Correa, DDS, Devan Mehta, BS, Anna Josephson, BS, Jason Huo, BS, Matthew Mizrahi, BS, Kenneth Egol, MD
- BOS8** *Pediatric Orthopaedic Society of North America (POSNA)*
The Effects of Tendon Transfer to Cartilage: Insights into Tibialis Anterior Tendons in the Young Child
Sam Abrams, MD, Thomas Crenshaw, MS, PhD, Rachel Lenhart, Ellen Leiferman, DVM, Teresa Kaiser, Emily Pierce, Rachel Rebekah Franklin, DVM, Dayton Opel, MD, Ken Noonan, MD, Matthew A. Halankski, MD

POSTERS

BOS9 *Ruth Jackson Orthopaedic Society (RJOS)*
A Biomechanical Study Comparing Minimally Invasive Anterior Pelvic Ring Fixation Techniques to External Fixation
Lauren M. McCormick, Jeff Gilbertson, Sikander E. Khan, Frank Chen, Lisa K. Schroder, Joan E. Bechtold, Peter A. Cole

BOS10 *Scoliosis Research Society (SRS)*
Medical Complications in 3,519 Surgically Treated Elderly Patients with Adult Spinal Deformity: Comparison of Multicenter Surgeon Maintained vs. Medicare Claims Database
Amit Jain, MD, Hamid Hassanzadeh, MD, Varun Puvanesarajah, Eric O. Klineberg, MD, Michael P. Kelly, MD, MS, D. Kojo Hamilton, MD, Virginie Lafage, PhD, Aaron James Buckland, MBBS, FRACS, Peter G. Passias, MD, Themistocles S. Protopsaltis, MD, Renaud Lafage, MS, Justin S. Smith, MD, PhD, Christopher I. Shaffrey, MD, Khaled M. Kebaish, MD, FRCSC

CHINA GUEST NATION POSTERS

CHINA1 **Implant-Derived Magnesium Induces Local Neuronal Production of CGRP to Improve Bone — Fracture Healing in Rats**
Yifeng Zhang, Jiankun XU, Ye Chun Ruan, Mei Kuen Yu, Micheal O' Laughlin, Helen Wise, Di Chen, Li Tian, Dufang Shi, Jiali Wang, Sihui Chen, Jian Q Feng, Dick Ho Kiu Chow, Xinhui Xie, Lizhen Zheng, Le Huang, Shuo Huang, Kwoksui Leung, Na Lu, Lan Zhao, Huafang Li, Dewei Zhao, Xia Guo, Kaiming Chan, Frank Witte, Hsiao Chang Chan, Yufeng Zheng, Ling Qin

CHINA2 **Eicosapentaenoic Acid Attenuates Dexamethasone-Induced Apoptosis by Inducing Adaptive Autophagy Via GPR120 in Murine Bone Marrow-Derived Mesenchymal Stem Cells**
Bo Gao, Yue-Hu Han, Long Wang, Wei-Guang Lu, Ya-Qian Hu, Xi-Sheng Lin, Qiang Jie, Liu Yang, Zhuo-Jing Luo

CHINA3 **Prevention of Cartilage Degeneration by Targeting Smad2/3-MMP13 Signaling Pathway**
Sien Lin, Wayne Y.W. Lee, Jinfang Zhang, Liao Cui, Gang Li

GERMANY SOCIETY FOR ORTHOPAEDICS AND TRAUMA (DGOU) BEST POSTER

First Results of a Porcine Long-Term Model of Combined Trauma
Klemens Horst, T.P. Simon, R. Pfeifer, M. Teuben, K. Almahmoud, Q. Zhi, S. Aguiar Santos, C. Castelar Wemmers, S. Leonhardt, N. Heussen, P. Störmann, B. Auner, B. Relja, I. Marzi, A.T. Haug, M. van Griensven, M. Kalbitz, M. Huber-Lang, R. Tolba, L.K. Reiss, S. Uhlig, G. Marx, H.C. Pape, F. Hildebrand

INTERNATIONAL COMBINED ORTHOPAEDIC RESEARCH SOCIETY (ICORS) BEST POSTERS

ICORS1 *AO Foundation*
The Efficacy of Local Bisphosphonate and BMP-2 delivery in Improving Bone Mass and Mechanical Implant Stability
L. Freitag, C. Günther, L. Kyllönen, U. Eberli, K. Thompson, D. Arens, S. Zeiter, D. Eglin, V.A. Stadelmann

ICORS2 *Asian Pacific Orthopaedic Research Society*
The Complex Changes in the Musculoskeletal System as the Result of Exercise and Aging: A Study in Rat Model
Kamarul T, Naveen SV, Tan KT, Randhawa SS, Noor Sa'adah, Balaji Ragavendhran H, Murali MR

ICORS3 *Australian and New Zealand Orthopedic Research Society*
The Efficient Method for Studying the Influence of Surgical Variability in Implant Positioning on the Primary Stability of THA Using FEA
Rami Al-Dirini, Dan Huff, Dermot O'Rourke, Mark Taylor

ICORS4 *British Orthopaedic Research Society*
Surface Mobility and High Efficiency Presentation of BMP-2 to Promote Bone Growth
Fatma M. Bathawah, Marco Contini, Matthew J. Dolby, Manuel Salmeron-Sanchez

ICORS5 *Canadian Orthopaedic Research Society*
Photodynamic Therapy (PDT) to Enhance Healing of Femur Fractures with a Critically Sized Defect
Margarete K. Akens, Michael R. Hardisty, Ahmad Golaraei, Diane Nam, Albert Yee, Brian C. Wilson, Cari M. Whyne

ICORS6 *European Orthopaedic Research Society*
Nutritional Glucose Affects Tendon Healing in a Rat Model
S. Kortner, C. Lehner, N. Kunkel, A. Traweger, H. Tempfer

ICORS7 *International Chinese Musculoskeletal Research Society*
Abnormal Ultrastructure of the Osteocyte-Lacuno-Canalicular System in Adolescent Idiopathic Scoliosis—A New Novel Finding
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

ICORS8 *International Chinese Musculoskeletal Research Society*
Subchondral Bone Plate Sclerosis During Late Osteoarthritis Is Mediated by Loading-induced Decrease in Sclerostin Amount
Xiaoyuan Ma, Haoruo Jia, Wei Tong, Zhaochun Yang, Zeyang Sun, Abhishek Chandra, Lin Han, Kairui Zhang, James H-C Wang, Motomi Enomoto-Iwamoto, Ling Qin

POSTERS

ICORS9 *Japanese Orthopaedic Association*
Elucidation of Molecular Mechanism of Adolescent Idiopathic Scoliosis

Yoji Ogura, Ikuyo Kou, Kazuki Takeda, Yohei Takahashi, Katsuki Kono, Noriaki Kawakami, Koki Uno, Manabu Ito, Shohei Minami, Ikuho Yonezawa, Haruhisa Yanagida, Hiroshi Taneichi, Taichi Tsuji, Teppei Suzuki, Hideki Sudo, Toshiaki Kotani, Naobumi Hosogane, Eijiro Okada, Kazuhiro Chiba, Yoshiaki Toyama, Masaya Nakamura, Morio Matsumoto, Kota Watanabe, Shiro Ikegawa

ICORS10 *Korean Orthopaedic Research Society*
Adipose Derived Mesenchymal Stem Cells Co-administration with Matrilin-3 Promotes Cartilage Tissue Regeneration

Manjunatha S. Muttigi, Byoung Ju Kim, Bogyu Choi, Inbo Han, Hansoo Park, Soo-Hong Lee

ICORS11 *Taiwan Orthopaedic Research Society*
3D-Printing Bioceramic Bone Scaffold for Large Bone Defect Therapy

Chih-Hao Chang, Chih-Yang Lin, Mark Hung-Chih Chen, Fwu-Hsing Liu, Yunn-Shiuan Liao, Rong-Sen Yang

ICORS12 *Taiwan Orthopaedic Research Society*
Biomechanical Characteristics of Oversized Spinal Pedicle Screw After Fatigue Loading

Yu-Tang Shih, Yi-Hsing Chen, Dar-Ming Lai, Jaw-Lin Wang

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

WHIAB **Comparison of Male and Female Knee Kinematics at the Time of Non-Contact Anterior Cruciate Ligament Injury Determined via Bone Bruises**

Kwadwo A. Owusu-Akyaw, Sophia Y. Kim, Charles E. Spritzer, Amber T. Collins, Gangadhar M. Utturkar, William E. Garrett, Louis E. DeFrate

ORTHOPAEDIC RESEARCH SOCIETY

BEST POSTERS

The following posters have been chosen as the "Best" of the ORS and were displayed at the American of Academy of Orthopaedic Surgeons (AAOS) meeting, March 14 – March 18.

Poster No. 0146

ORS Best Hip Poster

Adipose Tissue Derived Mesenchymal Stem Cell Therapy for the Treatment of Chondral Lesions in the Hip: A 2-year Follow-up Comparison Study with Microfractures

Andrea Fontana

Poster No. 0313

ORS Best Knee Poster

Investigation of the Impact of the Concomitant Meniscus Injury on the Rotational Laxity in the Anterior Cruciate Ligament Injured Knees Using the Quantitative Measurement of the Pivot-shift Test

Yuichi Hoshino, Nobuaki Miyaji, Toshikazu Tanaka, Kazuyuki Ibaragi, Kyohei Nishida, Yuichiro Nishizawa, Daisuke Araki, Noriyuki Kanzaki, Takehiko Matsushita, Ryosuke Kuroda

Poster No. 0326

ORS Best Foot and Ankle Poster

Surface Characterization of Total Ankle Replacement: Retrieved vs. In Vitro Simulation

Ashley A. Stratton-Powell, Alexandra Smyth, Sophie Williams, Anthony C. Redmond, Joanne L. Tipper, John Fisher, Claire L. Brockett

Poster No. 0154

ORS Best Hand and Wrist Poster

Scaphoid and Lunate Kinematics Following Sequential Sectioning of the Scapholunate Ligament and Secondary Stabilizers

Helen Stoesser, Clare Padmore, G. Daniel G. Langohr, Nina Suh, James Johnson, Graham King

Poster No. 2116

ORS Best Shoulder and Elbow Poster

Perfusion of the Rotator Cuff Tendon According to Repair Configuration Using Indocyanine Green Fluorescence Arthroscopy

Sae Hoon Kim, Ho Yun Joung, Min Woong Jung, Young Eun Choi

Poster No. 0877

ORS Best Spine Poster

Factors Aggravating the Trunk Anterior Inclination During Walking in Spinal Kyphosis Patients

Kumi Kamata, Hiroshi Ozawa, Yusuke Sekiguchi, Toshimi Aizawa, Shinichi Izumi, Eiji Itoi

Poster No. 0331

ORS Best Tumor Poster

Diagnostic and Prognostic Significance of Circulating Cell-free MicroRNAs in Osteosarcoma

Tomohiro Fujiwara, Koji Uotani, Aki Yoshida, Takuya Morita, Masahiro Kiyono, Yusuke Mochizuki, Tadashi Komatsubara, Kazuhisa Sugiu, Joe Hasei, Toshiyuki Kunisada, Yutaka Nezu, Eisuke Kobayashi, Akira Kawai, Takahiro Ochiya, Toshifumi Ozaki

POSTERS

NEW INVESTIGATOR RECOGNITION AWARD POSTERS (NIRA) POSTERS

NIRA 6—BONE

The following posters will also be presented in the NIRA Presentations session on Sunday, March 19 from 1:15 PM–2:15 PM.

Poster No. 25

Subchondral Bone Plate Sclerosis During Late Osteoarthritis Is Mediated by Loading-Induced Decrease in Sclerostin Amount
Xiaoyuan Ma

Poster No. 26

Non Viral miR-133a Inhibition Using Collagen-Nanohydroxyapatite Scaffolds Rapidly Enhances Stem Cell Osteogenesis and In Vivo Bone Repair
Irene Mencía Castaño, Caroline M. Curtin, Rosanne M. Raftery, Gang Chen, Brenton Cavanagh, Brian Quinn, Garry P. Duffy, Fergal J. O'Brien

Poster No. 27

Novel Bone-Growth Factors from the Blood: Cxcl16 and Others Benchmarked to Bmp2
Ling He, Yufeng Shen, Juan Zhong, Qimei Gong, Jinxuan Zheng, Francis Lee, Scott Rodeo, Lusai Xiang, Paulo G. Coelho, Junqi Ling, Jeremy J. Mao

Poster No. 28

Translating the Fundamental Role of Osteogenic-Angiogenic Coupling in Bone Formation: Highly Efficient Combinatorial Gene-Activated Scaffolds Accelerate Bone Regeneration in Critical-sized Defects
Rosanne M. Raftery, Irene Mencía Castaño, Gang Chen, Brian Quinn, Brenton Kavanagh, Caroline Curtin, Sally-Ann Cryan, Fergal J. O'Brien

Poster No. 29

Notch Signaling Regulates Mesenchymal-Osteoblast Differentiation
Daniel W. Youngstrom, Kurt D. Hankenson

Poster No. 30

Exploring the Link Between Fetal Movements and Hip Dysplasia in Singleton and Twin Pregnancies
Stefaan W. Verbruggen, Bernhard Kainz, Joseph V. Hajnal, Mary A. Rutherford, Andrew T.M. Phillips, Niamh C. Nowlan

Poster No. 31

Potential of Bone Morphogenetic Protein-6 as a Pharmacological Agent for Increasing Bone Formation in Patients with Type 1 Diabetes
Jesse F. Wang, Tsung-Lin Tsai, Ming-Song Lee, Ellen Leiferman, Darrin Trask, Wan-Ju Li

Poster No. 32

Novel Role of TGF β in Osteocytes: Regulation of Perilacunar Remodeling and Bone Quality
Neha S. Dole, Courtney A. Mazur, Claire Acevedo, Tristan W. Fowler, Justin Lopez, David A. Monteiro, Jonathan J. Woo, Khalid S. Mohammad, Tamara Alliston

Poster No. 33

Detecting Chronic Post-Traumatic Osteomyelitis in Mouse Tibia via an IL-13R α 2 Targeted Metallofullerene Magnetic Resonance Imaging Probe
Li Xiao, Tinghui Li, Mengmeng Ding, Jiezuan Yang, David B. Weiss, Li Jin, Harry C. Dorn, Xudong Li

NIRA 9—JOINT ARTHROPLASTY AND SPINE

The following posters will also be presented in the NIRA Presentations session on Sunday, March 19 from 1:15 PM – 2:15 PM.

Poster No. 43

NF- κ B Decoy Oligodeoxynucleotide Mitigates Polyethylene Wear Particle-Induced Bone Loss but Has No Effects on Exogenous Macrophage Infiltration in a Murine Continuous Femoral Particle Infusion Model
Tzu-hua Lin, Akira Nabeshima, Jukka Pajarinen, Luis Cordova, Florence Loi, Emmanuel Gibon, Laura Lu, Karthik Nathan, Zhenyu Yao, Stuart B. Goodman

Poster No. 44

Mutant CCL2 Protein Mitigated Wear Particle-Induced Systemic Macrophage Trafficking in the Murine Continuous Polyethylene Infusion Model
Akira Nabeshima, Jukka Pajarinen, Tzu-hua Lin, Xinyi Jiang, Emmanuel Gibon, Luis A. Cordova, Laura Lu, Karthik Nathan, Fan Yang, Zhenyu Yao, Stuart B. Goodman

Poster No. 45

How Well Does Kinematically Aligned Total Knee Arthroplasty Limit Imbalances Between the Medial and Lateral Contact Forces?
Joshua D. Roth, Stephen M. Howell, Maury L. Hull

Poster No. 46

Elucidating the Mechanism of Anti-IsdB-mediated S. Aureus Sepsis and Death Following Surgical Site Infection in a MRSA Implant-Associated Osteomyelitis Model
Masahiro Ishikawa, Kohei Nishitani, Karen L. de Mesy Bentley, Noriaki Yokogawa, Benjamin L. Smith, Hiromu Ito, Stephen L. Kates, John L. Daiss, Edward M. Schwarz

Poster No. 47

Q-space Imaging Is a Novel Technique to Evaluate Intervertebral Disc Degeneration
Daisuke Nakashima, Nobuyuki Fujita, Junichi Hata, Takeo Nagura, Kanehiro Fujiyoshi, Hideyuki Okano, Masahiro Jinzaki, Morio Matsumoto, Masaya Nakamura

POSTERS

Poster No. 48

Hypoxia Differentially Regulates the Metabolism of Human Nucleus Pulposus Cells Under Basal and 1β -stimulated Conditions Through Hif-2 α

Yu Song, Cao Yang

Poster No. 49

High Mobility Group Box-1 Promotes Pro-Inflammatory Signaling in Human Nucleus Pulposus Cells via Toll-Like Receptor 4

Bhranti S. Shah

Poster No. 50

Engineered Endplates Enhance the In Vivo Performance of a Replacement Disc-Like Angle Ply Structure (DAPS)

Sarah E. Gullbrand, John T. Martin, Beth G. Ashinsky, Dong Hwa Kim, Lachlan J. Smith, Dawn Elliott, Harvey Smith, Robert Mauck

Poster No. 51

Human Ipsc-Derived Notochordal Cells Survive and Retain Their Phenotype in Degenerated Porcine IVD

Dmitriy Sheyn, Shiran Ben-David, Sandra De Mel, Virginia Chan, Joseph Giaconi, Dan Gazit, Zulma Gazit

NIRA 13—CARTILAGE MENISCUS AND OSTEOARTHRITIS

The following posters will also be presented in the NIRA Presentations session on Monday, March 20 from 9:15 AM–10:15 AM.

Poster No. 70

Meniscal Tissue Engineering by Simultaneously Electrospaying Cells and Electrospinning Nanofibers

Jihye Baek, Shawn Grogan, Martin Lotz, Darryl D. D'Lima

Poster No. 71

Development of a Continuous Dual-Gradient Peptide Scaffold for Directed Osteochondral Spatial Differentiation

Jennifer L. Puetzer, Lesley W. Chow, Hélène Autefage, Anu K. Solanki, Molly M. Stevens

Poster No. 72

Novel Roles of NOTCH and HES1 Signaling in Cartilage Maintenance and Osteoarthritis

Yinshi Ren, Jianquan Chen, Zhaoyang Liu, Anthony Mirando, Matthew Hilton

Poster No. 73

Forkhead Box O Transcription Factors Control Postnatal Articular Cartilage Growth, Maturation and Homeostasis and Expression of Proteoglycan 4

Tokio Matsuzaki, Oscar Alvarez-Garcia, Sho Mokuda, Kohei Miyata, Merissa Olmer, Hiroshi Asahara, Martin K. Lotz

Poster No. 74

Therapeutic Targeting of the SIRT1-Autophagy Pathway Protects Against Injury Induced and Aged-Related Osteoarthritis

Pradeep K. Sacitharan, Tonia Vincent, James Edwards

Poster No. 75

SHP2 Regulates Endochondral Ossification by Modulating Osteogenic Differentiation of Hypertrophic Chondrocytes

Lijun Wang

Poster No. 76

Chondrocyte Death, Mitochondrial Dysfunction, and Apoptosis Are Mediated by Friction and Local Shear Strain

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

Poster No. 77

Voxel-Based Relaxometry Reveals Local Patterns in T1 ρ , T2 and R2 - R1 ρ Longitudinal Progression 12 Months After ACL Reconstruction in Both Injured and Contralateral Knees: A Multicenter Pilot Study

Valentina Pedoia, Colin Russell, Xiaojuan Li, Benjamin C. Ma, Matthew Koff, Hollis Potter, Kimberly K. Amrami, Aaron J. Krych, Scott Rodeo, Sharmila Majumdar

NIRA 19—TENDON, LIGAMENT, MUSCLE AND TRAUMA

The following posters will also be presented in the NIRA Presentations session on Monday, March 20 from 11:15 AM–12:15 PM.

Poster No. 102

Human Subacromial Bursa Cells Display Superior Engraftment vs. Bone Marrow Stromal Cells in Murine Tendon Repair

Felix Dyrna, Leo Pauzenberger, Philip Zakko, Mary Beth McCarthy, David W. Rowe, Augustus Mazzocca, Nathaniel Dymant

Poster No. 103

Differentiated Tenocytes Revert to a Progenitor-Like State in Mice with Targeted Disruption of TGF-Beta Type II Receptor

Guak-Kim Tan, Anna G. Stabio, Doug R. Keene, Brian A. Pryce, Ronen Schweitzer

Poster No. 104

The Role of NF- κ B Signaling in Rotator Cuff Tendinopathy

Shivam A. Shah, Yousef Abu-Amer, Stavros Thomopoulos

Poster No. 105

Genetic Inhibition of NF- κ B to Improve Mdx Skeletal Muscle Function

Xi Yin, Ying Tang, Jian Li, Anna Dzuricky, Chuanqiang Pu, Freddie Fu, Bing Wang

Poster No. 106

IL17 A & B and Their Respective Receptors are Regulated by Runx3 During Fracture Healing

David N. Paglia, Satoko Matsumura, Joseph Lorenzo, Mark F. Hansen, Hicham Drissi

Poster No. 107

Local Application of Microvascular Fragments by Thermoresponsive Hydrogel Impairs Fracture Healing

Marcel Orth, Maximilian Altmeyer, Benedikt Braun, Nils Veith, Jörg Holstein, Tim Pohlemann, Matthias Laschke, Michael Menger

POSTERS

Poster No. 108

Three-Times-Weekly Administration of Parathyroid Hormone (1-34) Accelerates Bone Healing in a Rat Refractory Fracture Model

Yohei Kumabe, Sang Yang Lee, Takahiro Waki, Takahiro Niikura, Takashi Iwakura, Shunsuke Takahara, Michio Arakura, Yu Kuroiwa, Ryosuke Kuroda

Poster No. 109

Delivery of β -Catenin Agonists via Targeted Nanoparticles to Enhance Fracture Healing

Yuchen Wang, Michael P. Baranello, Maureen Newman, Tzong-Jen Sheu, J. Edward Puzas, Danielle S.W. Benoit

POSTER TEASER 1

The following posters will also be presented in Session 21—Poster Teaser 1 on Monday, March 20 from 11:15 AM–12:15 PM.

Poster No. 116

Differential Effects of Hydrogels on In Vitro Meniscus Regeneration

Gokhan Bahcecioglu, Nesrin Hasirci, Vasif Hasirci, Bahar Bilgen

Poster No. 117

Notch1-Antagonistic Aptamer for Chondrogenic Differentiation of Bone Marrow Derived Stromal Cells

Mi-Lan Kang, Ji-Eun Kim, Se-Young Jeong, Gun-Il Im

Poster No. 118

PEO-PPO-PEO Micelles as rAAV Carriers for Effective Transduction of Human Articular Chondrocytes In Vitro and in a Human Osteochondral Defect Model

Ana Rey Rico, Janina Frisch, Jagadeesh Venkatesan, Gertrud Schmitt, Isabel Rial-Hermida, Pablo Taboada, Angel Concheiro, Henning Madry, Carmen Alvarez-Lorenzo, Magali Cucchiari

Poster No. 119

Enhancer Network for Ihh Transcription in Chondrocytes

Akira Yamakawa, Hironori Hojo, Ung-il Chung, Shinsuke Ohba

Poster No. 120

Lgr5-Dependent Wnt Signaling Is Essential for Late Stages of Chondrogenic Differentiation

Piera Smeriglio, Catherynn Vuong, Nidhi Bhutani

Poster No. 121

Sprifermin Maintains the Local Mechanical Properties of Articular Cartilage During Extended In Vitro Culture

Gregory R. Meloni, Alexandra J.E. Farran, Emilie Rabbut, Anne Gigout, Robert L. Mauck, George R. Dodge

Poster No. 122

Non-Destructive Spectroscopic Assessment of Articular Cartilage Correlates with Mechanical Properties

James P. Karchner, Farzad Yousefi, Kurosh Darvish, Nancy Pleshko

Poster No. 123

Nbqx, an Ampa-Kainate Glutamate Receptor Antagonist, Alleviates Inflammation, Degeneration and Pain Related Behaviour in Two Models of Osteoarthritis

Cleo Bonnet, Sophie Gilbert, Anwen Williams, Emma Blain, David Walsh, Deborah Mason

Poster No. 124

MicroRNA-146a Is Necessary and Sufficient to Prevent Osteoarthritis Through Targeting Notch1 In Vivo

Yingjie Guan, Qian Chen

Poster No. 125

Longitudinal Changes in T1Rho and T2 Signal of Meniscus in ACL-Injured Patients Post ACL Reconstruction

Joseph Knox, Valentina Pedoia, Amy Wang, Xiaojuan Li, Benjamin Ma

Poster No. 126

A New Factor Promotes Matrix Organization in Tendon Tissue

Yang Liu, Jinfang Zhang, Gang Li

Poster No. 127

Molecular Damage to Collagen is a Critical Feature of Mechanical Damage in Tendon

Jared L. Zitnay, Yang Li, Zhao Qin, Markus J. Buehler, S. Michael Yu, Jeffrey A. Weiss

Poster No. 128

Achilles Tendon Mechanical and Compositional Properties Differ Drastically in Early Healing Between Repaired and Non-Repaired Tendons

Benjamin R. Freedman, Tyler R. Morris, George W. Fryhofer, Pankti R. Bhatt, Nabeel S. Salka, Daniel C. Farber, Louis Soslowky

Poster No. 129

The Consumption of Plasminogen Following Severe Burn and Its Implications in Muscle Calcification

Breanne H.Y. Gibson, Stephanie N. Moore-Lotridge, Gregory D. Hawley, Nicholas A. Mignemi, William K. Oelsner, Jonathan G. Schoenecker

Poster No. 130

Fluid Shear Induces TRPV4 Mediated Calcium Influx Contributing to Osteogenic Responses in MSCs

Michele A. Corrigan, Marie-Noelle Labour, Mathieu Riffault, David A. Hoey

Poster No. 131

Bone Quality Across Different Phases of Pediatric Skeletal Growth

Elizabeth A. Zimmermann, Christoph Riedel, Yuriy Chushkin, Eric Schaible, Felix N. Schmidt, Bernd Gludovatz, Eik Vettorazzi, Federico Zontone, Klaus Püschel, Michael Amling, Robert O. Ritchie, Björn Busse

Poster No. 132

Enhanced Bone Formation In Vivo by Pharmacologically Targeted Primary Cilia-Mediated Mechanotransduction

Milos Spasic, Michael P. Duffy, Christopher R. Jacobs

POSTERS

Poster No. 133

Glutaminase Acts in Osteoblasts to Regulate Bone Formation

Yilin Yu, Everett Knudson, Risigan Logendran, Fanxin Long, Courtney M. Karner

Poster No. 134

Collagen Pathobiochemistry of Ehlers Danlos Syndrome Type VI Phenocopied in P3h3 and Sc65 Null Mice

David M. Hudson, MaryAnn Weis, Jyoti Rai, Kyu Sang Joeng, Brendan Lee, Roy Morello, David Eyre

Poster No. 135

Foxo Transcription Factors Are Essential for Intervertebral Disc Maturation

Oscar Alvarez-Garcia, Tokio Matsuzaki, Merissa Olmer, Martin K. Lotz

Poster No. 136

Residual Circumferential Strain in the Intervertebral Disc Annulus Fibrosus Varies with Anatomical Region

Sarah E. Duclos, Arthur J. Michalek

Poster No. 137

Pretreatment with a Gamma-Secretase Inhibitor Prevents Tumor-Like Overgrowth in Human iPSC-Derived Transplants for Spinal Cord Injury

Toshiki Okubo, Narihito Nagoshi, Jun Kohyama, Go Itakura, Morio Matsumoto, Hideyuki Okano, Masaya Nakamura

Poster No. 138

Scale Up of Disc-Like Angle Ply Structures (DAPS) for Total Disc Replacement in Preclinical Animal Models

Sarah E. Gullbrand, Beth G. Ashinsky, Dong Hwa Kim, John T. Martin, Dawn Elliott, Lachlan Smith, Robert Mauck, Harvey Smith

Poster No. 139

Measures of Behavior and Pain-Related Sensitivities at Acute and Chronic Timepoints in a Rodent Model of Intervertebral Disc Degeneration

Elizabeth M. Leimer, Matthew G. Gayoso, Liufang Jing, Adam I. Elkhayat, Munish C. Gupta, Lori A. Setton

Poster No. 140

Biomechanical and Histologic Comparison of a Novel 3D Printed Titanium Interbody Cage to Standard PEEK Cages

Kirk McGilvray, Howard Seim, Sigurd Berven, Wellington Hsu, Thomas Mroz, John Rhee, Christian Puttlitz, Jeremiah Easley

Poster No. 141

The Effects of Anterior Cruciate Ligament Reconstruction on Tibiofemoral Subchondral Bone Congruency During Dynamic Functional Movement

Tom Gale, Kanto Nagai, James Irrgang, Freddie Fu, Scott Tashman, William Anderst

Poster No. 142

Effects of Sex and Injury Mechanism on Anterior-Posterior Knee Laxity in Mice

Carina Blaker, Nathan Doran, Christopher Little, Elizabeth Clarke

Poster No. 143

Knee Kinematics in Bi-Cruciate Stabilized Total Knee Arthroplasty During Weight-Bearing Activities

Koji Murakami, Satoshi Hamai, Ken Okazaki, Yefeng Wang, Hidehiko Higaki, Hideki Mizu-uchi, Yukio Akasaki, Umuto Kuwashima, Yasuharu Nakashima, Yasuharu Nakashima

Poster No. 144

Risk Factors for Residual Anterolateral Rotational Instability After Anterior Cruciate Ligament Reconstruction: Evaluation by Quantitative Assessment of the Pivot Shift Phenomenon Using Triaxial Accelerometer

Mai Katakura, Hideyuki Koga, Kaori Nakamura, Ichiro Sekiya, Toshifumi Watanabe, Masafumi Horie, Tomomasa Nakamura, Koji Otabe, Toshiyuki Ohara, Takeshi Muneta

Poster No. 145

Evaluation of the Sclerotic Subchondral Bone Boundary as a Surgical Resection Guide in the Treatment of Cam-Type Femoroacetabular Impingement

Penny Atkins, Stephen Aoki, Shireen Elhabian, Praful Agrawal, Ross Whitaker, Jeffrey Weiss, Christopher Peters, Andrew Anderson

Poster No. 146

Adipose Tissue Derived Mesenchymal Stem Cell Therapy for the Treatment of Chondral Lesions in the Hip: A 2 Year Follow-Up Comparison Study with Microfractures

Andrea Fontana

Poster No. 147

Similarities Between Reported Inflammatory Cell Induced Corrosion Features and Electrocautery Damage

Patrick Aldinger, Chenxi Li, Vivek Pawar

Poster No. 148

Neurotoxic Effect of CoCr Wear Particles Generated from Hip Simulator Using Induced Pluripotent Stem Cells (iPSC) Derived Neurons: Initial Outcomes

Divya R Bijukumar, Poojitha Vellore Jaysukumar, Chong Chong Xu, Xue-Jun Li, Ramaswamy Kalyanasundaram, Mathew Thoppil Mathew

Poster No. 149

Recipient of William H. Harris, MD Award Differential Proteomic Analysis of Hip Synovial Fluid from Patients with a Pseudotumor vs. Periprosthetic Osteolysis

Isabelle Catelas, Eric A. Lehoux, Zhibin Ning, Daniel Figeys, Stephen J. Baskey, Paul E. Beaulé

Poster No. 150

Phospholipid Polymer Grafted and Vitamin E Blended Cross-linked Polyethylene Brought High Resistance for Wear and Oxidation Under Controlled Load Bearing Conditions

Masayuki Kyomoto, Toru Moro, Shihori Yamane, Kenichi Saiga, Kenichi Watanabe, Sakae Tanaka, Kazuhiko Ishihara

POSTERS

Poster No. 151

IL-1 β Production in Response to Wear Particles Depends on Lysosome Destabilization but Not on Extracellular ATP

Brian Fort, Givenchy Manzano, Matthew Hoffa, George Dubyak, Edward Greenfield

Poster No. 152

Inhibition of PDGFR Signaling Prevents Muscular Fatty Infiltration After Rotator Cuff Tear in Mice

Hideyuki Shirasawa

Poster No. 153

Regional Variation in Bone Density and Volume Fraction in the Proximal Humerus

Jacob M. Reeves, George S. Athwal, James A. Johnson

Poster No. 154

Scaphoid and Lunate Kinematics Following Sequential Sectioning of the Scapholunate Ligament and Secondary Stabilizers

Helen Stoesser, Clare Padmore, G. Daniel G. Langohr, Nina Suh, James Johnson, Graham King

Poster No. 155

Transplantation of Achilles Allograft in Rats: With or Without Incorporation of Autologous Mesenchymal Stem Cells

Zijun Zhang, Michael Aynardi, Talal Zahoor, Reed Mitchell, Lew Schon

Poster No. 156

Quantifying Staphylococcus Aureus Motility Through Submicron Pores via an In Vitro Nanoporous Transwell System That Mimics Canaliculi Colonization

Karen de Mesy Bentley, Mark Ninomiya, Kohei Nishitani, John Daiss, Stephen L. Kates, Hung Li Chung, James L. McGrath, Edward M. Schwarz

Poster No. 157

Chyluria as an Early Predictor for Fat Embolism in Fracture Patients

Yun Che Wu, Chih Hui Chen

Poster No. 158

Effect of Mental Health Conditions on Complications, Revision and Readmission Rates Following Tibial Shaft Fracture

Brock Foster, Zorica Buser, Anthony D'Oro, Jeffrey C. Wang, Geoffrey S. Marecek

Poster No. 159

Shear Wave Velocity Measurement of Upper Trapezius Muscle by Color Doppler Shear Wave Imaging

Atsushi Yamamoto, Yoshiki Yamakoshi, Takashi Ohsawa, Hitoshi Shitara, Tsuyoshi Ichinose, Hiroyuki Shiozawa, Tsuyoshi Sasaki, Noritaka Hamano, Yasushi Yuminaka, Haku Iizuka, Kenji Takagishi

Poster No. 160

Clinicopathologic Features and Outcomes of CIC- and BCOR-Rearranged Sarcomas

Makoto Endo, Masato Sugawara, Akihiko Yoshida, Eisuke Kobayashi, Shuichi Toki, Takeshi Hirose, Takenori Uehara, Tomoaki Mori, Koki Shimizu, Yoshikazu Tanzawa, Fumihiko Nakatani, Hirokazu Chuman, Akira Kawai

POSTER TEASER 2

The following posters will also be presented in Session 46—Poster Teaser 2 on Wednesday, March 22 from 11:15 AM–12:15 PM.

Poster No. 287

Bioactive Ti6Al4V Alloy Improves Bone Bonding and Prevents Bacterial Infection: THP Application THP Application

Helena Felgueiras, Véronique Viateau, Azzam Saleh Mghir, Anne-Claude Crémieux, Daniel Blankaert, Véronique Migonney

Poster No. 288

EtO Sterilized Polyethylene: Is Oxidation a Concern?

Barbara H. Currier, John H. Currier, Lindsay A. Holdcroft, Evan Carlson, Douglas Van Citters

Poster No. 289

Preclinical Assessment of Acellular Porcine Super Flexor Tendon Using an Ovine Model of Anterior Cruciate Ligament Repair

Anthony Herbert, Jennifer H. Edwards, Gemma L. Jones, Eileen Ingham, John Fisher

Poster No. 290

Proteomic Analysis of Early Cartilage Repair in a Chronic Cartilage Defect Model in Minipigs

Casper Foldager, Morten Olesen, Bjorn Christensen, Kris Hede, Martin Lind, Johan Palmfeldt

Poster No. 291

Igf-ii Regulates Postnatal Long Bone Growth Through Controlling Glucose Metabolism

Li Zeng, Tomoya Uchmura, Daisy S Nakamura, Zhiyi Liu, Clifford J. Rosen, Irene Georgakoudi

Poster No. 292

Diet Induced Phosphate Deficiency Leads to a Phase Shift and a Change of Gene Expression in Circadian Oscillation During Fracture Healing

Takashi Noguchi, Amira I. Hussein, Deven M. Carroll, Nina Horowitz, Louis C. Gerstenfeld

Poster No. 293

Wnt5a Induces Catabolic Signaling and MMP Production in Human Articular Chondrocytes

Guangxin Huang, Richard Loeser

Poster No. 294

Binding Is Critical to the Design and Function of Lubricin-Mimetics for Cartilage Lubrication

Elizabeth Feeney, Zhexun Sun, David Putnam, Lawrence Bonassar

POSTERS

Poster No. 295

The Structural, Psychological, Functional and Pain Sensitization Characteristics of Presurgical Knee Osteoarthritis Patients with Evidence of Neuropathic Pain: A Prospective Observational Study
Thomas Kurien, Robert Kerslake, Richard G. Pearson, Brigitte E. Scammell

Poster No. 296

Absence of Decorin Exacerbates DMM-induced Post-Traumatic Osteoarthritis in Mice
Qing Li, Ouyang Liu, Basak Doyran, Li Fan, Wei Tong, Wei-Ju Tseng, X. Sherry Liu, Renato V. Iozzo, Ling Qin, David E. Birk, Lin Han

Poster No. 297

Detection of Degenerative Meniscus Changes 6 and 24 Months After Anterior Cruciate Ligament Reconstruction
Tom Gale, James Irrgang, Freddie Fu, Scott Tashman

Poster No. 298

Simvastatin and Atorvastatin Reduce the Mechanical Properties of Tendon Constructs In Vitro and Introduces Catabolic Changes in the Gene Expression Pattern
Pernilla Eliasson, Rene B. Svensson, Antonis Giannopoulos, Christian Eismark, Michael Kjær, Peter Schjerling, Katja Heinemeier

Poster No. 299

The Role of Force in Zebrafish Tendon Development
Arul Subramanian, Jenna Galloway, Lauren Kanzaki, Thomas Schilling

Poster No. 300

Reduction in NF- κ B Rescues the Aging Phenotype of Muscle Derived Stem/Progenitor Cells
Alex Scibetta, Aiping Lu, Laura Niedernhofer, Paul Robbins, Johnny Huard

Poster No. 301

Accurate Prediction of Implant Fixation Strength in a Rat Model Using μ CT
Matthew Meagher, Rachna Parwani, Maleeha Mashiatulla, Ryan D. Ross, Amarjit Virdi, D. Rick Sumner

Poster No. 302

In Vivo Dynamic Bone Formation and Resorption Under Combined PTH and Mechanical Loading
Samuel T. Robinson, X. Edward Guo

Poster No. 303

Intracellular Staphylococcus Aureus Are Resistant to Antibiotics
Francis Y. Lee, Lee Song, Kelly E. Diaz, Jung Ho Back, Do Yo Soung, Saqib Nizami

Poster No. 304

Elevated Levels of Serum Amyloid A in Patients with Osteonecrosis of the Femoral Head
Yong Feng, GuangYi Li, ChangQing Zhang

Poster No. 305

Murine Model for Developmental Dysplasia of Hip: Ablation of Cx3cr1 Affects Gait and Acetabular Morphology
George J. Feldman, Arlene Offemaria, Javad Parvizi, Theresa Freeman

Poster No. 306

Muscle Paralysis Induces Changes in the Intracortical Bone Micro porosities of Skeletally Mature Rats
Vittorio Gatti, Michael B. Gerber, Bishoy Ghobryal, Michelle J. Gelbs, Luis Cardoso, Susannah P. Fritton

Poster No. 307

A Proinflammatory and Degenerative Intervertebral Disc Organ Culture Model by Combining Tnf- α Intradiscal Injection and Detrimental Dynamic Loading
Gernot M. Lang, Yishan Liu, Zhiyu Zhou, David Kubosch, Norbert Südkamp, Mauro Alini, Sibylle Grad, Zhen Li

Poster No. 308

WITHDRAWN

Poster No. 309

Co-Culture Cell Sheets of Bone Marrow Stromal Cells and Neural Stem/Progenitor Cells Promote Axonal Regeneration and Remyelination After Completely Transected Spinal Cord Injury in Rats
Akinori Okuda, Takamasa Shimizu, Hideki Shigematsu, Eiichiro Iwata, Tadanobu Onishi, Yasuhiko Morimoto, Keisuke Masuda, Manabu Akahane, Yasuhito Tanaka

Poster No. 310

Molecular Characterization of Intervertebral Disc Tissue by Next Generation Rna Sequencing
A. Noelle Larson, Scott Riester, Andre van Wijnen, Lin Cong, Wenchun Qu, Mohammed Bydon, Moneim Abdel, Ahmad Nassr

Poster No. 311

Expression of Notochordal and Nucleus Pulposus Marker by Sub-Populations of Adult Human Nucleus Pulposus Cells Is Maintained Through Aging and Degeneration
Stephen M. Richardson, Francesca E. Ludwinski, Judith A. Hoyland

Poster No. 312

Growing-Rod Explants in Early Onset Scoliosis: Patient-Based Biomechanical Test Development
Emily M. Olson, Peter Sturm, Viral Jain, Lindsay R. Schultz, David Glos, Donita Bylski-Austrow

Poster No. 313

Investigation of the Impact of the Concomitant Meniscus Injury on the Rotational Laxity in the Anterior Cruciate Ligament Injured Knees Using the Quantitative Measurement of the Pivot-shift Test
Yuichi Hoshino, Nobuaki Miyaji, Toshikazu Tanaka, Kazuyuki Ibaragi, Kyohei Nishida, Yuichiro Nishizawa, Daisuke Araki, Noriyuki Kanzaki, Takehiko Matsushita, Ryosuke Kuroda

POSTERS

Poster No. 314

The Effect of Osteochondral Implant Material and Implantation Inaccuracy on Articular Cartilage

Ashley Heuwerker, Keita Ito, Wouter Wilson, Corrinus C. van Donkelaar

Poster No. 315

Biomechanical And Biological Indicators of Altered Knee Loading in Pre-High Tibial Osteotomy Patients Indicators

Catherine Holt, Gemma Whatling, Paul Biggs, Christopher Wilson, David Elson, Cleo Bonnet, Carole Elford, Deborah Mason

Poster No. 316

Effect of Labrum on Computational Kinematic Simulation During Hip Motion

Takehito Hananouchi, Penny R. Atkins, Stephen Kenji Aoki, Andrew Edward Anderson

Poster No. 317

Stromal Cell-Derived Factor-1 Antibody Decreased Cancellous Osseointegration of a Murine Tibial Implant

Benjamin F. Ricciardi, Kevin Nishida, Zhiwei Wang, Amanda Wach, Arvinth Sethuraman, Sophia Ziemian, Marjolein C.H. van der Meulen, F. Patrick Ross, Xu Yang, Mathias P.G. Bostrom

Poster No. 318

WITHDRAWN

Poster No. 319

Influence of Surgical Variables on Initial Taper Stability

Laura Scholl, David Pierre, Jeremy Gilbert, Michael Ambrosi, Ahmad Faizan, Viswanathan Swaminathan, Reginald Lee, Kevor TenHuisen

Poster No. 320

Osteolysis and Wear of Large and Standard Metal on Highly Cross-Linked Polyethylene Articulations

Donald W. Howie, Oksana T. Holubowycz, Caroline R. Moran, Bogdan Solomon

Poster No. 321

Development of a Novel Time Dependent Polyethylene Cross Shear and Wear Model for Use in the Computational Analysis of Total Knee Replacements

Steven P. Mell, Markus A. Wimmer, Hannah J. Lundberg

Poster No. 322

3D Morphometric Analysis of the Coracohumeral Distance Using In Vivo MRI Data

Taku Hatta, Nobuyuki Yamamoto, Hiroataka Sano, Yasushi Omori, Kazuomi Sugamoto, Kenji Suzuki, Eiji Itoi

Poster No. 323

Subacromial Pressure Reduction After Rotator Cuff Repair with a Biodegradable Subacromial Spacer

Yan Chevalier, Matthias F. Pietschmann, Christoph Thorwaechter, Christian Schoeder, Ofir Chechik, Eliyahu Adar, Assaf Dekel, Peter E. Mueller

Poster No. 324

Development and Validation of a Multivariable Prediction Model for Length of Stay After Shoulder Arthroplasty

David Kovacevic, Ana Mata-Fink, Jacob E. Berman, Geliang Gan, Fangyong Li, Theodore A Blaine

Poster No. 325

MRI-based Assessment of First Carpometacarpal Osteoarthritis

Brent Foster, Robert D. Boutin, Stephen Henrichon, Christopher O. Bayne, Robert M. Szabo, Anand A. Joshi, Abhijit J. Chaudhari

Poster No. 326

Surface Characterisation of Total Ankle Replacement: Retrieved vs. In-vitro Simulation

Ashley A. Stratton-Powell, Alexandra Smyth, Sophie Williams, Anthony C. Redmond, Joanne L. Tipper, John Fisher, Claire L. Brockett

Poster No. 327

Particles from Vitamin E (VE)-Diffused Highly Cross-linked (HXL) UHMWPE Increase Macrophage Viability and Immune Functions Around Implants Compared to HXL UHMWPE

Weishen Chen, David A. Bichara, Jeremy Suhardi, Orhun Muratoglu

Poster No. 328

Optimizing the Reduction and Association of the Scaphoid and Lunate (RASL) Technique: Screw Trajectory Matters

Christina M. Beck, Philip Nasser, Matthew J. Gluck, Michael R. Hausman, Steven M Koehler

Poster No. 329

Objective Prediction of Post-Traumatic OA Risk Following Acetabular Fractures Based on Severity

Tai C. Holland, Kevin N. Dibbern, J. Lawrence Marsh, Donald D. Anderson, Michael C. Willey

Poster No. 330

Real Time In Vivo Cervical Functional Spine Unit Kinematics Evaluated by Merging Static MRI with Dynamic Ultrasound Images

Mingxin Zheng, Amin Mohamadi, Thomas Szabo, Brian Snyder

Poster No. 331

Diagnostic and Prognostic Significance of Circulating Cell-Free MicroRNAs in Osteosarcoma

Tomohiro Fujiwara, Koji Uotani, Aki Yoshida, Takuya Morita, Masahiro Kiyono, Yusuke Mochizuki, Tadashi Komatsubara, Kazuhisa Sugiu, Joe Hasei, Toshiyuki Kunisada, Yutaka Nezu, Eisuke Kobayashi, Akira Kawai, Takahiro Ochiya, Toshifumi Ozaki

POSTERS

POSTER SESSION 1

Posters will be displayed Monday, March, 20 10:00 AM–5:30 PM and Tuesday, March 21, 9:00 AM–11:30 AM.

PS1 Biomaterials—Other

Poster No. 353

Fluoridated Apatite for Percutaneous Implant Application—An In Vitro Study

Brian T. Bennett, James Peter Beck, John S. Colombo, Kent N. Bachus, Kongnara Papangkorn, Colton K. Leavitt, Joshua Shieh, Sujee Jeyapalina

Poster No. 354

Analysis of the Expression of Connexin 43 in Synovial Tissue of Patients with Arthritis

Seiji Shimomura, Shinji Tsuchida, Yuji Arai, Shuji Nakagawa, Hiroaki Inoue, Shohei Ichimaru, Yuta Fujii, Osam Mazda, Toshikazu Kubo

Poster No. 355

Autologous Nucleus Pulposus Cell-Seeded Hydrogel Delivery to Isolated Human Intervertebral Discs: Histological Assessment and T1rho MRI Detection After 5 Weeks of Dynamic Loading

Derek H. Rosenzweig, Axel P. Mathieu, Julien Tremblay Gravel, Janet Moir, Jean A. Ouellet, Lisbet Haglund

Poster No. 356

Retrieved Magnesia-Stabilized Zirconia Femoral Heads Exhibit Minimal Roughening and Abrasive Potential

Marie Emily Roy, Leo A. Whiteside

Poster No. 357

Molecular Evaluation of a Novel Decellularized Meniscal Repair Scaffold

Farrah A. Monibi, Aaron M. Stoker, Ferris M. Pfeiffer, Keiichi Kuroki, Seth L. Sherman, James L. Cook

Poster No. 358

Fatigue Crack Propagation in Carbon Fiber Reinforced PEEK

Noah B. Bonnheim, Marco Regis, Pierangiola Bracco, Farzana Ansari, Lisa Pruitt

Poster No. 359

Pressure Gradient Response of Typical Prosthetic Insert Material for Assessment of Socket Comfort

Meredith K. Owen, Kyle Walker, Shannon Hall, Brian Kaluf, John D. DesJardins

Poster No. 360

Decellularization of the Meniscus by High Hydrostatic Pressure: Temperature Condition for Removal of Cell Debris

Naoto Watanabe, Mitsuru Mizuno, Jumpei Matsuda, Hisako Katano, Nobutake Ozeki, Koji Otabe, Keiichiro Komori, Yuji Kohno, Kenta Katagiri, Naoko Nakamura, Tsuyoshi Kimura, Akio Kishida, Kunikazu Tsuji, Takeshi Muneta, Ichiro Sekiya

Poster No. 361

Are Ceramic-on-Metal Bearings Better Than Metal-on-Metal Bearings: A Retrieval Analysis

Sang-Hyun Park, Sophia Sangiorgio, Zhen Lu, Pat Campbell, Mohammad Nazif, Eddie Ebramzadeh, Ian Clarke, Tom Donaldson

Poster No. 362

The Effect of Freezing on the Biomarker Concentration in Platelet-Rich Plasma Releasate: A Pilot Study

Jillian T. King, Kaitlyn E. Whitney, Kevin Pillifant, Jorge Chahla, Hajime Utsunomiya, Thos A. Evans, Johnny Huard

Poster No. 363

Surfaces Changes on Titanium After Electrical Current Stimulation in a Simulated Physiological Medium

Letícia M. Bins-Ely, Karina Cesca, Fernando S. Souza, Luismar M. Porto, Almir Spinelli, Cesar A.M. Benfatti, Ricardo S. Magini, Julio C.M. Souza

Poster No. 364

Molecular Evaluation of a Novel Decellularized Meniscal Repair Scaffold on Fibroblast-Like Synoviocytes

Farrah A. Monibi, Aaron M. Stoker, Ferris M. Pfeiffer, Keiichi Kuroki, Seth L. Sherman, James L. Cook

Poster No. 365

Effects of Modified Growth Factor-Loaded Hyaluronate-Collagen Dressing Matrix in Diabetic Mice

Tae Hun Kim, Seong Mi Choi, Kyoung-Mi Lee, Yoorim Choi, Hyun Jung Kim, Ik Kyu Park, Wan Jin Cho, Hang-Cheol Shin, Woo Jin Choi, Jin Woo Lee

Poster No. 366

Influence of Female Orthopaedic Surgery Faculty on Female Residency Applicants

Alana M. Munger, Nathanael Heckmann, Braden McKnight, George F. Hatch III, Reza Omid

PS1 Biomaterials—Bone

Poster No. 367

3D Printed Biologically Active and Load Sustaining Scaffold Designs for Segmental Bone Replacement

Rebecca Chung, Antonio Valdevit

Poster No. 368

Sterility and Biointegration of Bone Allografts Protected Against Radiation by Vitamin E

Jeremy V. Suhardi, Weishen Chen, David Bichara, Orhun K. Muratoglu, Ebru Oral

Poster No. 369

Mechanical and Dissolution Characterization of PMMA/13-93B3 Bioactive Glass Mixtures

Kimberly Cole, Grahmm Funk, Terence McIlff

POSTERS

Poster No. 370

In Vivo Safety and Efficacy Testing of a Thermally Triggered Injectable Hydrogel, Loaded with Hydroxyapatite Nanoparticles, to Promote Repair and Regeneration of Bone Defects

Abbey A. Thorpe, Christine Freeman, Paula Farthing, Paul Hatton, Ian Brook, Chris Sammon, Christine Le Maitre

Poster No. 371

Incorporation of 3D Coragraf with Poly(lactic-co-glycolic acid) Microsphere Loaded Human Platelet Derived Growth Factor—BB Enhanced Osteogenic Differentiation of Mesenchymal Stromal Cells

Kamarul T. Saktiswaren Mohan, Hanumatharao Balaji Raghavendran, Malliga Raman Murali

Poster No. 372

Synergistic Effects of Hbo and Prp Improve Bone Regeneration with Autologous Bone Grafting

Johannes Schneppendahl, Jan-Peter Grassmann, Michael Wild, Simon Thelen, Monika Herten, Mohssen Hakimi, Joachim Windolf, Pascal Jungbluth

Poster No. 373

Effects of rhBMP-2 on Bone Formation and Material Resorption After Implantation of the Composite Material Consisting Beta-TCP and PLLA

Hirokazu Komaki, Takaaki Tanaka, Shoushi Akiyama, Keishi Marumo

Poster No. 374

Comparison of In Vitro Biocompatibility of Silicone Based Elastomeric Polymer and Pmma Cements During the Curing Phase of Polymerization

Wei-Ping Ren, Wei Song, Joseph Seta, Rahul Vaidya, David Markel

Poster No. 375

Assessment of Adult db/db Mouse as a Model of Bone Abnormalities in Type 2 Diabetes Mellitus

Andrea L. Baker, Xiaohong Bi, Guijin Lu, Vihang Narkar, Catherine G. Ambrose

Poster No. 376

Elucidating Interplay of Physical and Biochemical Cues on Osteogenesis of Mesenchymal Stem Cells in 3D Using Biomimetic Hydrogels

Xinming Tong, Kunyu Qiu, Fan Yang

Poster No. 377

Use of Micro-Computed Tomography to Quantify Tissue Mineral Density

Stephen Okajima, Caleb Yeung, Vahid Entezari, Vartan Vartanians, John Rennick, Vinay Goyal, Juan Villa-Camacho, Molly Vora, Ara Nazarian

Poster No. 378

Electrospun Poly (Caprolactone) Nanofiber Shish Kebabs Mimicking Mineralized Collagen Fibrils in Bone

Tony Yu

Poster No. 379

Bone-Implant Interface Characterization with Neutron Tomographic Imaging Under In Situ Loading

Sophie Le Cann, Erika Tudisco, Christina Perdikouri, Ola Belfrage, Anders Kaestner, Stephen Hall, Magnus Tägil, Hanna Isaksson

Poster No. 380

Locked Versus Non-locked Two-Hole Plates in Growth Modulation: A Sawbones® Study

Abdel Majid Sheikh Taha, David S. Feldman, Adam Kurland, Karim Z. Masrouha, Fredrick Krummer, Alice Chu

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Joseph A. Gil, Kerry Ebert, Keri Blanchard, Avi D. Goodman, Joseph J. Crisco, Julia A. Katarincic

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Low-Intensity Pulsed Ultrasound on Bone-Tendon Junction Healing in a Rabbit Model: A Study of the Efficacy of Treatment Initiation

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Adipose Derived Perivascular Stem Cells Are a Superior Cell Source for Ligament Tissue Engineering

Robert C. Maciel, Jie Jiang, Natalie L. Leong, Kent T. Yamaguchi, Nima Kabir, Frank A. Petrigliano, David R. McAllister

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Matrix Organization Steers Remodeling Capacity in a Biomimetic Model System of Tendon Disease

Jasper Foolen, Stefania Wunderli, Jess Snedeker

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Plant Derived Human Collagen Scaffold Combined with PRP for Treatment of Tendinopathy-Preclinical and Clinical Evaluation

Oded Shoseyov, Jasmine Seror, Rachel Gueta, Frida Grynspan, Tal Amzel, Abraham Nyska, Nadav Orr

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Desferoxamine Soaked Suture to Improve Angiogenesis and Repair Potential in Hypovascular Fibrocartilage

William Efrid, Alex Fletcher, Jeffrey Spang, Reid Draeger, Laurence Dahnners, Paul Weinhold

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Nanoparticle Properties That Determine siRNA Delivery to Tenocytes: Implications for Therapeutic Development

Margaret A.T. Freeberg, Dominic Malcolm, Yuchen Wang, Danielle S.W. Benoit, Hani Awad

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Multilayered PLA Scaffold for Rotator Cuff Tissue Engineering

Yu-Kai Huang, Wei-Ren Su, Ming-Long Yeh

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Tenogenic Phenotype Maintenance and Trans-Differentiation/Differentiation Using Macromolecular Crowding and Mechanical Loading

Diana Gaspar, Dimitrios I. Zeugolis

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Biomechanical Strength and Stiffness Are Impaired Following Acute Partial-Width, Full-Thickness Tendon-Bone Injury in a Rat Rotator Cuff Defect Model

Elisabeth Lemmon, Ryan C. Locke, Adrianna Szostek, Megan Killian

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Dimitrios I. Zeugolis, Diana Gaspar, Daniela Cigognini, Abhi Satyam

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James Cook, Patrick Smith, James P. Stannard, Ferris M. Pfeiffer, Keiichi Kuroki, Chantelle Bozynski, Cristi Cook

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The Morphological Changes of Enthesis Caused by Specific Contractions of Antigravity Muscle-Tendon Unit in Rats

Motoki Kuroo, Takanori Kokubun, Kenji Murata, Naohiko Kanemura

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Synovium-Derived Mscs Promote the Restoration of Tensile Strength of Rotator Cuff Tendon After Repair in a Rat Model

Mari Uomizu, Tomoyuki Mochizuki, Toshiyuki Ohara, Junpei Matsuda, Nobutake Ozeki, Kunikazu Tsuji, Akimoto Nimura, Takashi Miyamoto, Masafumi Goto, Ichiro Sekiya, Takeshi Muneta

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Poly-N-Acetyl Glucosamine (sNAG) Enhances Rotator Cuff Tendon Healing in a Rat Model

Courtney Nuss, Daniel Choi, Julianne Huegel, Stephanie N. Weiss, John Vournakis, Louis J. Soslowsky

PS1 Tendon/Ligament—Cell Biology

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Analysis of Tendon-Related Genes and Angiogenesis-Related Genes in Tendon-Like Cells

Saho Tsuchiya, Tadahiro Sakai, Hideki Hiraiwa, Takashi Hamada, Yohei Ono, Tomoyuki Oda, Satoshi Yamashita, Kentaro Miyamoto, Yasuzumi Kishimoto, Yusuke Kawamura, Hiroki Oba, Naoki Ishiguro

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Proteomic Analysis of Achilles and Patellar Tendon Dialysate Following Extracorporeal Shockwave Treatment

Danae E. Zamboulis, Charlotte M. Waugh, Dylan Morrissey, Hazel R.C. Screen, Peter D. Clegg

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Mechanical Loading Activates mTOR Signaling Pathway in Tendon Stem/Progenitor Cells

Daibang Nie, Jianying Zhang, Yu Jiang, James H-C Wang

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Roles of R-spondin2: The Susceptibility Gene for Ossification of Posterior Longitudinal Ligament

Kazuhito Soma

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Degenerative Suspensory Ligament Desmitis (DSL) in Peruvian Paso Horses is Characterized by Altered Expression of TGFbeta Signaling Components in Adipose-Derived Stromal Fibroblasts

Jun Li, Katie Trella, Wei Luo, John Sandy, Sabrina Brounts, Jorge Galante, Anna Plaas

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Systemic Corticosteroids Improve Tendon Healing if Given After the Inflammatory Phase

Parmis Blomgran, Malin Hammerman, Per Aspenberg

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Alarmins Are Not Present in Advanced Tendon Disease in Humans

Mustafa S. Rashid, Stephanie Dakin, Sarah Snelling, Andrew Carr

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Possible Function of Pax9 in Ligamentum Flavum

Taiki Mori, Yusuke Murasawa, Yoshihito Sakai, Atsushi Harada, Shumpei Niida, Ken Watanabe

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N-acetylcysteine Reduces Glutamate-Induced Cytotoxicity to Fibroblasts of Rat's Rotator Cuff Tendon

Jin-Hyung Im, Ji-Yong Gwark, Hyung Bin Park, Ra Jeong Kim, Young-Sool Hah

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HMGB-1 Is a Marker for Tendinopathy in Aging Mice

Jianying Zhang, Daibang Nie, James H.C. Wang

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No Effect of Cox-2 Inhibition on the Composition of Inflammatory Cell Populations During Early and Mid-Time Tendon Healing

Parmis Blomgran, Robert Blomgran, Jan Ernerudh, Per Aspenberg

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Lect-1, an Intrinsic Inhibitor of Angiogenesis, Decreases in Mesenchymal Stem Cells Derived from Ossification of the Yellow Ligament (oyl) Patients

Hikaru Ishibashi, Ken-Ichi Furukawa, Kanichiro Wada, Toshihiro Tanaka, Gentaro Kumagai, Takashi Shiozaki, Xizhe Liu, Yasuyuki Ishibashi

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Altered Gene and Protein Expressions in Torn Rotator Cuff Tendon Tissues in Diabetic Patients

Seok Won Chung, Yong-Soo Lee, Ja Yeon Kim, Kyung-Soo Oh, Jin-Young Park

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Development of an Agent-Based Model to Predict the Salient Features of Age-Related Patellar Tendon Degeneration

Madison K. Vanosdoll, Wendell M.R. Heard, Felix H. Savoie, Kristin S. Miller

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Fcrl3 Polymorphism Increase the Risk of Tendinopathy in Volleyball Athletes

Jamila Perini, Diego Aguiar, Daniel Machado, Lucas Lopes, João Olyntho Machado Neto, João Matheus Guimarães, Maria Eugenia Leite Duarte, José Inácio Salles

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Platelets Activated by PAR-1 & 4 Exert Differential Effects on Tendon Stem Cells—An Effective Strategy to Treat Tendon Injuries in Clinics

Jianying Zhang, Daibang Nie, Jorge L. Rocha, MaCalus V. Hogan, James H.C. Wang

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Yap is Required for the Tendon Healing Response

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A New Murine Model of Subacromial Impingement: Biomechanical, Histologic, and Gene Expression Features

Amir Lebaschi, Guang-Ting Cong, Christopher Camp, Camila Carballo, Zoe Album, Liang Ying, Xiang-Hua Deng, Scott Rodeo

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Targeted Smad4 Deletion in Tenocytes Enables Tendon Cell Recruitment After Adult Tendon Injury

Chun Chien, Kristen Howell, Alice H. Huang

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Platelet-Rich Plasma Promotes Proliferation and Migration but Does Not Effect on Differentiation in Tendon-Proper Derived Stem/Progenitor Cells and Peritenon Derived Stem/Progenitor Cells

Sosuke Imai, Ken Kumagai, Hironori Tanabe, Yasuteru Yamaguchi, Kazuma Miyatake, Hiroto Kono, Tomoyuki Saito

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A Novel In Vitro Model System for Isolating Mechanotransduction Effects of Applied Stress Versus Strain

John Boyle, Suphannee Pongkitwitoon, Stavros Thomopoulos

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Murine Supraspinatus Tendon Detachment and Repair Model Augmented with Tendon-Derived, Activated Endothelial Cells: A New Concept in Biologic Enhancement of Tendon-to-Bone Healing

Amir Lebaschi, Christopher Camp, Camila Carballo, Guang-Ting Cong, Zoe Album, Liang Ying, Xiang-Hua Deng, Scott Rodeo

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Integrin $\alpha 7\beta 1$ Signaling Is Mediated in Muscle Regeneration and Myoblast Syncytial Fusion

Michael J. McClure, David Cohen, MoonHae Sunwoo, Yen C. Huang, Barbara D. Boyan, Zvi Schwartz

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Sarcopenia, Atherosclerosis, and Inflammation in Community Dwelling People—The Yakumo Study

Tetsuro Hida, Shiro Imagama, Yoshihiro Nishida, Naoki Ishiguro

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Analysis of Skeletal Muscle and Regeneration Under Circulation Decline in Ob/ob Mice

Takahiro Asano, Masaya Tsujii, Takuya Nakanishi, Takahiro Iino, Akihiro Sudo

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Tendon Transection Results in Muscle Stem Cell Activation in a Mouse Model of Rotator Cuff Injury

Steven Garcia, Michael Davies, Stanley Tamaki, Xuhui Liu, Joanna Dreux, Solomon Lee, Anthony Jose, Brian Feeley, Jason H. Pomerantz

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Bisphosphonates Inhibit Immobilization-Induced Skeletal Muscle Atrophy

Ryuichi Watanabe, Takeshi Miyamoto, Morio Matsumoto, Masaya Nakamura

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Resuscitation Fluid Can Affect Severity of Muscle Injury

Amit Aurora, Janet Roe, Nsini Umoh, Joseph Wenke, Thomas J. Walters

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Active and Passive Muscle Mechanics Are Altered in a Rat Elbow Model of Post-Traumatic Joint Contracture

Chelsey L. Dunham, Aaron M. Chamberlain, Leesa M. Galatz, Gretchen A. Meyer, Spencer P. Lake

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Estrogen-Related Receptor γ -Overexpressing C2C12 Cells Rescues the Defect of Old Muscle Progenitor Cells Through VEGFA

Alex Scibetta, Aiping Lu, Vihang A. Narkar, Johnny Huard

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Fibrosis and Functional Recovery in a Rat Muscle Crush Injury Model Treated with Trauma-Induced Mesenchymal Progenitor Cells

Christopher M. Daniels, Youngmi Ji, Daniel Griffin, Tiffani Slaughter, Vyomesh Patel, Leon J. Nesti

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Vitamin D Receptor Polymorphisms Are Associated with Baseline Muscle Strength and Response to Strength Training

Jordan S. Cohen, Andrea Attenasio, Samuel Swenson, Alex Gu, Heather Gordish-Dressman, Marianne Floor, Brennan Harmon, Eric Hoffman, Dustin Hittel, Susan Knobloch, Joseph Devaney, Laura L. Tosi

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The Effect of Substrate Stiffness and Adhesion on the Structure and Function of Tissue-Engineered Skeletal Muscle Units

Brittany L. Rodriguez, Rebecca L. Blair, Lisa M. Larkin

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In Vivo Functional Selection of Chemokines Identifies Ccl7 as a Stimulator of Regeneration in Injured Skeletal Muscle

Pirkka Kaipainen, Giulia Ruozi, Ilmari Lahtinen, Francesca Bortolotti, Ulrike May, Stuart Prince, Mauro Giacca, Tero Järvinen

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Ultrasound Images to Determine Dynamic Changes and Muscle Activity in the Gastrocnemius Muscle While Squatting

Kouhei Yoshino

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Altered Leg Circumference and Muscle and Skin Hemodynamics During Lower Body Negative Pressure and Recovery

Roshmi Bhattacharya, Rachel L. Becker, Alan R. Hargens

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Protein Expression, Glycosylation and Assembly of the Alpha 6 Chain of Collagen VI, a New Member of the Collagen VI Family

Jamie Fitzgerald, Jamie Endicott, Paul Holden

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Effect of Transcutaneous Carbon Dioxide (CO₂) Application for Muscle Atrophy Associated with Femoral Bone Defect in Rats

Shunsuke Takahara, Takahiro Niikura, Sang Yang Lee, Takashi Iwakura, Michio Arakura, Yu Kuroiwa, Yohei Kumabe, Ryosuke Kuroda

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Deltoid Muscle Volume by Three Dimensional Measurement Affects Clinical Outcome of Reverse Total Shoulder Arthroplasty in Cuff Tear Arthropathy

Jong Pil Yoon, Anna Seo, Jeoung Jun Kim, Seung-Hun Baek, Shin Yoon Kim, Seok Won Chung

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Mechanical Stimulation Alleviates the Defects Observed in Progeria Muscle-Derived Stem Cells

Andrea Liebowitz, Elizabeth Morris, Alex Scibetta, Xiaodong Mu, Johnny Huard

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Measuring Microvascular Flow Through Photoplethysmography in an Acute Compartment Syndrome Model

Yuki E. Iizuka, Brandon Macias, Robert M. Healey, Alan Hargens

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Volumetric Muscle Loss Injury: Biomaterial Repair in a Large Animal Model

Sarah M. Greising, Jessica C. Rivera, Chrissy M. Leopold Wager, Stephen M. Goldman, Benjamin T. Corona

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TGF- β Limits Thymic Stromal Lymphopoietin Production in Mouse Myoblast Cells Upon TNF- α Stimulation by Suppressing NF- κ B Pathway

Takashi Ando, Jiro Ichikawa, Tetsuro Ohba, Kensuke Koyama, Nobutaka Sato, Masanori Saito, Yoshihiro Takayama, Satoshi Ochiai, Tetsuo Hagino, Hirota Haro

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Muscle Stem Cells Adopt a Neurogenic Lineage in 3D Acellular Nerve Allografts

Alexander Wetzig, Christina Liu, Matthew Wood, Susan Mackinnon, Xiaodong Mu, Johnny Huard

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Involvement of Advanced Glycation End Products—Mediated β -enolase in Diabetic Impaired Muscle Function

Shing-Hwa Liu, Chen-Yuan Chiu, Rong-Sen Yang

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The Role of Pdgfr β Expressing Cells in Skeletal Muscle During Aging

Chieh Tseng, Haiying Pan, Zhanguo Gao, Mikhail G. Kolonin, Aiping Lu, Johnny Huard

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Increased Nf- κ b Activity in Osteoprogenitor-Lineage Cells Impairs the Balance Between Bone/Bone Marrow Fat in Skeletal Mature Mice

Tzu-hua Lin, Jukka Pajarinen, Akira Nabeshima, Laura Lu, Karthik Nathan, Zhenyu Yao, Joy Wu, Stuart B. Goodman

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Can We Predict Bone Quality and Bone Strength by Assessing Handgrip Muscle Strength in Normal Adolescents?

Ka Yee Cheuk, Vivian W.Y. Hung, Wayne Y.W. Lee, Bobby K.W. Ng, Jack C.Y. Cheng, Tsz Ping Lam

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Influence of Loading Cycles and Magnitude on Bone in Independently Ambulatory Children with Spina Bifida

Tishya AL Wren, Nicole M. Mueske, Alexander Van Speybroeck, Deirdre D. Ryan

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Quantifying the Effects of Fetal Immobility on Joint Morphogenesis Using 3D Image Registration

Paraskevi Sotiriou, Paula Murphy, Rebecca A. Rolfe, Niamh C. Nowlan

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Correspondence Between Bone Mineral Density and Intervertebral Disc Degeneration Across Age and Sex

Jarred Kaiser, Brett Allaire, Paul M. Fein, Darlene Lu, Serkalem Demissie, Elizabeth J. Samelson, Mary L. Bouxsein, Elise F. Morgan

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Age- and Sex-Dependent Effects of Advanced Glycation End Products Ingestion on Vertebral Bone Quality and Function in Mice

Paolo E. Palacio-Mancheno, William F. Kindschuh, Xue Chen, Ariel A. Harned, James C. Iatridis, Svenja Illien-Jünger

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Normative Morphology and Growth of the Pediatric Lumbar Vertebrae

James R. Peters, Robert M. Campbell Jr., Sriram Balasubramanian

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The Contribution of Advanced Glycation End-Products to Skeletal Fragility in Type-II Diabetic Rats

Stacyann Morgan, Ewan McNay, Deepak Vashishth

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Physical Risk Factors Related with Progression of Degenerative Change of the Cervical Spine: A 6-year Longitudinal Population-based Study

Gentarō Kumagai, Kanichiro Wada, Toshihiro Tanaka, Takashi Shiozaki, Daisuke Chiba, Yasuyuki Ishibashi

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H19 Promotes Osteoblast Differentiation via Activating Wnt/ β -catenin Signaling

Jin-Fang Zhang, Gang Li

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Regulation of Osteoblast Differentiation by a Novel Bmp Signaling Target Gene *Atoh8*

Yuhei Yahiro, Shingo Maeda, Naohiro Shinohara, Kanehiro Matsuyama, Ichiro Kawamura, Yasuhiro Ishidou, Setsuro Komiya

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Osteogenic Differentiation of Human Adipose Derived Stem Cells is Enhanced by Stem Cell Factor (SCF) Through the mTOR Pathway

Wanqun Chen, Haixuan Chen, Yifei Wang, Xiaodong Mu, Johnny Huard

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Loading-Induced Bone Formation Depends on Osteoblast Proliferation

Heather M. Zannit, Michael D. Brodt, Matthew J. Silva

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Genetic Inhibition of Canonical Notch Signaling Reduces Osteoclast Maturation, but Not Gene Expression

Jason W. Ashley, Gurpreet Kaur, John H. Hebb, Peeyush Goel, Kurt D. Hankenson, Jaimo Ahn

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Progranulin Recruits Hsp70 to β -Glucocerebrosidase and is Therapeutic Against Gaucher Disease

Jinlong Jian, Qingyun Tian, Chuanju Liu

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Differentiating Mesenchymal Stromal Cells Towards an Early Osteocyte-Like Phenotype In Vitro

Ewa M. Czekanska, Rene Rothweiler, Jennifer J. Bara, Robert G. Richards, Mauro Alini, Martin J. Stoddart

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Role of Csf1 in the Proliferation of Osteal Macrophages and Osteoblasts

Paul Childress J. Childress, James Fischer, Austin E. Winger, Safa Mhoamad, Marta B. Alvarez, Edward F. Srouf, Melissa A. Kacena

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Intermittent Parathyroid Hormone Injection Can Decrease Femoral Head Collapse in the Vascular Deprivation of Rat Femoral Head Model

Chiang Chih-Wei, Chen Chih-Hwa, Lee Chian-Her

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Phase Shift of the Circadian Clock by Heat Stimulation in *Mc3t3-e1*

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

PS1 Bone—Osteocytes and Mechanobiology

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Accumulation of Microdamage in Subchondral Bone at the Femoral Head in Patients with Osteoarthritis of the Hip

Masashi Shimamura, Ken Iwata, Tasuku Mashiba, Yamamoto Tetsuji

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Fluid Shear Rate and Shear Stress Modulate Osteoclast Activity and Morphology

Karen Howard, Kenneth Mann, Megan Elizabeth Oest

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High-throughput Computational Characterization of Osteocytic Proteins Upregulated by Mechanical Signals

Graeme Murray

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Altered SOST and Sclerostin Expression in Murine Calvariae following 15 and 30 Days of Spaceflight

Timothy R. Macaulay, Brandon R. Macias, Jamila Siamwala, Joanne Steinauer, Alan R. Hargens

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Exacerbated Loss of Osteocytes in Patients with High Bisphosphonate Suppression of Bone Remodeling

Abigail Coffman, Adele Boskey, Robert Majeska, Deborah Novack, Reina Villareal, Nicola Napoli, Mitchell Schaffler

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Mechanobiological Modulation of In Situ and In Vivo Osteocytic Calcium Oscillations in Response to Acoustic Radiation Force Using Black6 and Ai38/Dmp1-Cre Mice

Minyi Hu, Jian Jiao, Daniel Gibbons, Chaudhry Raza Hassan, Xiaofei Li, Guowei Tian, Yi-Xian Qin

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Nanofishing of Hyaluronic Acid on Murine Osteoblast Precursor Cells

Stefania Marcotti, Koichiro Maki, Taiji Adachi, Gwendolen C. Reilly, Damien Lacroix

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Bone (Re)Modeling Response to Mechanical Loading in Sost Deficient Mice Is Age and Gender Dependent

Haisheng Yang, Alexander Büttner, David Pflanz, Laia Albiol-Sanchez, Annette I. Birkhold, Tobias Thiele, Ina Kramer, Michaela Kneissel, Georg Duda, Uwe Kornak, Sara Checa, Bettina M. Willie

PS1 Bone—Progenitors and Stem Cells

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Oscillatory Fluid Flow Induces MSC Osteogenic Lineage Commitment in a Magnitude and Frequency Dependent Manner

Elena Stavenschi, Marie-Noelle Labour, David A. Hoey

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The Influence of Donor Variability and Medical History on Adipose-Derived Stem Cell Regenerative Potential

Adrienne M. Parsons, Deborah M. Ciombor, Paul Liu, Eric M. Darling

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R-Spondin-2 Deficiency Leads to Defective Osteoblastogenesis and Mineralization

Meghan N. Knight, Michele Lowe, Jaimo Ahn, Kurt Hankenson

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Dioxin Inhibits Osteogenic Differentiation of Human Osteoblast-Like MG-63 Cells

Chawon Yun, Karina M. Katchko, Andrew D. Schneider, Gurmit Singh, Andrew George, Jonghwa Yun, Nehal Samra, Sohyun Lee, Ryan D. Freshman, Wellington K. Hsu, Erin L. Hsu

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Endothelin Receptor Type Dictates Multilineage Differentiation of Tissue-Derived Stem Cells in Response to Endothelin-1 Induction

Ming-Song Lee, Jesse Wang, Huihua Yuan, Tsung-Lin Tsai, Wan-Ju Li

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Enhancer of Zeste Homology 2 (EZH2) and Myogenic miRNAs in Heterotopic Ossification from Combat Blast Injury

Youngmi Ji, Christopher Daniels, Daniel Griffin, Vyomesh Patel, Leon Nesti

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Regulation of Vitamin D Metabolism and Osteoblast Differentiation in Human MSCs: Impact of Chronic Kidney Disease or of Obesity

Julie Glowacki, Jing Li, Fangang Meng, Meryl S. LeBoff, Shuanhu Zhou

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Quantitation of Stem Cell Populations After Bone Marrow Aspirate Concentration

Malcolm R. DeBaun, Richard Schaefer, Erika Fleck, Karen Bieback, Jason L. Dragoo

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Involvement of the Aryl Hydrocarbon Receptor in Cigarette Smoke-induced Inhibition of Osteogenesis

Chawon Yun, Gurmit Singh, Karina Katchko, Andrew Schneider, Andrew George, Jonghwa Yun, Nehal Samra, Sohyun Lee, Ryan Freshman, Wellington K. Hsu, Erin L. Hsu

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Magnetic Sorting Offers Efficient Isolation of Osteogenic Cells from Stromal Vascular Fraction of Fat

Bryan Sutermeister, Eric Darling

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Feline Adipose Derived Multipotent Stromal Cells Express Major Histocompatibility Complex II and Have Ectodermal Transdifferentiation Capacity

Wei Duan, Marilyn A. Dietrich, Mandi J. Lopez

PS1 Bone—Osteoporosis, Metabolic Bone Disease, Biomarkers

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A Novel Method to Quantify Joint Deformity in Psoriatic Arthritis

Travis F. Henchie, Ellen M. Gravalles, Todd L. Bredbenner, Karen L. Troy

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Anabolic Effects of Sclerostin Antibody Therapy in Bone Derived from Pediatric Osteogenesis Imperfecta Patients

Rachel K. Surowiec, Ferrous S. Ward, Basma M. Khoury, Michelle S. Caird, Kenneth M. Kozloff

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Tibial Bone Microvascular Flow Changes as Compared to Anterior Tibial Microvascular Flows During Body Tilt

Rachel L. Becker, Jamila Siamwala, Brandon Macias, Alan Hargens

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Serum Bone Turnover Biomarkers in Revision Surgery for Shoulder Arthroplasty Loosening

Justin T. Smith, Spencer K. Wilhelm, Erin A. Baker, Michael J. Wiater, Kevin C. Baker

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Bone Microarchitecture and Strength Diminished in Mice with Chronic Kidney Disease and Aging

Danielle Howe, Chelsea M. Heveran, Eric W. Livingston, Ted A. Bateman, Karen B. King, Moshe Levi, Virginia L. Ferguson, Anthony G. Lau

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Cellular Mechanisms for the Osteoporotic Phenotype Associated with Perlecan-Deficiency

Ashutosh Parajuli, Victor Yuan Gao, Catherine Kirn-Safran, Liyun Wang

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Deletion of Liver Fatty Acid Binding Protein-1 Increases Bone Marrow Fat and Bone Mass in Male and Female Mice

Claire Watson, Diarra K. Williams, Shannon S. Huggins, Alyssa Falck, Avery L. MacIntosh, Friedhelm Schroeder, Larry J. Suva, Dana Gaddy

Poster No. 712

Is Bone Composition Altered when Turnover Is “Over suppressed” by Bisphosphonate Treatment?

Adele L. Boskey, Lyudmila Spevak, Yihe Huang, Yan Ma, Mitchell B. Schaffler, Nicola Napoli, Reina Villareal, Debra Novack

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Brtl/+ Male and Female Mice Show a Dose-Dependent Bone Response to Sclerostin-Antibody Therapy

Basma M. Khoury, Reid M. Davison, Joan C. Marini, Michelle S. Caird, Kenneth M. Kozloff

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Age-Dependent Systemic Bone Loss and Recovery Following Femoral Fracture in Mice

Armaun J. Emami, Chrisoula A. Toupadakis, Franklin D. Tarke, Clare E. Yellowley, David P. Fyhrie, Blaine A. Christiansen

Poster No. 715

Effects of Osteoporosis on Bone Repair in Lumbar Vertebral Body Defects in Ovariectomized Rats

Munehiro Sakata, Hitoshi Tonomura, Tomonori Itsuji, Hidenobu Ishibashi, Ryota Takatori, Yasuo Mikami, Masateru Nagae, Ken-ichi Matsuda, Masaki Tanaka, Toshikazu Kubo

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Osteophyte Formation in Hip Osteoarthritis Is Related to Clinical Scores, Bone Mineral Density, and Serum TRACP-5b

Takeshi Ogawa, Takashi Sakai, Hidetoshi Hamada, Masaki Takao, Nobuhiko Sugano

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Hearing Loss in Osteogenesis Imperfecta: Altered Intracortical Porosity and Structure in the oim Mice Cochlea

Brendyn J. Miller, Andrew Bodey, Michael Doube, Alessandra Carriero

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Ginkgolide B Promotes Osteogenic Differentiation of Mesenchymal Stromal Cells

Qiao-Ling Chou, Yi-Shiuan Liu, Oscar Kuang-Sheng Lee

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Non-Thermal Infrared Light Decreases Bone Loss Following Ovariectomy

James T. Ninomiya, Janine A. Struve, Omeed Ghassemi, Joshua M. Kolz, Jeanette H. Man, Mei Wang, Dorothee Weihrauch, Scott A. Marshall, Rick Davidson

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Bone Marrow Microvasculature Undergoes Dynamic Angiogenesis and Responds to Anabolic Bone Treatment by Active Remodeling in Adult Animals

Wei Tong, Lin Tiao, Abhishek Chandra, Xiaoyuan Ma, Luqiang Wang, Wei-Ju Tseng, Gaoyuan Cao, X. Sherry Liu, Motomi Enomoto-Iwamoto, Ling Qin

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Genes Involved in Bone Formation, Not Resorption, and Inflammatory Signals Dominate the Differential Gene Expression Profile in an Equine Osteoporotic Condition

Regina Zavodovskaya

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Tibial Reference Point Indentation Predicts Lumbar Vertebral Body Mechanical Behavior in Aging Women

Andrew Chang, Simon Y Tang

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PTH Treatment Assessed by Nanoscale Infrared Spectroscopy

Laurianne Imbert, Eduardo Villarreal-Ramirez, Samuel Gourion-Arsiquaud, Edward F. DiCarlo, Elizabeth G. Pluhar, Adele L. Boskey

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Chronic Alcohol Consumption Alters Adult Stromal Cell Expansion, Multipotentiality, Gene Expression, and Lumbar Vertebral Trabecular Bone in a Dose Dependent Manner

Cristina Terhoeve, Jianhua Xiao, Dejiang Feng, Carmel Fargason, Mandi Lopez

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Tatsuhiko Fukutoku, Gentaro Kumagai, Taku Fujita, Yoshikazu Nikaido, Kanichiro Wada, Xizhe Liu, Toshihiro Tanaka, Takashi Shiozaki, Shinya Ueno, Yasuyuki Ishibashi

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Shu-Hua Yang, Ming-Hsiao Hu, Yuan-Hui Sun, Kai-Chiang Yang

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Pulsed Electromagnetic Fields (PEMF) Reduce Acute Inflammation in the Injured Rat Intervertebral Disc

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Tyler Pizzute, Ming Pei

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Xinyan Tang, Dezba Coughlin, Erik I Waldorff, Nianli Zhang, James T. Ryaby, Tamara Aliston, Jeffery C. Lotz

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Testing the Efficacy of Plga Microparticles for the Controlled and Sustained Delivery of Gdf6 for Intervertebral Disc Regeneration

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Sun H. Peck, Justin R. Bendigo, Sarah E. Gullbrand, John W. Tobias, George R. Dodge, Robert L. Mauck, Neil R. Malhotra, Lachlan J. Smith

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Notochordal Cell-Rich Nucleus Pulposus Matrix as an Inhibitor of Neurite and Blood Vessel Growth

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Anti-inflammatory Properties of Platelet Rich Plasma-releasate on Human Intervertebral Disc Cells

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Thomas W. Evashwick-Rogler, Alon Lai, Jonathan M. Salandra, Devina Purmessur, Branko Skovrlj, Beth A. Winkelstein, Samuel K. Cho, Andrew C. Hecht, James C. Iatridis

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Age-Related Reduction in the Expression of Foxo Transcription Factors and Correlations with Intervertebral Disc Degeneration

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The Role of Indian Hedgehog and Parathyroid Hormone Related Protein in the Intervertebral Disc

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Proline 3-hydroxylation of Type II Collagen Synthesized by a Rat Cell Line Suggests a Nucleus Pulposus Origin

David Hudson, Marylin Archer, MaryAnn Weis, David R. Eyre, Russell J. Fernandes

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James T. Stannard, Benjamin Raines, Olivia E. Stricklin, Nicole L. Walden, Aaron M. Stoker, Theodore J. Choma, James L. Cook

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Constitutive Expression of IL-22 in the Human Intervertebral Disc, and Its Reduction by Exposure to Proinflammatory Cytokines In Vitro

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In Vivo Lumbar Facet Kinematics During a Dynamic Lifting Task

Ryan Byrne, Liying Zheng, Yu Zhou, Ameet K. Aiyangar, Xudong Zhang

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A Breakage of Transverse Process Cortex During Insertion Decreases the Fixation Strength of Pedicle Screw—An In Vitro Human Cadaveric Biomechanical Model

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Marloes Peters, Boudewijn Brans, Roel Wierds, Elisabeth Jutten, Felix Mottaghy, Lodewijk van Rhijn, Willems Paul, J.J. Chris Arts

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The Natural Expression of Bmp Antagonists in Intervertebral Disc Cells

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Reika Uchiyama, Kengo Harato, Masayoshi Kurosawa, Yutaro Morishige, Aiko Sakurai, Toshiro Otani, Hideo Matsumoto, Satoshi Imai, Shu Kobayashi, Yasuo Niki, Morio Matsumoto, Masaya Nakamura, Takeo Nagura

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Weight Bearing Asymmetry Will Lead to the Side-to-Side Differences of Bone Mineral Density at Femoral Neck in Patients with Knee Osteoarthritis

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Biomechanical Comparison of Tension Band Fixation of Patella Transverse Fracture: Headless Screws vs. Headed Screws

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Evaluation of the Natural Patella and the Logic PS Knee Under Physiologic Loading

Luis C. Grau, Raymond Robinson, Karim Sabeh, Ruth Solomon, Andrew Sori, Ted Milne, Loren Latta

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Novel Bony Landmark Between the Attachment of the Medial Meniscus Posterior Root and the Posterior Cruciate Ligament: Radiographic Anatomical Study

Masataka Fujii, Takayuki Furumatsu, Shinichi Miyazawa, Hiroto Inoue, Yuya Kodama, Tomohito Hino, Yusuke Kamatsuki, Toshifumi Ozaki

PS1 Knee—Knee Ligament

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Early Proteolytic Response of the Anterior Cruciate Ligament After Injury

Benedikt L. Proffen, Jakob T. Sieker, Ugur M. Ayturk, Braden C. Fleming, Martha M. Murray

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Graft Fixation Protocol in One-Stage Anterior Cruciate Ligament and Posterior Cruciate Ligament Reconstruction

Li-Bin Zheng, Soheil Sabzevari, Brandon Marshall, Junjun Zhu, Monica A. Linde, Patrick Smolinski, Freddie H. Fu

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Activities Associated with Increased Fear of Re-Injury After Anterior Cruciate Ligament Reconstruction

Michael C. Yonz, Matthew H. Blake, Molly A. Lex, Cale Jacobs, Darren L. Johnson, Mary Lloyd Ireland, Brian Noehren

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Toshikazu Tanaka, Yuichi Hoshino, Nobuaki Miyaji, Kazuyuki Ibaragi, Kyohei Nishida, Yuichiro Nishizawa, Daisuke Araki, Noriyuki Kanzaki, Takehiko Matsushita, Ryosuke Kuroda

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Effect of Defect Size and Plantar Flexion Angle on Stress Distribution Within the Osteochondral Lesions of the Talus

Tomonobu Hagio, Keisuke Sato, Ichiro Yoshimura, Kazuki Kanazawa, Akira Maeyama, So Minokawa, Takuaki Yamamoto

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Pronation of the First Metatarsal in Hallux Valgus: 3D Clinical Measurements

Bradley C. Campbell, Stephen F. Conti, Mark C. Miller

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Postoperative Complications After Acute Achilles Tendon Ruptures: Incidence and Risk Factors

Ruben X.J. Stavenuiter, Bart Lubberts, Robert M. Prince, Ali Hosseini, Daniel Guss, Christopher W. DiGiovanni

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Joseph Mummert, Sascha Bombosch, Jason Longaray, Lizeth Herrera

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Pim A.D. van Dijk, Sofie H. Breuking, Bryan Vopat, Daniel Guss, Holly Johnsson, Guoan Li, Ali Hosseini, Christopher W. DiGiovanni

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Transverse Plane Rotational Misalignment of Total Ankle Arthroplasty Alters Foot Joint Kinematics in Cadaveric Gait Simulation

Brian K. Cook, Christina J. Stender, Cameron G. Patthanacharoenphon, Bruce J. Sangeorzan, William R. Ledoux

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The New Technique of Anterior Portal Placement of Ankle Arthroscopy for the Reduction of Complication Using Peripheral Vein Illumination Device

Yusuke Tsuyuguchi, Tomoyuki Nakasa, Masakazu Ishikawa, Yasunari Ikuta, Mikiya Sawa, Masahiro Yoshikawa, Nobuo Adachi

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Effects of Variations in Dwyer Calcaneal Osteotomy Determined by 3D-Printed Patient-Specific Modeling

Kent T. Weinheimer, Gregory S. Lewis, Evan Roush, Umur Aydogan

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Effects of Micronized Cartilage Matrix on Cartilage Repair in a Model of Osteochondral Lesions of the Talus

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Inter-Segmental Foot Motions in Children and Adolescents Using a Three-Dimensional Multi-Segmental Foot Model

Dong Yeon Lee, Ho Seung Lee, Doo Jae Lee, Sung Hyun Kim

PS1 Infection and Inflammation

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Infection Risk in Primary Joint Arthroplasty—The Impact of Case Sequence

Laura Q. Wu, Ronald W. Lindsey, Zbigniew Gugala

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Prevention of Titanium Associated Acinetobacter Baumannii Infections with Cathodic Electrical Stimulation

Mary Canty, Nicole Luke-Marshall, Anthony Campagnari, Mark Ehrensberger

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Albert Cheng, Laxminarayanan Krishnan, Pallab Pradhan, Krishnendu Roy, Robert Guldberg

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Kelly Hotchkiss, Kegan Sowers, Alex Whitehead, Rene Olivares-Navarrete

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Carbon-Infiltrated Carbon Nanotube Coating of External Fixator Pins Provides MRSA Resistance

Jaelyn Larsen, Stephanie R. Morco, Brian D. Jensen, Anton E. Bowden

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Development of New Amphiphilic Polyelectrolytes for Orthopedic Infection

Chih-Hao Chang, Chia-Wei Hsieh, Jing-Ru Tu, Rong-Sen Yang, Chi-Yang Chao

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Nanosilver: New Approach Towards the Treatment of Intracellular Staphylococcus Aureus

Jason Kang, Jabeen Noore, Bingyun Li

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High-Molecular-Weight Adiponectin Is Correlated with Disease Activity in the Patients with Rheumatoid Arthritis

Yuya Takakubo, Hiroharu Oki, Yasushi Naganuma, Kan Sasaki, Michiaki Takagi

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Conforming Chitosan Paste for Antibiotic Delivery and Infection Prevention

Joel Berretta, Jessica Jennings, Chris Alexander, Mike Harris, Harry Courtney, Karen Beenken, Mark Smeltzer, Warren Haggard

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Single vs. Multidrug Prophylaxis for Gustilo-Anderson Type II and IIIA Open Fractures

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Douglas T. Barber, Dioscaris Garcia, Christopher Born

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Circulating Micrnas Novel Biomarkers for Early Detection of Joint Infections

Evanthia Mourmoura, Konstantinos Malizos, Sokratis Varitimidis, Nikolaos Stefanou, Ioanna Papanthasiou, Eleni Ntounmou, Lydia Anastasopoulou, Aspasia Tsezou

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Magnetic Nanoparticle Hyperthermia in Treatment of Peri-Implant Osteomyelitis

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The Incidence and Risk Factors of Surgical Site Infection in Micro Endoscope-Assisted Posterior Lumbar Interbody Fusion

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MBEC Decreases with Increasing Exposure Time to Antimicrobials

Paulo Castaneda, Alex C. McLaren, Douglas Steinhauft, Derek J. Overstreet

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The Novel Antibiotic Dalbavancin Is Heat Stable, Elutes from Pmma Cement Spacers and Has Superior Antimicrobial Activity Than Vancomycin in an In Vitro Killing Assay of Staphylococcus Aureus

Samrath Bhimani, Alberto Carli, Arvinth Sethuraman, F. Patrick Ross, Mathias P.G. Bostrom

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Regulation Of Pro-Inflammatory Mediators and Intracellular Lipid Accumulation in Progeria Muscle Stem Cells with Mechanical Stimulation

Elizabeth R. Morris, Andrea B. Liebowitz, Alex C. Scibetta, Xiaodong Mu, Johnny Huard

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Normal Parent: The Effects of the Inflammatory Species Hypochlorous Acid on the Electrochemical Behavior of Co-Cr-Mo Alloys

Gregory Kubacki, Yangping Liu, Jeremy Gilbert

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Novel Preclinical Model of Gram-Negative Prosthetic Joint Infection

John M. Thompson, Alyssa G. Ashbaugh, Robert J. Miller, Julie Pickett, Carly Dillen, Roger V. Ortines, Kevin Francis, Nicholas Bernthal, Daniel Thorek, Robert S. Sterling, Lloyd Miller

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"Smart" Polymer Coating Prevents Spinal Implant Infection in a Mouse Model of Spine Surgery

Weixian Xi, Howard Park, Suwei Zhu, Vishal Hedge, Stephen Zoller, Tatiana Segura, Nicholas Bernthal

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Evenly Distributed Thin-Film Ag Coating on Stainless Plate by Tricomponent Ag/Silicate/PU with Antimicrobial and Biocompatible Properties

Chih-Hao Chang, Rong-Sen Yang, Yi-Chen Lee, Jing-Ru Tu, Jiang-Jen Lin

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Zinc Pyrithione and Silver Sulfadiazine Kills Staphylococcus Aureus Persister Cells and Is Effective Against Staphylococcal Biofilm In Vitro

Ryan P. Trombetta, Paul M. Dunman, Edward M. Schwarz, Hani A. Awad

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Influence of an Active Physis in Seeding an Orthopaedic Implant in a Mouse Model of Prosthetic Joint Infection Arising from a Hematogenous Source

John M. Thompson, Alyssa G. Ashbaugh, Yu Wang, Robert J. Miller, Kevin P. Francis, Nicholas Bernthal, Robert S. Sterling, Lloyd S. Miller

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Plasma Levels of Acrolein in Patients with Rheumatoid Arthritis

Takatoshi Soutome, Chisato Kawabata, Yuko Hotta, Nagayoshi Tarumoto, Koichiro Shiokawa, Kazuei Igarashi, Hirotaka Kawano, Keita Nishimura

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Syndecan-4 Deficiency Influences Bone Healing Dependent on Inflammatory Signals During Aging and Estrogen Deficiency

Melanie Timmen, Heriburg Hidding, Britta Wieskoetter, Daniel Kronenberg, Michael Raschke, Thomas Pap, Richard Stange

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Conjugated Linoleic Acid Promotes Fracture Healing in Rats

Zhong-Shu Shan, Liang Chen, Xiao Z. Shen, Xi Chen, Zong-Ping Luo

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Role of the Glucocorticoid Receptor in Fracture Healing

Anna E. Rapp, Yasmine Hachemi, Julia Kemmler, Mascha Koenen, Peng Liu, Anita Ignatius, Jan P. Tuckermann

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Evaluation of High-Resolution Small Animal MRI for Longitudinal Analysis of Endochondral Fracture Healing in Mice

Melanie Haffner-Luntzer, Fabian Müller-Graf, Yvonne Hägele, Verena Heidler, René Jonas, Romano Matthys, Volker Rasche, Anita Ignatius

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Mechanisms of Mandibular Healing: Transformation of Cartilage to Bone

Sarah A. Wong, Diane P. Hu, Theodore Miclau, Chelsea S. Bahney, Ralph S. Marcucio

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Role of Interleukin-6 in the Inflammatory and Repair Phase of Fracture Healing

Katja Prystaz, Anna Kovtun, Kathrin Kaiser, Verena Heidler, Melanie Haffner-Luntzer, Jochen Kroner, Georg H. Waetzig, Stefan Rose-John, Anita Ignatius

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Radiation-Induced Changes to Bone Mineral and Matrix Quality Extend throughout Cortical Bone

Gurjit S. Mandair, Megan E. Oest, Kenneth A. Mann, Timothy A. Damron, Michael D. Morris, David H. Kohn

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Regulation of SDF-1 and CXCR-4 in Fracture Healing

Jan-Tobias Weitkamp, Sabine Fuchs, Andreas Seekamp, Sebastian Lippross, Peter Behrendt, Tim Klüter

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Spatiotemporal Mustn1 Protein Expression During Skeletal Development and Regeneration

Evan H. Chernoff, Eleni Kallinos, David E Komatsu, Michael Hadjiargyrou

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Association Of Bone Mineral Density With Distal Ulnar Fracture Combined With Distal Radius Fracture

Tetsu Tsubone, Naoki Toba, Fumio Fukuda, Natsuki Hara, Toshinari Iiyama, Jun Fujita, Michiko Tamaru, Shuhei Yoshida

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Long Term In Vitro Testing of a Wireless Pressure Sensor for Detection of Acute Compartment Syndrome

John F. Drazan, Michael T. Wassick, Khalil A. Drayton, Samuel R. Mayo, Nathaniel C. Cady, Reena Dahle, Eric H. Ledet

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A Biomechanical Study Comparing Minimally Invasive Anterior Pelvic Ring Fixation Techniques to External Fixation

Lauren M. McCormick, Jeff Gilbertson, Sikander E. Khan, Frank Chen, Lisa K. Schroder, Joan E. Bechtold, Peter A. Cole

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Ideal Entry Points for an Antegrade Humeral Nail: A Three-Dimensional Computational Analysis

Alex Chaw Tat Choh, Suraya Zainul-Abidin, Andy Yew, Joyce Suang Bee Koh, Tet Sen Howe, Mann Hong Tan

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Mechanical Profile of Intramedullary Reaming in the Tibia

Kari Puma, Paul Phillips, Mark Ehrensberger

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The Surgeon's Role in Cerclage Wire Failure After Sternal Fracture Repair: A Biomechanical Evaluation

Christina Salas, C. Etta Tabe, Rachel Tufaro, Kwasi Addae-Mensah, W. Daniel Tandberg, Christopher Buksa, Jessica Avila, Jorge Wernly

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The Effect of Various Lateral Locking Plate Configurations on the Fixation Stiffness in Osteoporotic Femoral Sawbones

Amin Mohamadi, Jonathan Egan, Magdalena Nevett, Kenneth Ierardi, Stephen Okajima, Mark Vrahas, Edward Rodriguez, Ara Nazarian, Michael Weaver

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Biomechanical Analysis of Four Augmented Fixations of Plate Osteosynthesis for Comminuted Mid-Shaft Clavicle Fracture

Ming Ni, Jiong Mei, Stacey M.S. Gruber, Chia-Ying James Lin

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Impact of Alternative Drill Hole Locations on Load Bearing Capacity of Long Bone

Christopher J. Yiachos, Subrata Saha

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A Novel Surgical Tool to Facilitate the Entry Point Selection in IM Nailing-Femoral Antegrade Starting Tool (FAST)

Hamid Ebrahimi, Albert Yee, Cari Whyne

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Biomechanical Analysis of Supra-Acetabular Insufficiency Fracture

Hidetatsu Tanaka, Go Yamako, Hiroaki Kurishima, Shutaro Yamashita, Yu Mori, Daisuke Chiba, Etsuo Chosa, Eiji Itoi

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The Modified Extensile Lateral Approach: A Safer Technique for the Surgical Treatment of Calcaneus Fractures?

John Y. Kwon, Tyler A. Gonzalez, Matthew D. Riedel, Ara Nazarian, Mohammad Ghorbanhoseini

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Is There a Time Dependent Fracture Site Bone Loss After Injury?

Lucian B. Solomon, Paul H. Anderson, Dongqing Yang, Mark Rickman, Egon Perilli, David M. Findlay, Gerald J. Atkins

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Temporal and Regional Trends in the Management of Proximal Humerus Fractures Across a 13 Million Patient Database

Lauren L. Nowak, Michael McKee, Marissa Bonyun, Milena Vicente, Aaron Nauth, Emil H. Schemitsch

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Development of a Novel Femur Fracture Fixation Model for Mice Utilizing Open Intramedullary Nailing

Nathan P. Thomas, Joey P. Johnson, P. Kaveh Mansuripur, Jeremy Truntzer, Justin Kleiner, Scott C. McAlister, Christopher T. Born

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Orthopaedic Surgeons' Opinion Surrounding the Management and Evaluation of Proximal Humerus Fractures

Lauren L. Nowak, Milena Vicente, Aaron Nauth, Michael McKee, Jeremy Hall, Emil Schemitsch

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Risk Factors for Delay to Surgery in Patients with Hip Fractures

Yonah Heller, Luke Garbarino, Ariel Goldman

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A Universally Applicable Objective CT-based Method for Quantifying Articular Fracture Severity

Kevin N. Dibbern, Andrew M. Kern, Donald D. Anderson

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Noninvasive Intracranial Pressure Following Simulated Head Contact

William Watkins, Alan R. Hargens, Erika M. Clary, Shannon Baird, Douglas G. Chang, Brandon R. Macias

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Microdamage Accumulation and Osteocyte Necrosis Cause Atypical Femoral Fractures from Bone Histomorphometric Findings of Cortex of Fracture Sites

Naoki Kondo, Taketoshi Shimakura, Yo Watanabe, Noriaki Yamamoto, Naoto Endo

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Catastrophic Failure in Proximal Sesamoid Bones of Racehorses Is Associated with Increased Bone Density

Erin N. Cresswell, Sean P. McDonough, Scott E. Palmer, Christopher J. Hernandez, Heidi L. Reesink

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Enhancement of Fracture Healing in the Rat Modulated by Compounds That Stimulate Inducible Nitric Oxide Synthase

Sang-Hyun Park, Rebecca Rajfer, Ayhan Kilic, Su Hlaing, Lean Schulte, Andrew Neviasser, Eddie Ebramzadeh, Jessica Landeros, Monica Ferrini

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Palovarotene Treatment Suppresses Osteoprogenitor Cell Activity and Ectopic Bone Formation in a Trauma Induced Rodent Model of Heterotopic Ossification

Ammar T. Qureshi, Jonathan G. Seavey, Katherine E. Cilwa, Allison M. Tomasino, Wesley Bova, Cynthia Boehm, Erin M. Sanders, Devaveena Dey, Jonathan A. Forsberg, George Muschler, Thomas A. Davis

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Acute Limb Ischemia and Reperfusion Impairs rhBMP-2 Mediated Fracture Healing

Stephen M. Goldman, Richard K. Hurley Jr., Beth E. Pollot, Joseph C. Wenke, Bryan K. Lawson, Benjamin T. Corona

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Patient Specific 3D Printed Titanium Truss Strut Implants Combined with the Masquelet Technique: A Novel Strategy to Reconstruct Massive Segmental Bone Loss

Kevin Tetsworth, Joe Isaacs, Vaida Glatt

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Delayed Endothelial Progenitor Cell Therapy Promotes Bone Defect Repair in a Pre-Clinical Rat Model

Brent D. Bates, Charles Godbout, David J. Ramnarain, Emil H. Schemitsch, Aaron Nauth

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Exogenous Hedgehog Signal Inhibition Impairs Fracture Healing

Jennifer McKenzie, Xiaochen Liu, Clayton Maschhoff, Matthew J. Silva, Michael J. Gardner

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Chitosan Paste for Local Antibiotic Delivery: An Assessment of Cell and Tissue Compatibility

Christopher M. Alexander, Joel M. Berretta, Warren O. Haggard, Jessica A. Jennings

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Pattern Analysis of Time Series Transcriptomic Datasets Reveal Similarities in Aging-related Defects in Fracture Healing and Liver Regeneration

Theresa Freeman

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Using Impedance to Characterize Fracture States in Externally-Stabilized Mouse Tibia Fractures vs. Critical-Sized Defects

Monica C. Lin, Diane Hu, Frank Yang, Safa T. Herfat, Chelsea S. Bahney, Michel M. Maharbiz, Meir Marmor

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Co-Delivery of BMP-2 and Vascular Cell Source to Mitigate Composite Bone and Muscle Injury

Marissa A. Ruehle, Laxminarayanan Krishnan, Hazel Y. Stevens, Nick J. Willett, Robert E. Guldberg

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Stimulation of Fracture Healing Using Parathyroid Hormone in Alcohol Induced Delayed Unions

Taylor J. Reif, Esha Kapania, Joshua Eisenberg, John Callaci

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Transcutaneous CO₂ Application Accelerates Bone Regeneration in a Rat Femoral Defect Model

Yu Kuroiwa, Takahiro Niikura, Shunsuke Takahara, Sang Yang Lee, Takashi Iwakura, Michio Arakura, Yohei Kumabe, Yoshitada Sakai, Ryosuke Kuroda

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Wear Resistance Characterization of CoBlast Surface Modifications for Metallic Implants

Sarah Helms, Marian Kennedy, John DesJardins

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Osteoprogenitors, but Not Endothelial Cells Are Directly Affected by PTH in Modulating Vasculogenesis Around Calvarial Allografts

Doron Cohn-Yakubovich, Dmitriy Sheyn, Eran Yalon, Yeshai Scharj, Alin Yaya, May Amira, Gadi Pelled, Dan Gazit, Zulma Gazit

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Pullout Strength After Multiple Reinsertions in Radial Bone Fixation

Alfonso Mejia, Farid Amirouche, Giovanni F. Solitro, Donald Chuang, Elena Gonzalez, George Ozoude

PS1 Diagnostic Imaging

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Quantitative Evaluation of Muscle Volume of the Supraspinatus Using 3D MRI: Comparison of Before and After Surgery

Tsuyoshi Sasaki, Atsushi Yamamoto, Noritaka Hamano, Hitoshi Shitara, Tsuyoshi Ichinose, Kenji Takagishi

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Neutron Tomographic Imaging of Bone-Implant Ingrowth

Hanna Isaksson, Erika Tudisco, Christina Perdikouri, Sophie LeCann, Mikael Turunen, Anders Kastner, Magnus Tägil, Stephen Hall

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Deep Imaging of Traditional Histological Staining in Cartilage Tissue Using Optical Clearing and Confocal Microscopy

Soham Ghosh, Dominik Haudenschild, Sarah Calve, Corey P. Neu

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In Vivo Densitometric Analysis at the Metatarsal and Tarsometatarsal Joint in Normal and Hallux Valgus Patients

Bradley C. Campbell, Stephen F. Conti, Mark C. Miller

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Analysis of Femoral Anteversion Angle in Canines and Humans: Establishing a Uniform Method for Clinical Use and Comparative Analysis

Mitchell D. Peterson, Madison S. Doutré, Tony Y. Kuo, Roy D. Bloebaum, John G. Skedros

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A Simple Correction Strategy for Elasticity Measurements in Thin Layer Samples Using Shear Wave Elastography

Hao Xu, Jian-Qiang Mo, Shi-Gao Chen, Kai-Nan An, Zong-Ping Luo

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Automatic Knee X-Ray Analysis System Reveals That Meniscus Repair During Anterior Cruciate Ligament Reconstruction Surgery Cannot Prevent the Development of Osteoarthritis

Koji Otabe, Mai Katakura, Toshiyuki Ohara, Kaori Nakamura, Masafumi Horie, Hideyuki Koga, Toshifumi Watanabe, Ichiro Sekiya, Takeshi Muneta

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Validation of Digital Visual Analog Scale (VAS) Pain Scoring with Traditional Paper Based Visual Analog Scale Pain Scoring in Adults

Domenica A. Delgado, Joshua D. Harris, Andrew Robbins, Bradley S. Lambert, Nickolas Boutris, Cole Chapman, Michael R. Moreno, Patrick C. McCulloch

Poster No. 1281

Importance of Lateral Radiographic Parameters in Predicting Elbow Deformity Following Pediatric Supracondylar Humeral Fracture Treatment

Takamasa Shimizu, Shohei Omokawa, Atsushi Yoshida, Tadanobu Onishi, Yasuhito Tanaka

Poster No. 1282

How Does the T1 ρ Relaxation Time Change with Time in Asymptomatic Hips with CAM Femoral Acetabular Impingement?

George Grammatopoulos, Gerd Melkus, Kawan S. Rakhra, Paul E. Beaulé

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Simultaneously Excited Multi-Slice DTI in the Peripheral Nerves

Tina Jeon, Ek Tsoon Tan, Maggie M.K. Fung, Darryl B. Sneag

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Whole Human Vertebral Body Creep is Associated with DTS-Derived Texture Parameters

Daniel Oravec, Woong Kim, Michael J. Flynn, Yener N. Yeni

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Automated Bone Segmentation and Surface Topology Evaluation in a Small Animal Model of Osteoarthritis

Austin Ramme, Matin Lendhey, Kevin Voss, Jurinus Lesporis, Thomas Coughlin, Oran Kennedy

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Shear Wave Elastography (SWE) of Healthy Achilles Tendons: A Comparison Between Professional Athletes and the Non-Athletic General Population

Valentin M. Quack, Simone Schradling, Marcel Betsch, Matthias Gatz, Markus Tingart, Timm Dirrichs

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Vertebral Endplate and Shell Thickness Measurement Using Digital Tomosynthesis

Yener N. Yeni, Michael R. Dix, Angela Xiao, Daniel Oravec, Michael J. Flynn

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Cervical Nerve Root to Foraminal Size Ratio Correlates with Post-Surgical Patient-Reported Outcomes

Yener N. Yeni, Mirabelle Lindquist, Daniel Oravec, Timothy Baumer, Michael J. Bey, Stephen Bartol, Victor Change

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Objective Quantitative Assessment of Cervical Spondylotic Myelopathy Severity Using Preoperative MRI and Machine Learning

Matthew J. Courtemanche, Maryse Fortin, Michael G. Fehlings, Michael Weber, Carolyn J. Sparrey

PS1 Tumors—Metastatic Tumors

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Metastatic Involvement in Vertebral Bone Modifies Features of the Bone Tissue Matrix Impacting Its Material Characteristics and Mechanical Behaviour

Mikhail V. Burke, Ayelet Atkins, Ahmad Golaraei, Virginijus Barzda, Margarete Akens, Cari Whyne

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Physiological Loading Enhances Convective Transport of ¹⁸F-Fluoride in a Rat Model of Tibial Metastasis

Vittorio Gatti, Paolo E. Palacio-Mancheno, Valerie A. Longo, Pat B. Zanzonico, Vinagolu K. Rajasekhar, Gene R. DiResta, John H. Healey, Susannah P. Fritton

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Signature Genetic Mutations Related to Refractory Bone Metastasis in Non-small Cell Lung Cancers

Sungwook Seo

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Thrombospondin2 Enhances Vcam1 Expression and Cell Migration Via Integrin $\alpha\beta3$ Dependent Signaling Pathway in Human Osteosarcoma Cells

Ju-Fang Liu, Sheng-Mou Hou, Chun-Han Hou

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Difference of Microrna Profiling Between Osteosarcoma Cells and Secreted Exosomes

Kiyono Masahiro, Tomohiro Fujiwara, Aki Yoshida, Takuya Morita, Koji Uotani, Yusuke Mochizuki, Tadashi Komatsubara, Kazuhisa Sugiu, Joe Hasei, Toshiyuki Kunisada, Toshifumi Ozaki

PS1 Tumors—Primary Tumors

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Sodium Valproate, a Histone Deacetylase Inhibitor, Induces the Expression of Cell-Surface Nkg2d Ligand, Mica and B, with Decreasing Their Soluble Forms to Enhance Susceptibility of Human Osteosarcoma Cells to Natural Killer Cell-Mediated Cytotoxicity

Shunsuke Kumanishi, Koji Yamanegi, Hiroyuki Futani, Keiji Nakasho, Shinichi Yoshiya

Poster No. 1296

Influence of Rhbmp-2 on Canine Adipose Derived Mesenchymal Stem Cells and Canine and Human Osteosarcoma Cells

Callie Rogers, Laura Chubb, Ross H. Palmer, Ruth Rose, Edward Cheng, Nicole E. Ehrhart

Poster No. 1297

Validation of a Rat Model for Analyzing microRNA in Chondrosarcoma

Nicholas B. Frisch, Timothy J. Evans, Christopher Dobson, Yun Wang, Albert M. Levin, Gary Gibson, Michael P. Mott, Theodore Parsons

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The Anti-Tumor Effects of Chemotherapy on Human Osteosarcoma Cell Line in Combination with Suppression of Heat Shock Protein

Yuki Mori

Poster No. 1299

Inhibition of Casein Kinase 2 Prevents Growth of Human Osteosarcoma

Kengo Takahashi

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Prospective Randomized Clinical Trial Comparing Ultraporous Beta-Tricalcium Phosphate with Bone Marrow Aspirate to Combined TCP with Calcium Sulfate in Cured Benign Cavitary Tumor Lesions

Timothy A. Damron, William Grant, Tina Craig, Joseph Inzinna, Hal Cohen

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Frequent Amplification of Receptor Tyrosine Kinase Genes in Well Differentiated/Dedifferentiated Liposarcoma

Naofumi Asano, Akihiko Yoshida, Sachiyo Mitani, Eisuke Kobayashi, Bunsyo Shiotani, Motokiyo Komiyama, Hiroyuki Fujimoto, Hirokazu Chuman, Hideo Morioka, Morio Matsumoto, Masaya Nakamura, Mamoru Kato, Akira Kawai, Tadashi Kondo, Hitoshi Ichikawa

Poster No. 1302

The Antitumor Effects of Chloroquine Involve the Suppression of Autophagy and Inhibition of the Mapk Pathway in Osteosarcoma Cells

Yoichi Kitano, Osamu Nakamura, Hideki Nishimura, Ryosuke Horie, Natsuko Fukuoka, Tetsuji Yamamoto

Poster No. 1303

Proteomics Analysis of Characteristic Histological Changes with Denosumab Treatment in Giant Cell Tumors of Bone

Yoshiyuki Suehara, Kenta Mukaihara, Yu Tanabe, Shinji Kohnsaka, Saiko Kazuno, Midori Ishii, Keisuke Akaike, Daisuke Kubota, Kazuo Kaneko, Tsuyoshi Saito

Poster No. 1304

Myxofibrosarcoma Detection Using 5-ALA Tumor Paint in a Micromass Culture

Shachar Kenan, Haixiang Liang, Howard Goodman, Daniel A. Grande, Adam Levin

Poster No. 1305

Characterization of Circulating Micro Rnas in Tumor Derived Exosomes in Myxofibrosarcoma Patients

Takuya Morita, Tomohiro Fujiwara, Koji Uotani, Aki Yoshida, Masahiro Kiyono, Kazuhisa Sugiu, Tadashi Komatsubara, Yusuke Mochizuki, Joe Hasei, Toshiyuki Kunisada, Akira Kawai, Takahiro Ochiya, Toshihumi Ozaki

Poster No. 1306

Identification of Exosomal Surface Markers by Proteomic Profiling of Exosomes Derived from Ewing Sarcoma Cells

Aki Yoshida, Tomohiro Fujiwara, Koji Uotani, Yusuke Yoshioka, Koji Ueda, Takuya Morita, Masahiro Kiyono, Kazuhisa Sugiu, Tadashi Komatsubara, Jo Hasei, Toshiyuki Kunisada, Takahiro Ochiya, Toshifumi Ozaki

Poster No. 1307

Telomerase-Specific Oncolytic Adenoviral Therapy Reverses Chemoresistance and Radioresistance in Human Osteosarcoma

Yusuke Mochizuki, Toshimori Omori, Shuhei Osaki, Joe Hasei, Tsuyoshi Sasaki, Kazuhisa Sugiu, Tadashi Komatsubara, Tomohiro Fujiwara, Toshiyuki Kunisada, Hitoshi Tazawa, Toshiyoshi Fujiwara, Toshifumi Ozaki, Shunsuke Kagawa, Yasuo Urata

Poster No. 1308

Plasma-Activated Media Kill Osteosarcoma Cells by Inducing Autophagy and Caspase-counteracted Cell Death

Tomohisa Ito

Poster No. 1309

Novel Non-Invasive Diagnostic Approach Using Serum Cell-Free MicroRNAs for Patients with Synovial Sarcoma

Koji Uotani, Tomohiro Fujiwara, Aki Yoshida, Takuya Morita, Masahiro Kiyono, Yutaka Nezu, Yusuke Mochizuki, Tadashi Komatsubara, Kazuhisa Sugiu, Joe Hasei, Toshiyuki Kunisada, Akira Kawai, Takahiro Ochiya, Toshifumi Ozaki

POSTER SESSION 2

Posters will be displayed Tuesday, March 21, 2:00 PM – 5:00 PM and Wednesday, March 22, 10:00 AM – 4:00 PM.

PS2 Biomaterials—Other

Poster No. 1310

Electrospun Nanofiber Sheets Including Methylcobalamin Promote Nerve Regeneration and Functional Recovery in a Rat Sciatic Nerve Injury Model

Koji Suzuki, Hiroyuki Tanaka, Mitsuhiro Ebara, Junichi Sayanagi, Toru Iwahashi, Hozo Matsuoka, Kiyoshi Okada, Tsuyoshi Murase, Hideki Yoshikawa

Poster No. 1311

Evaluation of Thermosensitive Keto-hydrogel for Postoperative Pain Control in a Rat Model

Meng-Huang Wu, Wei-Bin Hsu, Navneet Kumar Dubey, Tsung-Jen Huang, Chung-Sheng Shi, Chung-Hang Wong

Poster No. 1312

Transcriptional Profiling of Macrophages Induced by Phagocytosis of Wear Debris from Ultrahigh Molecular Weight Polyethylene

Alaa Terkawi, Masanari Hamasaki, Daisuke Takahashi, Tsuyoshi Asano, Tohru Irie, Tomohiro Onodera, Norimasa Iwasaki

Poster No. 1313

Biomimetic Coatings and Negative Pressure Wound Therapy Limit Epithelial Downgrowth Around Percutaneous Devices

Sujee Jeyapalina, Saranne J. Mitchell, Jayant Agarwal, Kent N. Bachus

Poster No. 1314

Comparative Wear Performance of Ceramic-on-Ceramic Bearings Under Non-Standard Hip Simulation

Bryan J. Mcentire, Ramaswamy Lakshminarayanan, Darin Ray, Ian C. Clarke, Giuseppe Pezzotti

Poster No. 1315

Effects of Altering Spacer Material and Topography on Membrane Mechanics in the Masquelet Technique

Natalie Gaio, Zachary Toth, Tracy Watson, Daemeon Nicolaou, Sarah McBride-Gagy

Poster No. 1316

A Silver-Based, Titanium Dioxide/Polymer-Hybrid Coating as a Preventative for C. Albicans Biofilms

Kevin Mertz, Dioscaris R. Garcia, John Jarrell, Christopher Born

POSTERS

Poster No. 1317

Maintaining of Induced Pluripotent Stem Cells Through Culture on Nanopattern Polydimethylsiloxane Membrane

Gun-Il Im, Ji-Yun Ko, Jimin Lee

Poster No. 1318

Exploratory Study on the Effect of Osteoactivin on Muscle Regeneration in a Rat Volumetric Muscle Loss Model

Jinjin Ma, Anthony Calabro, Andrew R. Baker, Kathleen A. Derwin

Poster No. 1319

Post-Debridement Local Antimicrobial Delivery from PNDJ Gel is Effective for Orthopaedic Infections: A Rabbit Study

Alex C. McLaren, Paulo Castaneda, Derek J. Overstreet

Poster No. 1320

A Comparison of the Surface and Bulk Mechanical Properties of Ultra High Molecular Weight Polyethylene (UHMWPE) Infused with Vitamin E

Sofia E. Arevalo, Louis Malito, Lisa Pruitt

Poster No. 1321

The Effects of Elastic Intramedullary Nails of a New β Type Ti-nb-sn Alloy with Low Young's Modulus on Fracture Healing in Mice Tibiae

Hirokazu Fujisawa, Yu Mori, Masayuki Kamimura, Naoya Masahashi, Shuji Hanada, Eiji Itoi

Poster No. 1322

Interface Analysis of the Low Young's Modulus Ti-nb-sn Alloy with Anodic Oxidation and Hot Water Treatment Implanted to Rabbit Femur

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

Poster No. 1323

Analysis of Ti-Alloy Surface Conditions After Changes in Laser Marking Power

Ethan S. Baker, Satya Nambu, Irina Timmerman

PS2 Biomaterials—Bone

Poster No. 1324

Transplantation of Paclitaxel Impregnation Hap/Col to Bone Metastasis Model Rat

Matsumoto Rempei

Poster No. 1325

In Situ Microcomputed Tomography Study of the Local Deformation Behavior of Porous PEEK

David L. Safranski, Nathan T. Evans, F. Brennan Torstrick, Robert E. Guldberg, Ken Gall

Poster No. 1326

Novel Calcium Phosphate Antibiotic Carrier with Slow Release Properties to Protect and Promote Bone Healing

Siddhesh R. Angle, Michael Strunk, Jerry Chang

Poster No. 1327

Local Delivery of Cefazolin from Calcium Phosphate Cement: An In Vitro Elution Study

Michio Arakura, Takahiro Niikura, Sang Yang Lee, Takashi Iwakura, Shunsuke Takahara, Yu Kuroiwa, Ryosuke Kuroda

Poster No. 1328

Bone Formation and Beta-Tricalcium Phosphate Resorption in Opening High Tibial Osteotomy with 10 Years Follow-Up

Takaaki Tanaka, Yoshio Kumagai, Masaaki Chazono, Hirokazu Komaki, Seichiro Kitasato, Atsuhito Kakuta, Syousi Akiyama, Keishi Marumo

Poster No. 1329

Two-Step Stem Cell Therapy Significantly Improves Bone Regeneration in a Murine Critical Size Femoral Bone Defect Model Compared to Instant Stem Cell Therapy

Julia Bolte, Robert Langanke, Anna Carla Culla, Tilman Ahlfeld, Matthias Schumacher, Jörg Nowotny, Philip Kasten, Klaus-Peter Günther, Klaus-Dieter Schaser, Stuart Goodman, Maik Stiehler, Michael Gelinsky, Stefan Zwingenberger

Poster No. 1330

Study of the Bioactivity of a Novel 3D Printed Titanium Scaffold and the Effect of Scaffold Pre-conditioning on Cell Attachment

Sorousheh Samizadeh, Chaozong Liu

Poster No. 1331

Inflammatory Profile of MSCs on Microstructured Titanium Is Altered by Bone Morphogenetic Protein 2

Sharon L. Hyzy, Rene Olivares-Navarrete, Sarah E. Ortman, Zvi Schwartz, Barbara D. Boyan

Poster No. 1332

WITHDRAWN

Poster No. 1333

Titanium (Ti6Al4V) Lattices via Selective Laser Melting for Dental and Orthopaedic Applications

Zena J. Wally, Frederik Claeysens, Antonio Feteira, Abdul Haque, Russell Goodall, Gwendolen Reilly

Poster No. 1334

Repair of Femoral Bone Defects in Rats Using Hydroxyapatite/Collagen (HAp/Col) with BMP-2

Satoru Egawa, Wei Xue Tao, Hiroaki Yasuda, Toshitaka Yoshii, Rempei Matsumoto, Atsushi Okawa, Shinichi Sotome

Poster No. 1335

WITHDRAWN

Poster No. 1336

Engineering of Smart Textiles That Mimic Periosteum's Intrinsic Weave

Joanna L. Ng, Lillian E. Knothe, Melissa L. Knothe Tate

POSTERS

Poster No. 1337

Dual Local Delivery of Cefazolin and Gentamycin from Calcium Phosphate Cement: An In Vitro Elution Study

Shunsuke Takahara, Takahiro Niikura, Sang Yang Lee, Takashi Iwakura, Michio Arakura, Yu Kuroiwa, Yohei Kumabe, Ryosuke Kuroda

Poster No. 1338

Pre-Vascularized Biomimetic Tissue-Engineered 3D Bone Graft Promotes Neovascularization and Maintains Structural Integrity In Vivo

Brittany L. Taylor, Sarah Indano, Isabel Perez, Joseph Freeman

Poster No. 1339

Development of a Ceramic-Demineralized Bone Matrix Biomaterial Ink for 3D-Printing of Hyperelastic Bone Composite Scaffolds for Spinal Fusion

Andrew Schneider, Adam Jakus, Gurmit Singh, Karina Katchko, Danielle Chun, Joseph Weiner, Ralph Cook, Michael Schallmo, Michael Newton, Tristan Maerz, Kevin Baker, Ramille Shah, Wellington Hsu, Erin Hsu

Poster No. 1340

Antibacterial Activity of Microstructured Silver Platinum-Group Metals (Ag-Pd, Ag-Pt, Ag-Ir) Sacrificial Anode Thin Films

Manfred Koeller, Adham Abuayyash, Christina Sengstock, Chinmay Khare, Yahya Montemani, Kristina Tschulik, Thomas Schildhauer, Alfred Ludwig

Poster No. 1341

Peptide Amphiphile NanoSlurry as an Improved BMP-2 Carrier for Spinal Arthrodesis

Karina M. Katchko, Mark T. McClendon, Sungsoo S. Lee, Gurmit Singh, Andrew D. Schneider, Danielle S. Chun, Joseph A. Weiner, Ralph W. Cook, Michael S. Schallmo, Ryan D. Freshman, Chawon Yun, Samuel I. Stupp, Erin L. Hsu, Wellington K. Hsu

Poster No. 1342

Resorbable AGN1 Biomaterial Confers Biomechanical Integrity to Osteoporotic Cadaveric Femurs

Jonathan L. Shaul, Dominique Favell, Ronald Hill, Bryan Huber, James Howe, Mary L. Bouxsein

Poster No. 1343

Apolipoprotein E (apoe) Plays a Crucial Role in Maintaining Trabecular and Cortical Bone Mass by Promoting Osteoblastic Differentiation and Suppressing Osteoclast Differentiation

Takaaki Noguchi, Kosuke Ebina, Makoto Hirao, Kazuma Kitaguchi, Hideki Yoshikawa

Poster No. 1344

A Biphasic Biomaterial as Carrier for Bone Active Substances: Tibial Bone Defect Reconstruction in Rats

Deepak Raina, Peter Horstmann, Hanna Isaksson, Werner Hettwer, Lars Lidgren, Michael Mørk Petersen, Magnus Tagil

Poster No. 1345

A Novel Regulatory Role of TRAPPC9 in L-Plastin-Mediated Actin Ring Formation and Osteoclast Function

Nazar J Hussein, Thomas Mbimba, Asaad Aladlaan, Mohammad Y. Ansari, Takhar Kasumov, Zhicheng Jin, Fayez Safadi

Poster No. 1346

A Fast-degrading Thiol-Acrylate Hydrogel Shows Promise as a Cell Carrier for Stem-Cell Assisted Cranial Regeneration

Alarbi Emmakah, Marta Alvarez, Paul Childress, W. Scott Goebel, Melissa Kacena, Chien-Chi Lin, Tien-Min Chu

Poster No. 1347

Effects of Elastic Intramedullary Nails of Low Young's Modulus Ti-Nb-Sn-alloy on Bone Healing

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

Poster No. 1348

Unravelling the Connection of Sensory Nerve System and Stem Cells in Magnesium-enhanced Bone Formation

Jiankun Xu, Yifeng Zhang, Jiali Wang, Kiwai Ho, Shuhang Yung, Kaiming Chan, Ling Qin

Poster No. 1349

Prostaglandin EP4 Agonist Promotes Osteoblastic Differentiation and Bone Formation

Sadaaki Kanayama, Takashi Kaito, Kazuma Kitaguchi, Hiroyuki Ishiguro, Kunihiko Hashimoto, Rintaro Okada, Shota Takenaka, Takahiro Makino, Yusuke Sakai, Hideki Yoshikawa

Poster No. 1350

Three-Dimensional Analysis Using CT of the First Metatarsal Torsion in Patients with Hallux Valgus

Tomohiko Ota, Takeo Nagura, Tetsuro Kokubo, Masateru Kitashiro, Naomichi Ogihara, Yasunori Suda, Morio Matsumoto, Masaya Nakamura

Poster No. 1351

Design, Construction and Mechanical Testing of Porous Titanium Bone Tissue Engineering Scaffold by Three-Dimensional Printing

Qingqiang Yao, Jun Hu, Pengfei Zheng, Zorica Buser, Bo Wei, Jin Zhou, Jiayi Li, Nancy Liu, Jeffrey Wang, Liming Wang

Poster No. 1352

Bioactivity of Titanium Metal Releasing Strontium Ions or Magnesium Ions

Yaichiro Okuzu, Shunsuke Fujibayashi, Seiji Yamaguchi, Koji Yamamoto, Koji Goto, Bungo Otsuki, Tomiharu Matsushita, Tadashi Kokubo, Shuichi Matsuda

Poster No. 1353

Delivery of Liposomal Bone Morphogenetic Protein-2 to Encourage Osseointegration of Cemented Implants

Wayne N. Nishio Ayre, Rachel J. Waddington, Samuel L. Evans, Deborah J. Mason, Bronwen A. Evans, James C. Birchall, Rhidian Morgan-Jones, Stephen P. Denyer, Alastair J. Sloan

POSTERS

Poster No. 1354

Titanium Surface Dependent Regulation of Bone Remodeling in Osseointegration Implicates Semaphorins

Ethan M. Lotz, Michael B. Berger, Sharon L. Hyzy, Zvi Schwartz, Barbara D. Boyan

Poster No. 1355

Customized Load-Bearing and Degradable Functionally-Graded Scaffold for Improved Treatment of Early Stage Osteonecrosis of the Femoral Head

Toshiyuki Kawai, Yunzhi P. Yang, Stuart B. Goodman

Poster No. 1356

The Effect of Ribose Pre-Treatment of Cortical Bone on Gamma-Irradiation Sterilization Effectiveness

Tarik Attia, Jindra Tupy, Dalal Asker, Benjamin Hatton, Marc Grynblas, Thomas Willett

PS2 Biomaterials—Cartilage

Poster No. 1357

Estimations in Articular Cartilage Material Property by Using Image Based Finite Element Analysis

Gangto Lee, Yoonjin Kim, Choongsoo Shin, Yongname Song

Poster No. 1358

Effects of Autologous Osteochondral Transplantation Augmented by Ultrapurified Alginate Gel in Rabbit Model

Ryosuke Hishimura, Tomohiro Onodera, Kazutoshi Hontani, Rikiya Baba, Kentaro Homan, Shinji Matsubara, Zenta Joutoku, WooYoung Kim, Norimasa Iwasaki

Poster No. 1359

Development of Optimized Photocrosslinked Gelatin/Hyaluronic Acid Scaffold for Repair of Osteochondral Defect

Hang Lin, Angela Beck, Shimomura Kazunori, Peter Alexander, Madalyn Fritch, Evan Kilroy, Ying Tang, Rocky Tuan

Poster No. 1360

JAK Nanopieces: Novel, Biomimetic, and Tiny Nano-vehicles for In Vivo Rnai Therapeutics Delivery to Treat Joint Diseases

Hongchuan Yu, Yupeng Chen, Brandon Vorrius, Peter Feltman, Chathuraka Jayasuriya, Michael Ehrlich, Qian Chen

Poster No. 1361

Development of a Gene-Activated Scaffold for Cartilage Defect Repair: The Role of the Sox Trio of Genes

Rosanne M. Rafferty, Sally-Ann Cryan, Fergal J. O'Brien

Poster No. 1362

Postoperative 3 Years Followup of Matrix Induced Autologous Chondrocyte Implantation in 67 Cases

Wei Min Zhu

Poster No. 1363

Combinatorial Effects of Type II Collagen and Transforming Growth Factor- β 3 on Chondrogenesis Within Stem Cell Laden Alginate Hydrogels

Swetha Rathan, Daniel J. Kelly

Poster No. 1364

How Does the Coefficient of Friction of All Cartilage Bearings Compare to Cartilage On-Biomaterial Bearings?

Timothy Bertone, Gabrielle Toner, Ryan Siskey, Steven Kurtz

Poster No. 1365

Effects of Osteochondral Defect Size on Cell-free Cartilage Regeneration Using a Double-Network Hydrogel

Kotaro Higa, Nobuto Kitamura, Keiko Goto, Shuken Kai, Takayuki Kurokawa, Jian Ping Gong, Fuminori Kanaya, Kazunori Yasuda

Poster No. 1366

An Extracellular Matrix Based Hydrogel as In Vitro Model to Study Zone-Specific Chondrocyte Differentiation

Jens Antons

Poster No. 1367

Treatment of Goat Osteochondral Defects with a Novel Biomaterial

Ryan Fernan, Gail K. Naughton, Michael Zimmer

Poster No. 1368

Spatial Growth Factor Delivery for Integrated Osteochondral Tissue Regeneration

Deborah L. Dorcemus, Marisa E. Boch, Syam P. Nukavarapu

Poster No. 1369

Significance of Permeability and Crosslinking Density on Viscoelastic Behavior of Tissue Engineering Scaffolds

Naser Nasrollahzadeh, Dominique Pioletti

Poster No. 1370

Adam10 Inhibitor Suppresses Cd44 Cleavage and Chondrogenic Dedifferentiation in Bovine Primary Chondrocyte Cells

Yasumori Sobue, Nobunori Takahashi, Toshihisa Kojima, Naoki Ishiguro

Poster No. 1371

Intermittent Compression Force as Physical Stimuli Affecting Proliferation and Differentiation of Adipose-derived Stem Cells

Benjamin Teong, Shun-Cheng Wu, Jhen-Wei Chen, Je-Ken Chang, Mei-Ling Ho

PS2-081 Biomaterials—Tendon and Ligament

Poster No. 1372

Effects of Ligament Remnant Tissue Preservation on the Tendon Graft After Anterior Cruciate Ligament Reconstruction: Biomechanical and Histological Evaluations with a Sheep Model

Tsuneari Takahashi, Eiji Kondo, Nobuto Kitamura, Jun Onodera, Masashi Yokota, Masayuki Inoue, Norimasa Iwasaki, Kazunori Yasuda

POSTERS

Poster No. 1373

Biomechanical Evaluation of the Hollow Mesh Suture Technique of Flexor Tendon Repair

Haoyu Liu, Andrew R. Thoreson, Assaf Kadar, Peter C. Amadio, Steven L. Moran, Chunfeng Zhao

Poster No. 1374

Biomechanical Evaluation of Rotator Cuff Repairs and Measuring Gaps Within the Repair

Kevin Collon, David Kaimrajh, Edward Milne, Geoffrey Higgs, Loren Latta

Poster No. 1375

Region-Dependent Distribution of Elastic Fibers in Genetically-Modified Mouse Supraspinatus and Achilles Tendons

Fei Fang, Spencer Lake

Poster No. 1376

The Effect of Vancomycin Soakage on the Material Properties of Patellar Tendon ACL Graft

Joseph Liu, Ian Hutchinson, Tony Chen, Thomas Wickiewicz, Scott Rodeo, Russell Warren

Poster No. 1377

Electrospinning with Porogen to Enhance Cell Infiltration in Tissue Engineered Constructs

Jian Hong Lee, Pen-hsiu Grace Chao

Poster No. 1378

Tailoring the Degradation Rate of a Polydioxanone Yarn with Potential to Improve Soft Tissue Repair

Roxanna E. Abhari, Pierre-Alexis Mouthuy, Cameron Brown, Nasim Zargar, Andrew Carr

Poster No. 1379

Strengthening Tendon-to-Bone Repair with Mechanically-Optimized Adhesives

Stephen W. Linderman, Mikhail Golman, Donghwan Yoon, Victor Birman, Guy M. Genin, Stavros Thomopoulos

PS2 Cartilage and Synovium—Imaging

Poster No. 1380

Assessment of Water Compartments in Cartilage Using Raman Spectroscopy

Mustafa Unal, Ozan Akkus

Poster No. 1381

Early Bone and Cartilage Structural and Compositional Changes After DMM Surgery Quantified by μ CT

Maleeha Mashiatulla, Jun Li, Amit Patwa, Mark W. Grinstaff, Anna Plaas, D. Rick Sumner

Poster No. 1382

In Vivo Behavior of Patellar Cartilage in Response to and 24 Hours Following Running

Lauren N. Heckelman, Alexie D. Riofrio, Emily N. Vinson, Amber T. Collins, Gangadhar M. Utturkar, Charles E. Spritzer, Louis E. DeFrate

Poster No. 1383

Three-Dimensional Micro-Scale Strain Mapping in Live Cartilage

Eng Kuan Moo, Scott C. Sibole, Sang Kuy Han, Walter Herzog

Poster No. 1384

Cationic Contrast-Enhanced Computed Tomography Detects Subtle Equine Articular Cartilage Damage After Impact Injury and Reflects Biomechanical Properties

Brad B. Nelson, Janne T.A. Mäkelä, Taylor B. Lawson, Brian D. Snyder, Mark B. Hurtig, Valerie J. Moorman, Mark W. Grinstaff, Laurie R. Goodrich, Chris E. Kawcak

Poster No. 1385

In Vivo Long-Term MRI Monitoring of Superparamagnetic Iron-Oxide Labeled Synovium-Derived Stem Cells After Intra-Articular Transplantation

Bo Mi Nam, Hyun Cheol Bae, Sun Young Wang, Hee Jung Park, Ha Ru Yang, Sahngghoon Lee, Myung Chul Lee, Hyuk-Soo Han

Poster No. 1386

Spectroscopic Evaluation of Collagen in a Pre-Clinical Fibrosis Model

Jessica M. Falcon, Rutvin Kyada, Obiora Ufodu, Jolanta Fertala, Andrzej Steplewski, Andrzej Fertala, Nancy Pleshko

Poster No. 1387

Next Generation Fluorescent Arthroscopy for Early Detection of OA: A Pilot Study

Hongsik Cho, Fazal Ur Rehman Bhatti, Jaehyun Park, Frederick M. Azar, Karen A. Hasty

Poster No. 1388

MRI Reveals Focal Cartilage Defects After Traumatic Joint Injury

David Heckelsmiller, Barbara Laughlin, Mothana Saad Eldine, Dan Thedens, Douglas Pedersen, Douglas Fredericks, Jessica Goetz

Poster No. 1389

Early Osteoarthritic Changes in Medial Tibial Cartilage Three Weeks After ACL Transection by Microscopic MRI

Daniel Mittelstaedt, David Kahn, John Matyas, Yang Xia

PS2 Cartilage and Synovium—Growth Plate and Endochondral Ossification

Poster No. 1390

Torsional Growth Modulation of Long Bones Via Oblique Plating in a Rabbit Model

David Lazarus, Christine Farnsworth, Megan Jeffords, Nikolas Marino, Jericho Hallare, Eric Edmonds

Poster No. 1391

Investigate the Roles of A Protein During Skeletal Development by Using Chondrocyte-Specific A Protein Knockout Mice

Chou Liang Yin

POSTERS

Poster No. 1392

Hydrogel Composition Regulates Chondrogenesis by Mesenchymal Stem Cells and Endochondral Ossification in Engineered Cartilaginous Interfacial Tissues

Jingming Chen, Amalie E. Donius, Juan M. Taboas

Poster No. 1393

Involvement of MicroRNA-29b-ADAM12-L Axis in the Process of Chondrocyte Hypertrophy and Osteophyte Formation in Osteoarthritis

Masahiro Horita, Keiichiro Nishida, Joe Hasei, Takayuki Furumatsu, Toshiyuki Kunisada, Tomohiro Fujiwara, Miwa Sakurai, Shinichi Miyazawa, Yoshihisa Nasu, Ryuichi Nakahara, Toshifumi Ozaki

Poster No. 1394

The G Protein Couple Estrogen Receptor-1 (GPER-1) Regulates Endochondral Bone Formation in Cultured Tibia

Shu-Chun Chuang, Chiu-Fan Shen, Mei-Ling Ho, Je-Ken Chang

PS2 Cartilage and Synovium—Extracellular Matrix

Poster No. 1395

Prevention of Cartilage Degeneration Using the Peptide of Tenascin-C

Tetsuya Hattori, Masahiro Hasegawa, Hironori Unno, Takasi Hosoi, Naoya Ito, Takahiro Lino, Fumio Fukai, Toshimichi Yoshida, Akihiro Sudo

Poster No. 1396

Antioxidant EGCG Protects Cartilage from Inflammatory Attack

Jessica Kerns, Mengxi Lv, Yilu Zhou, Shongshan Fan, X. Lucas Lu

Poster No. 1397

Hyaluronan Alters Chondrogenesis on Adipose Derived Stem Cells Involved in Cd44 Clustering, Erk and Sox-9 Pathway

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

Poster No. 1398

Alterations in Structural Macromolecules in ECM and PCM in Early OA Lapine Cartilage Model

Sang Kuy Han, Ari Ronkainen, Simo Saarakkala, Lassi Rieppo, Walter Herzog, Rami Korhonen

Poster No. 1399

The Control of Inflammatory Mediators by Microenvironmental Factors

ShihJye Tan

PS2 Cartilage and Synovium— Tissue Engineering and Repair

Poster No. 1400

Design and Characterization of a Tissue Engineered Synovium Model to Study Pro-Inflammatory and Chondroprotective Mediators in Osteoarthritis

Amy M. Silverstein, Robert M. Stefani, Evie Sobczak, Saiti S. Halder, Priya Medberry, Roshan P. Shah, Gerard A. Ateshian, Clark T. Hung

Poster No. 1401

Verteporfin, A Promising Photosensitizer for Photochemical Integration of Articular Cartilage

Alberto L. Arvayo, Dalia Szafer, Marc E. Levenston

Poster No. 1402

Recombinant Human Transglutaminase-4 Enhances Cartilage Regeneration of Synovium-Derived Mesenchymal Stem Cells Encapsulated in Hydrogel

Hyun Cheol Bae, Sun Young Wang, Hee Jung Park, Ha Ru Yang, Bo Mi Nam, Sahngsoon Lee, Myung Chul Lee, Hyuk Soo Han

Poster No. 1403

Synovial Membrane Responses to CTGF/TGF β 3-Polymeric Meniscal Scaffold Transplantation in an Ovine Model

Tyler J. Uppstrom, Yusuke Nakagawa, Colin Danaher, Margaret B. Goodale, Amir H. Lebaschi, Camila B. Carballo, Liang Ying, Andrew Miller, Chang Hun Lee, Ling He, Xuguang Nie, Jeremy J. Mao, Scott A. Rodeo, Lisa A. Fortier

Poster No. 1404

Depletion of Gangliosides Enhances Articular Cartilage Repair by Suppressing the Chondrocyte Hypertrophy Surrounding Repair Tissue

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

Poster No. 1405

Directing Tissue Maturation via Biofactor Delivery from Mechanically-Activated Microcapsules

Bhavana Mohanraj, Gang Duan, Daeyeon Lee, Robert Mauck, George Dodge

Poster No. 1406

Physioxia Promotes the Stable Articular Cartilage Tissue Phenotype in Self-Organized Neocartilage

Devon E. Anderson, Brandon D. Markway, Kenneth J. Weekes, Helen E. McCarthy, Brian Johnstone

Poster No. 1407

Interposition of a Cell-Seeded Slow-Degrading Membrane Generates a Stable Osteochondritis Dissecans-Like Lesion in a Large Animal Model

James M. Friedman, Mackenzie L. Sennett, Marcelo B. Bonadio, Blair S. Ashley, Robert L. Mauck, James L. Carey

Poster No. 1408

The Combination of Rapidly Isolated Infrapatellar Fat Pad Stromal Cells and Glyoxal Cross-Linked Type II Collagen Scaffolds as a Single-Stage Therapy for Articular Cartilage Repair

David Browe, Olwyn Mahon, Ivan Dudurych, Ailsing Dunne, Conor Buckley, Daniel Kelly

POSTERS

Poster No. 1409

A Standardized Large Animal Model for Articular Cartilage Repair Cartilage Repair

Anthony Ratcliffe, Andreas Kern, Mohammad Sotoudeh, Fatemeh Saed-Nejad, Robert L. Sah, Albert Chen, Richard D. Coutts, John G. Lane, Jeremiah Easley, Ross Palmer

Poster No. 1410

The Effect of Glucosamine and Glucosamine Derivative on Cartilage Regeneration for Osteochondral Lesion Repair

Tzu-Hsiang Lin, Horng-Chaung Hsu, Ming-Long Yeh

Poster No. 1411

Transplantation of Synovial Mesenchymal Stem Cells Enhances the Effect of Centralization with Suture Anchor and Promotes Meniscus Regeneration for Extruded Meniscus After Partial Meniscectomy in Microminipigs

Kenta Katagiri, Mitsuru Mizuno, Hldeyuki Koga, Nobutake Ozeki, Yusuke Nakagawa, Yuji Kohno, Koji Otabe, Masafumi Horie, Hisako Katano, Kunikazu Tsuji, Hideo Ono, Takeshi Muneta, Ichiro Sekiya

Poster No. 1412

A Novel Algorithm for a Precise Analysis of Subchondral Bone Alterations

Liang Gao, Patrick Orth, Lars Goebel, Magali Cucchiari, Henning Madry

Poster No. 1413

Toward Cartilage Drug Delivery: Uptake of the Tat Ptd in Human OA Cartilage

Sarah Mailhot, Ronald K. June

Poster No. 1414

Development of a Vitrification Method for Polydactyly-Derived Chondrocyte Sheets for Regeneration of Articular Cartilage

Miki Maehara, Masato Sato, Eriko Toyoda, Takumi Takahashi, Eri Okada, Daichi Takizawa, Kazuaki Matsumura, Suong-Hyu Hyon, Hiroshi Nagashima, Masahiko Watanabe

Poster No. 1415

Effective, Durable rAAV-Mediated Gene Transfer in Human Articular Chondrocytes in a Tissue Engineered Scaffold-Free Cartilage Analog Platform

Oliver Mueller, Janina Frisch, Ana Rey Rico, Jagadeesh Venkatesan, Gertrud Schmitt, Henning Madry, George R. Dodge, Magali Cucchiari

Poster No. 1416

Weekly Sprifermin Treatment Enhances Cartilage Integration in an In Vitro Repair Model

Gregory R. Meloni, Mackenzie Sennett, Alexandra J.E. Farran, Anne Gigout, Robert L. Mauck, George R. Dodge

Poster No. 1417

Influence of Transient TGF- β 1 Exposure on Proliferation and Differentiation of Human Chondrocytes Embedded in an Alginate-Collagen Matrix

Bettina Hiemer, Kathleen Achenbach, Juliane Pasold, Rainer Bader

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Effect of Genipin on Engineered Tissue Integration in an Injectable Cell-Seeded, Collagen and Fibrin Glue Matrix

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Gait Symmetry Metrics Provide Different Outcomes in Patients with Ankle Osteoarthritis

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Inhibition of Mevalonate Pathway in Chondrocytes Attenuates IL-1 Induced Cartilage Degeneration

Mengxi Lv, Yilu Zhou, Shongshan Fan, Kalani Picho, Liyun Wang, X. Lucas Lu

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Subchondral Fractures Begin at Bone Resorption Zone in Osteonecrosis of Femoral Head: A Micro CT Study

Hidetoshi Hamada, Masaki Takao, Takashi Sakai, Nobuhiko Sugano

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Pannexin 1: A Novel Inflammation Activation Cascade Mediator and Potential Target in OA (osteoarthritis) Pathogenesis and OA-Related Pain

Daniel J. Leong, Zhiyong He, Mia M. Thi, Sylvia O Suadicani, Lidi Liu, Angela Wang, Neil J. Cobelli, David C. Spray, Hui B. Sun

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Mild Exercise as a Model to Study Osteoarthritis Severity and Pain in Mice Following DMM Joint Injury

Timothy M. Griffin, Erika Barboza, Joanna Hudson, Yao Fu, Tyler Grubb

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Role of Subchondral Bone Properties and Remodeling in Load-Induced Osteoarthritis in Mice

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The Cross-Sectional Association Between Muscle Volume of Lower Extremity and Bone Mineral Density in Patients with Knee Osteoarthritis: A Japanese Population Study

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A Novel Method for Quantitative CT Assessment of Condylar and Tibial Apparent Subchondral Bone Mineral Density: Comparison of Non-Osteoarthritic and Severe Osteoarthritic Knees

Patrick Omoumi, Hugo Babel, Brigitte Jolles-Haeberli, Julien Favre

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Depletion of Glycosphingolipids Induces the Excessive Response of Chondrocytes Under Mechanical Stress Condition

Shinji Matsubara, Tomohiro Onodera, Eijiro Maeda, Daisuke Momma, Masatake Matsuoka, Rikiya Baba, Kazutoshi Hontani, Zenta Joutoku, Kentarou Homan Homan, Toshiro Ohashi, Norimasa Iwasaki

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Transthyretin and Amyloid Deposition in Osteoarthritis

Yukio Akasaki, Martin Lotz, Tokio Matsuzaki, Oscar Alvarez-Garcia, Ken Okazaki, Yasuharu Nakashima

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Validation of an Ex Vivo Osteoarthritis Model Using Articular Cartilage Explants from Patients

Nicole L. Walden, Aaron M. Stoker, James P. Stannard, James A. Keeney, James L. Cook

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Up-regulation of Cyclooxygenase-2 in Osteoarthritic Chondrocytes Alters Expression of Degeneration Marker Genes

Ling-Hua Chang, Mei-Ling Ho

PS2 Tendon/Ligament—Mechanics

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Morphological Changes of the Transverse Carpal Ligament in Response to Collagenolysis

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A Framework for Estimating Connective Tissue in Situ Strain in a Full Knee Model

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Mechanical and Microstructural Properties of Common Graft Options for Knee Ligament Reconstruction

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Anatomical Preparation Method for Achilles Tendon Allograft in Anterior Cruciate Ligament Repair

Keith Hechtman, Matthew Sussman, Loren Latta, Gaetan Delcroix, David Kaimrajh, Edward Milne

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Severe Rotator Cuff Tendon Degeneration Is a Risk for Tear Propagation as Predicted by Subject-Specific Modeling

R. Matthew Miller, James Thunes, Volker Musahl, Spandan Maiti, Richard E. Debski

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Effects of Sample Preparation and Dehydration on Tendon Collagen Nanostructure

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Towards a Microstructurally-Motivated Constitutive Model of Age-Dependent Murine Patellar Tendon Healing to Elucidate Underlying Deficiencies in Extracellular Matrix Dynamics

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Supraspinatus Tendons Have Different Mechanical Properties Across Sex

Kelsey A. Robinson, Adam M. Pardes, Benjamin R. Freedman, Louis J. Soslowsky

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Achilles Tendon Viscoelastic Properties Relate to Clinical Outcomes Following Rupture

Jennifer A. Zellers, Laura Pontiggia, Daniel H. Cortes, Karin Gravare Silbernagel

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The Effects of Early Loading on Achilles Tendon Healing are Diminished Over Time

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Postoperative Changes in Patellar and Quadriceps Tendons Measured by Shear Wave Elastography

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The Role of Mineral on the Micromechanical Properties of Tendon Enthesis

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Characterisation and Comparison of Human and Ovine Spinal Ligaments

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Fatigue of the Flexor Carpi Ulnaris Tendon Produces Distinct Regions of Collagen Fiber Kinking and Denaturation

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Advanced Glycation End-Products: Mechanics of Aged Collagen from Molecule to Tissue

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Conditional Deletion of Decorin and Biglycan in Mature Mouse Tendons Results in Inferior Mechanical Properties and Delayed Collagen Fiber Realignment

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Greater Risk of Propagation for Large Tears in the Posterior Supraspinatus Is Predicted by Finite Element Model

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Graft Augmentation of Fascia Lata Enhanced Healing Process of Rotator Cuff Tear in a Rabbit Model

Takeshi Kataoka, Takeshi Kokubu, Tomoyuki Muto, Yutaka Mifune, Atsuyuki Inui, Fumiaki Takase, Yasuhiro Ueda, Takashi Kurosawa, Ryoosuke Kuroda

PS2 Tendon/Ligament—Tissue Engineering and Repair

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DBM Soluble Factors Induce Chondrocytic Differentiation of MSCs In-Vitro

Shirin Shahbazi, Gordon Blunn, Catherine Pendegrass

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Characterization of Meltblown Polymer Fabric for Use as a Scaffold in Tendon Tissue Engineering

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Effect of Stretching Exercise Onset Time on Healing of Strain Induced Muscle Injury in Rats

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The Regenerative Effects of Two Common Platelet-Rich Plasma Production Methods on Human Anterior Ligamentocytes

Anna M. Krismer, Romina Cabra, Rahel May, Sandro Kohl, Sufian Ahmad, Benjamin Gantenbein

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Fabrication and Characterization of a Bilayer Delivery System for Localized and Sustained Therapeutic Release

Dong Hwa Kim, Julianne Huegel, Louis J. Soslowsky, Robert L. Mauck, Andrew F. Kuntz

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Simultaneous Tension and Torsion Stimulations of the Porcine Tibialis Tendon Recellularized with Human Adult Stem Cells: In Vitro, In Vivo, and Computational Analyses

Kwang Il Lee, Jung Soo Lee, Kyoung Tak Kang, Young Bock Shim, Young Sik Kim, Ju Woong Jang, Seong Hwan Moon

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Assess Functional Outcomes of Flexor Tendon Reconstruction with Revitalized and Synovialized Intrasynovial Allograft in a Canine In Vivo Model

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Chondrocytic Differentiation of MSCs and Tenocytes Seeded on Demineralised Bone Matrix

Shirin Shahbazi, Gordon Blunn, Catherine Pendegrass

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Dynamic Tensile Loading Regulates ECM Composition in PG-Rich μ -domains in Engineered Constructs

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Optimization of Spectral Imaging Data Collection from Fibrous Collagenous Tissues

Rutvin Kyada, Mugdha Padalkar, Nancy Pleshko

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Mechanical and Histological, but Not Functional, Properties Remain Inferior in Conservatively Treated Achilles Tendons in Rodents: Long Term Evaluation

Benjamin R. Freedman, George W. Fryhofer, Nabeel S. Salka, Harina Raja, Cody Hillin, Courtney A. Nuss, Daniel C. Farber, Louis J. Soslowsky

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Molecular Changes of Tendon After Collagenase-Induced Achilles Tendinitis In Senescence Accelerated Mouse

Yasuhiro Ueda, Atsuyuki Inui, Yutaka Mifune, Fumiaki Takase, Takeshi Kataoka, Takashi Kurosawa, Takeshi Kokubu, Ryosuke Kuroda

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Histological and Molecular Analysis of Acute vs. Chronic Ruptures of Achilles Tendons

Susann Minkwitz, Franka Klatte-Schulz, Aysha Schmock, Nicole Bormann, Alper Kurtoglu, Sebastian Manegold, Britt Wildemann

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Effect of Pro- and Anti-Angiogenic Factors on Vascular Response in the Rat Achilles Tendon After Injury

Corinne N. Riggan, Susan M. Schultz, Chandra M. Sehgal, Louis J. Soslowsky

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Aging Decreases Rat Achilles Tendon Vessel Density and Blood Flow After Injury

Corinne N. Riggan, Susan M. Schultz, Chandra M. Sehgal, Louis J. Soslowsky

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The Implication of Substance P in the Development of Tendinopathy

Soonchul Lee, Jiye Song, Wonchul Choi, Youngrak Choi, Catherine Ding, Lloyd Baik, Spencer Ward, Soohong Han

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Differential Expression of Alarmins - S100A9, IL-33, HMGB1 - and HIF-1 α in Supraspinatus Tendinopathy Before and After Treatment

Michael J. Mosca, Andrew J. Carr, Sarah J. Snelling, Stephanie G. Dakin

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Differential Properties of Stem Cell Populations Isolated from Sheath and Core of Rabbit ACL

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Nuclear Factor Kappa B Activation in Achilles Tendon Healing in Diabetic Rats

Aisha S. Ahmed, Mahmood Ahmed, Claes-Göran Ostenson, Carolyn Hewitt, Paul Salo, David Hart, Paul Ackermann

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Katsunori Fukutake, Akihito Wada, Yasuhiro Inoue, Asato Maekawa, Hiroyuki Hattori, Shintaro Tsuge, Keiji Hasegawa, Yasuaki Iida, Yuuichirou Yokoyama, Hiroshi Takahashi, Kazuaki Tsuchiya

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S100 Alarmin Proteins Modulate Immune Cell Recruitment in Human Tendinopathy

Lindsay A.N. Crowe, Moeed Akbar, Susan Kitson, George A.C. Murrell, Iain B. McInnes, Derek S. Gilchrist, Neal L. Millar

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RNASeq Analysis of Scleraxis-Mediated Gene Targets Important in Maintaining Tenocyte Fate

Anne E.C. Nichols, Robert E. Settlage, Linda A. Dahlgren

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The MRL/MpJ Mouse as a Model of Improved Healing Response to Flexor Tendon Injuries

David Abplanalp, Jake Kallenbach, Margaret Freeberg, Hani Awad

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Collagen-producing Fsp1+ Cells are Required for Scar Formation During Tendon Healing

Jessica Ackerman

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Tenocyte Trans-Differentiation as a Mechanism of Collagen Disorganization in Diabetic Tendinopathy

Melissa Glasner, Alayna Loisel

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Platelet-Derived Growth Factor Signaling Is Required for Postnatal Tendon Growth

Kristoffer B. Sugg, Nathaniel P. Dissler, Andrew M. Rizzi, Dylan C. Sarver, Christopher L. Mendias

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Low Magnitude Mechanical Loading of Ex Vivo Mouse Tendon Fascicles Protects Against Adverse Effects of Unloading

Stefania L. Wunderli, Jonas Widmer, Jasper Foolen, Unai Silvan, Niklaus Amrein, Jess G. Snedeker

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Pre- and Post-Natal Development of the Tendon Inter-Fascicular Matrix and Fascicles in the Equine Superficial Digital Flexor Tendon and Common Digital Extensor Tendon

Danae E. Zamboulis, Chavaunne T. Thorpe, Helen L. Birch, Hazel R.C. Screen, Peter D. Clegg

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Smad4 Regulation of Tendon Elongation

Saundra Schlesinger, Seong Seo, Alice Huang, Brian Pryce, Ronen Schweitzer

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Tendon/Ligament—Progenitors and Stem Cells

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Effect of Platelet Derived Growth Factor on Peritenon Derived Stem/Progenitor Cells

Hiroto Kono, Sosuke Imai, Ken Kumagai, Hironori Tanabe, Yasuteru Yamaguchi, Kazuma Miyatake, Tomoyuki Saito

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Establishment of a Tendon and Tendon-Bone Attachment Site Regeneration Model in the Zebrafish

Rishita Shah, Marie Noedl, Nandan Nerurkar, Xubo Niu, Jenna Galloway

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Incorporation of Adipose Stem Cells into Platelet-Rich Fibrin Scaffolds Promotes Release of Angiogenic Growth Factors

Kelsy R. Siegel, Tracy N. Clevenger, Dennis O. Clegg, Christopher S. Proctor

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Altered Fate of Patellar Tendon Derived Stem Cells (tdscs) in Streptozotocin-Induced Diabetic Rats

Liu Shi, Ying Juan Li, Raskin Shakya, Hong Liang Xu, Gang Li, Yun Feng Rui

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Muscle

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Muscle Adapts Dynamically Following Acute Achilles Tendon Rupture in a Rat Model

Nabeel S. Salka, Pankti R. Bhatt, Benjamin R. Freedman, Tyler R. Morris, Zakary M. Beach, Joshua A. Gordon, Louis J. Soslowsky

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Inhibitory Effect of Febuxostat for Waste of Skeletal Muscles in Tumor-Bearing Mice with Lm8 Osteosarcoma

Tadashi Tsukamoto, Masaya Tsujii, Takahiro Iino, Akihiko Matsumine, Akihiro Sudo

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The Expression Level of Cyclin-Dependent Kinase Differs Between Young and Old Muscle-Derived Stem Cells: Implications for Cell Cycle Regulation During Aging

Haizi Cheng, Aiping Lu, Xueqin Gao, Johnny Huard

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Enhancing Plasmin Activity Prevents Diet-Induced Skeletal Muscle Calcification Following Injury

Stephanie N. Moore-Lotridge, Gregory D. Hawley, Breanne H. Gibson, Jonathan G. Schoenecker

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Lumbar Paraspinal Muscle Atrophy and Fat Infiltration Following Prolonged Microgravity

Kristine T. Khieu, Robert M. Healey, Douglas Chang, Alan Hargens

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Myokine Gene Expression Profiling in Dystrophic Skeletal Muscle and Myoblasts

Shumin Zhou, Baoli Qian, Justin Hicks, MaCalus V. Hogan, Hongshuai Li

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Noninvasive Assessment of Lumbar Muscle Architecture in Active-Duty Marines

David B. Berry, Ana E. Rodriguez-Soto, Callan Parra, Jessica Stambaugh, Emily Valaik, Christine Chung, Samuel R. Ward

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Transcutaneous Carbon Dioxide Application Inhibits Muscle Atrophy After Femoral Shaft Fracture in Rat

Miho Inoue, Yoshitada Sakai, Keisuke Oe, Takeshi Ueha, Takaaki Koga, Hanako Nishimoto, Shiho Akahane, Risa Harada, Sang Yang Lee, Takahiro Niikura, Ryosuke Kuroda

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Pathophysiology of Volumetric Muscle Loss: Perturbations to Muscle Architecture

Stephen M. Goldman, Jonathan P.K. Feng, Benjamin T. Corona

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In Vivo Quantification of Multiscale Mechanics in Murine Skeletal Muscle Tissue, Extracellular Matrix, and Nuclei

Soham Ghosh, James Cimino, Adrienne Scott, Frederick Damen, Evan Phillips, Craig Goergen, Corey Neu

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The Relationship Between Early Fibrogenic Factors and Quadriceps Strength Following an Anterior Cruciate Ligament Reconstruction

Brian Noehren, Darren L. Johnson, Mary L. Ireland, Christopher Fry

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Label-Free, Quantitative Evaluation of Tissue Engineered Skeletal Muscle Using Multiphoton Microscopy

Brian C. Syverud, Marcus H. Lee, Mary-Ann Mycek, Lisa M. Larkin

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Volumetric Muscle Loss Injury: Acute Impact on the Motor Unit

Sarah M. Greising, Kate E. Flanagan, Stephen M. Goldman, Christian M. Brining, Benjamin T. Corona

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The Use of Serum and Exosomes from Young Animals to Improve the Histopathologies and Muscle Stem Cells of Progeria Mice

Xiaodong Mu, Jia Qiu, Chieh Tseng, Haizi Cheng, Christina Liu, Elizabeth Morris, Andrea Liebowitz, Alex Scibetta, Johnny Huard

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Impact of Selective Percutaneous Myofascial Lengthening (SPML) on Quality of Life

Laura Q. Wu, Tracey Isidro, David A. Yngve

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Pregnancy Improves Myogenic Differentiation of Myogenic Progenitor Cells

Aiping Lu, Haiying Pan, Charles Huard, Chieh Tseng, Xueqin Gao, Ping Guo, Johnny Huard

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RARgamma Agonist Promotes Functional Restoration of Severely Injured Skeletal Muscle in Mouse

Min Liu, Di Rocco Agnese, Lily Wu, Suzu Deie, Motomi Enomoto-Iwamoto, Masahiro Iwamoto, Masatake Matsuoka

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Expression of Two Necessary Genes for Cell Reprogramming in Muscle Derived Stem Cells

Matthew J. Fiala, Shanshan Gao, Ping Guo, Johnny Huard

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Relationship Between Myosin Heavy Chain Expression and Leg Extension Force Following Anterior Cruciate Ligament Reconstruction

Tetsuo Kobayashi, Kenji Uehara, Satoshi Kishiro, Yuji Ogura, Mitsutoshi Kurosaka, Tomohiro Suzuki, Katsumasa Goto, Hisateru Niki

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Difference In Work Output of Lower Limb Muscles During Horizontal and Vertical Jumps

Yuta Suzuki, Yasuto Kobayashi, Megumi Takizawa, Munenori Murata

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The Comparison of the Thickness of Abdominal Muscle Between Traditional Motor Control Exercise and Sling Exercise

Yuki Saito

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Issue of Thigh Splints Triggered by Squatting Exercise: Focus on the Adductor Magnus

Megumi Takizawa, Yuta Suzuki, Yasuto Kobayashi

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Development of a Critically-Sized Ventral Hernia Model in the Pig

Sambit Sahoo, Andrew Baker, Ivy N. Haskins, David M. Krpata, Michael J. Rosen, Kathleen Derwin

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Functional Neuronal Differentiation of the Injury Induced Muscle-Derived Stem Cells

Kinga Vojnits, Haiying Pan, Hao Sun, Qingchun Tong, Radbod Darabi, Johnny Huard, Yong Li

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The Role of Valproic Acid in Mediating Skeletal Muscle Repair After Injury

Max Feinstein, Lawrence Lee, Chantal Nguyen, Anne Ning, Brian Feeley, Xuhui Liu

PS2 Bone—Musculoskeletal Development and Aging

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Superior Regenerative Capacity of Skeletal Muscle in Mrl/MpJ Mice Correlate with a Reduced Inflammatory Responses and Increased Potency of Muscle Progenitor Cells

Chieh Tseng, Haiying Pan, Ping Guo, Aiping Lu, Johnny Huard

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Dose-Dependent Differential Response of Male and Female Osteoclasts to Methylphenidate

Sardar M. Uddin, Dennis Fricke, Abisha Vijayashanthar, Courtney Lowinger, Liam Jermyn, Panayotis Thanos, Michael Hadjiargyrou, David Komatsu

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Compensatory Roles of Yap And Taz in Skeletal Development, Homeostasis, and Repair

Christopher D. Kegelman, James H. Dawahare, Joel D. Boerckel

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Utility of Near Infrared Spectroscopy for Bone Quality Assessment

Ramya Ailavajhala, Rutvin Kyada, Heejin Yang, Erin Carter, Adele Boskey, Cathleen Raggio, Nancy Pleshko

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Fracture Healing in Aged Mice Is Characterized by Sustained Inflammation and Decreases in Cell Proliferation

John H. Hebb, Jaimo Ahn, Luke Lopas, Kurt D. Hankenson, Jason W. Ashley, Lee McDaniel

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Development of the Mammillary Processes of the Capital Femoral Epiphysis

Ron Perrone, John L. Williams

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How Does Tibia Cross-Sectional Roundness in Ambulatory and Non-Ambulatory Children with Myelomeningocele Differ from Typically Developing Children?

Kyle P. Chadwick, Nicole M. Mueske, Rachel E. Horenstein, Djani M. Robertson, Sandra J. Shefelbine, Tishya A.L. Wren

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From Precision Medicine to Drug Discovery: Inhibition of Osteoblastic Smurf1 Promotes Bone Formation in Distinctive Aged Individuals with Osteoporosis

Chao Liang, Songlin Peng, Bao-Ting Zhang, Aiping Lu, Ge Zhang

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Peripheral Blood Mononuclear Cells with Ex Vivo Quality and Quantity Control Culture Accelerate Fracture Healing

Kenji Mifuji, Masakazu Ishikawa, Naosuke Kamei, Rica Tanaka, Takayuki Asahara, Mitsuo Ochi, Nobuo Adachi

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Gpnmb/Osteoactivin Plays a Novel Role in Autophagy-Mediated Osteoblast Differentiation and Function

Fatima Jaber, Greory Sondag, Mohammad Ansari, Fouad Moussa, Asaad Al-Adlaan, Faye F. Safadi

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Inhibition of Rho/Rock Signaling in Mechanically Stimulated Estrogen Deficient Bone Cells

Irene Simfia, Jessica Schiavi, Pushpalata Kayastha, Laoise M. McNamara

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Effect of Liver X Receptor Activation on Bone Mineralization

Ryan M. Clark, William G. Schroeder, Kayla Maranjian, Andrew Berry, Moshe Levi, Virginia Ferguson, Karen B. King

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Do the Daily Activities of the Patients Influence the Tribocorrosion Processes In Bone-Stem (ti) Interfaces of the Hip Implant?

Maria Runa, Joshua Jacobs, Luis Rocha, Mathew Mathew

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Hypoxia Induces TGF- β /Smad3 Signaling via HIF-1 α in Osteoblasts

Roy W. Qu, Damian Genetos

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Contribution of Implanted, Genetically Modified, Muscle Progenitor Cells to New Bone Formed in a Rat Osseous Defect

Chris Evans, Consuelo Lopez de Padilla, Rodolfo De La Vega Amador, Miguel Trujillo, Ryan Porter, Elisabeth Ferreira

Poster No. 1644

CDK9 Inhibition Prevents Injury-Induced Subchondral Bone Resorption by Targeting Osteoclast Precursors

Jasper Yik, Jason F. Leddy, Dominik Haudenschild

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Osteocytes and Their Response to Clinically Relevant Polyethylene and Metal Wear Particles

Renee T. Ormsby, Lucian B. Solomon, Dongqing Yang, Tania N. Crotti, David R. Haynes, David M. Findlay, Gerald J. Atkins

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Sensory Neurotransmitters Substance P and Alpha-Calcitonin Gene-Related Peptide Modulate Osteoblast Metabolism

Tanja Niedermair, Raphael Seebröcker, Stephan Schirner, Anja Pasoldt, Joachim Grifka, Susanne Grässel

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PS2 Bone—Osteocytes and Mechanobiology

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Poster No. 1650

Mechanical Regulation of Breast Cancer Bone Metastasis via Osteocytes

Yu-Heng Ma, Candy Lam, Shreyash Dalmia, Peter Gao, Jacob Young, Chao Liu, Chao Liu, Kevin Middleton, Lidan You

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Calcium Binding to Key Osteocyte Ciliary Proteins Initiates Mechanotransduction

Emily R. Moore, Yuchen Yang, Han Seul Ryu, Christopher R. Jacobs

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Identification of the Mechanisms by Which Skeletal Maturity Reduces the Mechanosensitivity of Mesenchymal Stem Cells: Implications for Osteogenesis and Angiogenesis During Bone Formation

Sara Barreto, Arlyng Gonzalez-Vazquez, Andrew R. Cameron, Dylan Murray, Fergal J. O'Brien

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Alteration of 3D Matrix Stiffness Regulates Intracellular Viscoelasticity of Mesenchymal Stem Cells

Ting-Wei Kao, Yi-Chang Wu, Arthur Chiou, Keng-Hui Lin, Yi-Shiuan Liu, Oscar K. Lee

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Creating Novel High-Throughput Microfluidic Platform for Osteocyte Mechanotransduction Studies

Liangcheng H. Xu, Lidan You

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Microfluidic Platform to Investigate the Role of Osteocytes on the Mechanical Regulation of Bone Metastasis

Kevin Middleton, Dongsub Shim, Xueting (Christina) Mei, Deepika Devadas, Yu-Heng Ma, Edmond Young, Lidan You

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Quantification of 3D Osteocyte Lacunar Geometries Using a Novel Open-Source Tool Based on Confocal Microscopy

Adam Rauff, Chelsea Heveran, Karen B. King, Virginia Ferguson, Dana Carpenter

PS2 Bone—Progenitors and Stem Cells

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Common Transcript Factors Identified in Multiple Post-Natal Endochondral Bone Formations

Beth Bragdon, Alexandra Femia, Kyle Lybrand, Andrew Bennie, Louis Gerstenfeld

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Lisbeth Reyes-Fondeur, Megan Elizabeth Oest, Nicholas D. Zimmerman, Jason Horton

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Chelsea Heveran, Geya Kairamkonda, Yifu Fang, Keith Hruska, Virginia L. Ferguson

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Amy Creecy, Sasidhar Uppuganti, Chiedza Chauruka, Jeffrey Nyman

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Sarah Kelch, Elizabeth Rosado Balmayor, Helen Vester, Jan S. Kirschke, Martijn van Griensven

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A Novel Bone Targeting Delivery System with Osteogenic Phytomolecule of Traditional Chinese Herb Epimedium for Prevention of the Estrogen-Depletion Induced Osteoporosis in Mice

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Petri K. Tanska, Xiaowei Ojanen, Sami P. Väänänen, Markus K. Malo, Mikael J. Turunen, Juha Töyräs, Hanna Isaksson, Rami K. Korhonen, Jukka S. Jurvelin

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Alycia G. Berman, Joseph M. Wallace

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Cross Sectional Cortical Bone Response to Dynamic Loading

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Enrico Dall'Ara, Maria C. Costa, Gianluca Tozzi, Yuan Chen, Luca Cristofolini, Pankaj Pankaj, Marco Viceconti

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Isaac M. Adjei, Hao Yang, Lorena Maldonado-Camargo, Jon Dobson, Carlos Rinaldi, Huabei Jiang, Blanka Sharma

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Combinatorial MicroRNA-Therapy Using Collagen-Nanohydroxyapatite Scaffolds: Coupling Angiogenesis and Osteogenesis for Enhanced In Vivo Bone Repair

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Polarized Macrophages Enhance Osteogenesis of MSCs via Early Prostaglandin E2 Production

Laura Y. Lu, Florence Loi, Luis Cordova, Jukka Pajarinen, Tzu-Hua Lin, Emmanuel Gibon, Akira Nabeshima, Karthik Nathan, Zhenyu Yao, Stuart B. Goodman

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Engineering MSC to Overexpress bFGF to Accelerate Fracture Healing

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SDF-1 Accelerates Cartilage Defect Repairing by Recruiting BMSCs and Promoting Chondrogenic Differentiation

Wang Yuze, Wei Xiaochun, Wei Dennis, Wei Lei

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Bisphosphonates Prevent the Regression of Fracture Associated Muscle Calcification

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Matthew G. Haugh, Ted J. Vaughan, Laoise M. McNamara, Fergal J. O'Brien, Sarah C. Heilshorn

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Caitriona A. Tiernan

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Cyclic Tensile Strain Directs Both Intramembranous and Endochondral Ossification of MSCs

Simon F. Carroll, Binulal N. Sathy, Conor T. Buckley, Daniel J. Kelly

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Multi-Scale Mineralized Collagen-Polycaprolactone Composites Improve Craniofacial Bone Repair

Daniel Weisgerber, Rebecca Hortensius, Colleen Flanagan, Xiaoyan Ren, Scott Hollister, Justine C. Lee, Matthew Wheeler, Brendan Harley

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Mineralized Allograft from Donors Who Use Bisphosphonates Exhibit Reduced Osteoconductive Ability

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Gene Therapy for Bone Repair Using Human Cells: A Comparison of the In Vitro Osteogenic Potential of BMP-2 Transduced Mesenchymal Stem Cells Derived from Bone Marrow and Adipose Tissue

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Bone Defect Healing Differs Between Skull and Long Bone in the Dystrophin/Utrophin Double Knockout Mice

Xueqin Gao, Xuying Sun, Sarah Amra, Haizi Cheng, Charles Huard, David G. MoraBoellstorff, Bing Wang, Johnny Huard

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Co-Application of Systemic Zoledronate Promotes the Osteogenesis in the Bone Marrow Environment of the Femur Induced by Local Recombinant Human Bone Morphogenetic Protein-2 with β -tricalcium Phosphate in a Rabbit Model

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Plasmids Expressing Equine BMP-2 Stimulate Cortical Bone Repair

Kalyn Herzog, Marta Bianchessi, Michelle Piccione, Matthew Stewart

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The Foreign Body Response to Cell-laden MMP-Sensitive Poly(ethylene glycol) Hydrogels for Bone Tissue Engineering

Leila Saleh, Luke D. Amer, Stephanie J. Bryant

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Delivery of Vegf, Bmp-6 and Mesenchymal Stem Cells Through 3D Piga Scaffolds Enhances Bone Regeneration in Chicken Femur

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Enhanced Osteoblast Proliferation and Hydroxyapatite Formation on Surface Modulated Silicon Nitride

Giuseppe Pezzotti, Bryan J. Mcentire, Ryan M. Bock, Wenliang Zhu, Eleonora Vitale, Leonardo Puppulin, Tetsuya Adachi, Toshiro Yamamoto, Narisato Kanamura, B. Sonny Bal

PS2 Bone—Genetics, Transcriptomics and Proteomics

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A Reverse Genetic Sweep Study Design Identifies the Gene 4921509C19Rik as Impacting Bone Size and Mass

Cheryl L. Ackert-Bicknell, Seung-Hyun Hong, Renata Rydzik, Li Chen, Zhihua Wu, Caibin Zhang, Gaven Garland, John P. Sundberg, Dong-Guk Shin, David W. Rowe, Douglas J. Adams

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Ellen E. Quillen, Anne Shelldrake, Jeremy P. Glenn, Jaydee Foster, Laura A. Cox, Lorena M. Havill, Daniel P. Nicoletta, Todd L. Bredbenner

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Validation of a Genetic Risk Score Based on Single Nucleotide Polymorphisms Implicated In Adult Bone Fragility and Associated with Pediatric Bone Density

Samuel Swenson, Jordan Cohen, Andrea Attenasio, Alex Gu, Heather Gordish-Dressman, Marianne Floor, Brennan Harmon, Eric Hoffman, Dustin Hittel, Leticia Ryan, Susan Knoblach, Joseph Devaney, Laura L. Tosi

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Influence of Single Polymorphic Nucleotides Known to Affect Pediatric Body Mass Index on Musculoskeletal Phenotypes in Children and Young Adults

Andrea Attenasio, Jordan Cohen, Samuel Swenson, Alex Gu, Marianne Floor, Heather Gordish-Dressman, Brennan Harmon, Eric Hoffman, Dustin Hittel, Leticia M. Ryan, Susan Knoblach, Joseph Devaney, Laura L. Tosi

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Simulated Space Radiation Sensitizes Bone to the Catabolic Effects of Simulated Microgravity

Andrew Krause

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Bone Mineral Density Alterations Significantly Correlate with Longer Term Gross Morphological Changes in the Tibial Plateaus in an Ovine Model of Post Traumatic Osteoarthritis

Kristen I. Barton, Duncan A. Raymond, Andres Kroker, Bryan J. Heard, John L. Sevick, Dhriti Chakravarty, C. Ryan Martin, Cyril B. Frank, Steve K. Boyd, Nigel G. Shrive, David A. Hart

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Acute Methamphetamine and Nicotine Administration Adversely Affects Bone Growth but Not Bone Quality

Anthony L. Cappellino, Sardar M. Uddin, Ronald Kim, Peter K. Thanos, David Komatsu

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Image-Based Multiscale Mechanical Modeling Reveals the Importance of Structural Heterogeneity in Mechanical Function of Human Lumbar Facet Capsular Ligament

Vahhab Zarei, Chao Liu, Amy Claeson, Emily A. Bermel, Taner Akkin, Victor Barocas

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Biomechanical Effect of Postero-lateral Bone Graft in a Lumbar Spine with Instrumentation

Raghu N. Natarajan, Kazuhiro Hasegawa

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Region-Specific Orthotropic Growth of the Pediatric Thoracic Spine Through Finite Element Methods

John Dougherty, James Peters, Sriram Balasubramanian

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Shady Elmasry, Shihab Asfour, Francesco Travascio

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Amin Joukar, Anoli Shah, Cody Crutchfield, Brandon Zakeri, Ali Kiapour, Anand Kumar Agarwal, Hossein Elgafy, Nabil Ebraheim, Vijay Goel

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Reduced Computed Tomography Exposure to Predict Vertebral Compression Fracture

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Noah B. Bonnheim, Jonathan P. McKinley, Tony M. Keaveny

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Luis Fernando Nicolini, Borja Martinez Yllera, Marcelo Simoni Simões, Carlos Rodrigo de Mello Roesler, Eduardo A. Fancello

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Normalcy of Vertebral Morphology for Lenke-Types 1, 2, and 5 Two Years Following Spinal Fusion Surgery

James R. Peters, Robert M. Campbell Jr., Sriram Balasubramanian

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How Does Serum Sclerostin Level Correlate with Bone Mass and Bone Quality in Adolescent Idiopathic Scoliosis?

Wayne Y.W. Lee, Huanxiong Chen, Ka-Yee Cheuk, Elisa M.S. Tam, Tsz-Ping Lam, Bobby K.W. Ng, Jack C.Y. Cheng

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Gait Analysis Pre- and Post-Surgical Intervention in Patients with Symptomatic Adult Degenerative Scoliosis

Ram Haddas, Shant Aghyarian, Isador H. Lieberman

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“Smart” Surgical Instruments: Pedicle Probe for Resident Motor Skills Training and Evaluation

Christina Salas, Steven Nery, Alexander Hamilton, Ashkan Pourkand, Deana Mercer, David Grow

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The Transverse Process Trajectory Technique—A New Method for Thoracic Pedicle Screw Implantation in the Deformed Spine

Baron Lonner, Kushagra Verma, Chanland Roonprapunt, Yuan Ren, Amey Kelkar, Manoj Kodigudla, Vijay Goel

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Tatsuhiko Sekiya, Yoichi Aota, Katsutaka Yamada, Kanichiro Kaneko, Tomoyuki Katsuhata, Manabu Ide, Kenzo Kanai, Tomoyuki Saito

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The Reliability of Pelvic Incidence as Measured from CT Scan

Nathaniel R. Ordway, Michael Danaher, William F. Lavelle

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Correlation Between Dynamic Shoulder Balance During Gait and Radiographic Shoulder Balance in Adolescent Idiopathic Scoliosis

Kaoruko Ito, Takeo Nagura, Mitsuhiro Nishida, Nobuyuki Fujita, Mitsuru Yagi, Masaya Nakamura, Morio Matsumoto, Kota Watanabe

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A Follow-Up of an In Vivo Animal Experiment of a Self-Adaptive Growing Rods System for Early Onset Scoliosis

Chun-Feng Lai, Ching-Ting Lin, Po-Liang Lai, Po-Chun Yen, Mao-Wei Huang, Jaw-Lin Wang

PS2 Spine—Peripheral Nerve and Spinal Cord Injury

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A New Experimental Model to Determine the Efficacy of Grafted Cells on Promoting Axon Regeneration in Peripheral Nervous System

Takeshi Endo, Ken Kadoya, Norimasa Iwasaki

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Significance of HLA Matching in Allogeneic Human IPS Cell-Derived Neural Stem/Progenitor Cell In Vitro

Masahiro Ozaki, Narihito Nagoshi, Jun Kohyama, Go Itakura, Hiroki Iwai, Morio Matsumoto, Hideyuki Okano, Masaya Nakamura

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Synchrotron Radiation Micro-CT as a Novel Tool to Evaluate the Effect of Agomir-210 in a Rat Spinal Cord Injury Model

Hongbin Lu, Yong Cao, Jianzhong Hu

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The Effect of Transcutaneous Carbon Dioxide (co2) Administration on Functional Recovery After Sciatic Nerve Injury in a Rat Model

Atsuyuki Inui, Hanako Nishimoto, Takeshi Ueha, Yutaka Mifune, Takeshi Kokubu, Ryosuke Kuroda, Yoshitada Sakai

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Quantification of 3D Microarchitecture and Vessel Regeneration by Synchrotron Radiation μ Ct in a Rat Model of Spinal Cord Injury

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Batbayar Khuyagbaatar, Won Man Park, Kyungsoo Kim, Yoon Hyuk Kim

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In Vivo Strains of the Human Cervical Spinal Cord

Kirsten E. Stoner, Kingsley O. Abode-Iyamah, Vincent A. Magnotta, Matthew A. Howard, Nicole M. Grosland

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Administration of MicroRNA-145 Promotes Spinal Cord Regeneration in Mice

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Changes in Forelimb Bones After Body Weight Supported Treadmill Training in Spinal Cord Injury Rats

Anita Singh, Gabrielle Gehron, Shania Shaji, Brittany King, Jaclyn Witko, Jennifer Kadlowec

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Lateral Olfactory Tract Usher Substance (LOTUS) Enhanced Axonal Regeneration and Functional Recovery After Spinal Cord Injury in Adult Mice

Shuhei Ito, Narihito Nagoshi, Shinsuke Shibata, Munehisa Shinozaki, Morio Matsumoto, Kohtarō Takei, Masaya Nakamura, Hideyuki Okano

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Critical Events Before Spinal Cord Injury in a Porcine Compression Model

Vishal Sarwahi, Etan P. Sugarman, Aviva G. Dworkin, Abhijit Pawar, Marina Moguilevitch, Terry D. Amaral, Beverly Thornhill, Adam L. Wollowick, Alan D. Legatt

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In Vivo Tracking of Amniotic Fluid Derived Stem Cells on Axillary Nerve

Xue Ma, Tianyi Luo, Zhongyu Li, Thomas L. Smith, Kerry Danelson

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Ultrasound is a Reliable Modality for Measuring Cervical Spine Intervertebral Disk Height

Amin Mohamadi, Mingxin Zheng, Brian Snyder

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Ranges of Cervical Intervertebral Disc Deformation During In-Vivo Dynamic Flexion-Extension of the Neck

Yan Yu, Haiqing Mao, Jing-Sheng Li, Tsung-Yuan Tsai, Kamran Khan, Liming Cheng, Kirkham B. Wood, Guoan Li, Thomas D. Cha

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Grace D. O'Connell, Michael Wendland

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Osmotic Swelling Alters Tensile Mechanics in Fiber-Reinforced Tissues

Bo Yang, Min H. Zhou, Grace D. O'Connell

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A Method for Repeatable Tensile Total-Life Fatigue Testing of Annulus Fibrosus

Benjamin Werbner, Grace O'Connell

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Biomechanics of Allograft Supplementation in Intervertebral Disc Intervention

Jakub Dmochowski, Luis Losada, William Hutton, Stephanie Gonzalez, Shabnam Namin, Timothy Ganey

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Load-Sharing of the Intervertebral Discs During Standing Determined by Open-Upright Magnetic Resonance Imaging

Christian I. Weber, Ching-Ting Hwang, Linda Van Dillen, Simon Y. Tang

PS2 Spine—Spine Therapeutics

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Establishment of rhBMP-2 Minimum Effective Dose in the Sheep Intertransverse Process Fusion Model

Jeffrey M. Toth, Mei Wang, Jeffrey M. Badura, Steven Peckham

Poster No. 1790

Physical Activity in Spinal Stenosis Patients Is Reduced and Shows a Disease Specific Pattern

Anouk Stoffels, Matthijs Lipperts, Wouter van Hemert, Ide C. Heyligers, Bernd Grimm

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Novel Techniques for Physical Activity Evaluation in a Large Animal Intervertebral Disc Degeneration Model

Justin R. Bendigo, Sarah Gullbrand, Brendan D. Stoeckl, Zosia Zawacki, Thomas Schaer, Harvey Smith, Robert Mauck, Neil Malhotra, Feini Qu, Lachlan Smith

Poster No. 1792

Early Clinical Results of Genipin Crosslinking Treatment for Low Back Pain

Tom Hedman, Matt Brown, John Racadio, Harwant Singh

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Change in Incidence of Vertebral Fractures Over 12-years: A Population-Based Cohort Study in Japan

Junichi Yamada, Koji Akeda, Kazuma Nakase, Tomohiko Sano, Akinobu Nishimura, Akihiro Sudo

Poster No. 1784

Functional Outcome Following Open Versus Minimally Invasive Transforaminal Lumbar Interbody Fusion in Patients with Degenerative Lumbar Disease

Chih-Hsiu Cheng, Chi-Chien Niu, Meng-Ling Lu, Wen-Chien Chen, Mohammad Nikkhoo, Yung-Chieh Hwang

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Surface Analysis of Screw Hole After Bioactive Pedicle Screw Removal in the Dog: Safety Assessment Implications for Clinical Application

Koji Akeda, Seiji Yamaguchi, Tomiharu Matsushita, Kevin Cheng, Koichi Masuda, Kazuma Nakase, Junichi Yamada, Tomohiko Sano, Akihiko Matsumine, Akihiro Sudo

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Which Medications Are Effective for Changing Behaviors Induced by Lumbar Facetomy and Repeated Cold Stress in Rats?

Daisuke Fukui, Mamoru Kawakami

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Moderate-Vigorous Activity and Sedentary Time Are Indicators of IVD Health

Jennifer A. Bowden, Ulrike H. Mitchell, Anton E. Bowden

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Injectable, Settable rhBMP-2 Ceramic Composite: A Posterolateral Fusion Model

Stefanie M. Shiels, Anne Talley, Katarzyna J. Zienkiewicz, Joseph C. Wenke, Scott A. Guelcher

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PS2 Spine—Disc, Tissue Engineering and Repair

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Tg β 1 Induces a Contractile Cd146+ Phenotype of Human Annulus Fibrosus Cells Showing Affinity to Collagen Scaffold Aimed for Annulus Fibrosus Repair

Rose G. Long, Tomoko Nakai, Daisuke Sakai, James C. Iatridis, Mauro Alini, Sibylle Grad, Zhen Li, Lorin Benneker

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Crosslinked Angle-Ply Annulus Fibrosus Repair Patch Resists Enzymatic Degradation While Maintaining Mechanical Properties and Cell Viability

Ryan Borem, Allison Madeline, Henry Mayo, Jeremy Mercuri

Poster No. 1795

Release of Simvastatin to Treat Degenerative Disc Disease Using Nanodroplet Targeted Ultrasound

Eric Mahoney, Hsuan-Yeh Pan, Karla Mercado, Kevin Haworth, Yoonjee Park, Chia-Ying Lin

Poster No. 1796

CRISPR Epigenome Editing to Promote Osteogenic Differentiation in Adipose-Derived Mesenchymal Stem Cells

Hunter Levis, Niloofar Farhang, Xue Yin, Joshua Stover, Brandon Lawrence, Robert Bowles

Poster No. 1797

Cryopreserved Human Discogenic Cells Restore Disc Height and Tissue Morphology in Canine Model

Jordy Schol, Daisuke Sakai, Hiraishi Syunsuke, Nukaga Tadashi, Masahiko Watanabe

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Wnt Signals Promote Redifferentiation of Human Nucleus Pulposus Cells Harvested from Herniated Discs

Tyler Pizzute, Ying Zhang, Xiaobing Zhang, Ming Pei

Poster No. 1799

Injectable Cellulosic Hydrogels as Nucleus Pulposus Replacements: Assessment of Herniation Risk, Fatigue Behavior, and In Vivo Biocompatibility

Huizi Anna Lin, Devika M. Varma, Warren W. Hom, Michelle A. Cruz, Phillip R. Nasser, James C. Iatridis, Steven B. Nicoll

Poster No. 1800

Cell-Seeded Adhesive Biomaterial for Repair of Annulus Fibrosus Defects in Intervertebral Discs

Michelle A. Cruz, Warren W. Hom, Robert Merrill, Olivia M. Torre, Huizi A. Lin, Philip Nasser, Andrew C. Hecht, Svenja Illien-Junger, James C. Iatridis

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Visualization of the Elastic Network of the Annulus Fibrosus

Javad Tavakoli, Dawn M. Elliott, John J. Costi

Poster No. 1802

NEMO-Binding Domain Peptide Reduces II-1 β and Overloading Induced MMP and Cytokine Expression in Human Nucleus Pulposus Cells

Juliane D. Glaeser, Khosrowdad Salehi, Linda Kanim, Michael Kropf, Hyun Bae

Poster No. 1803

Algorithmic Assessment of Annular Repair in an Ovine Lumbar Spine Model

Stephen R. Sloan Jr., Brenton Pennicooke, Connor Berlin, Yu Moriguchi, Roger Härtl, Lawrence J. Bonassar

Poster No. 1804

Discovery of a Small Molecule Inhibitor of the Wnt Pathway (SM04690) as a Potential Treatment for Degenerative Disc Disease

Charlene Barroga, Vishal Deshmukh, Luis Dellamary, Josh Stewart, Haidi Hu, John Hood, Yusuf Yazici

Poster No. 1805

Intact Composite Intervertebral Disc Scaffolds Developed by Decellularizing Bovine Tail Caudal Discs

Austin P. Hensley, Jess Rames, Clayton Compton, Tim Litzinger, Tyler Watt, Shannon Wood, Arjun Aggarwal, Kendyl Williams, Chris Fernandez, Jeremy J. Mercuri

Poster No. 1806

Intervertebral Disc Regeneration with Adipose Mesenchymal Stem Cell Derived Tissue-engineered Construct in a Rat Model of Disc Transplantation

Hiroyuki Ishiguro, Takashi Kaito, Sadaaki Kanayama, Takahiro Makino, Shota Takenaka, Kazuma Kitaguchi, Kunihiko Hashimoto, Yu Moriguchi, Norimasa Nakamura, Hideki Yoshikawa

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Vitrium Bioactive Glass Cervical Interbody Device Biomechanical Study

Janet L. Krevolin, Casey S. Lewis, Robin Parrish, Jeremi Leasure, Howard Seim, Jeremiah Easley

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A Tissue Culture Model of Inflammatory Nucleus Pulposus to Test Molecular Regenerative Therapies: Validation with Epigallocatechin 3-gallate

Olga Krupkova, Marian Hlavna, Keita Ito, Stephen J. Ferguson, Karin Wuertz-Kozak

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Partially Restored Kinematics of Spinal Units Following the Repair with Novel Annulus Fibrosus and Nucleus Pulposus Biomaterials

Ryan Borem, Joshua Walters, Allison Madeline, Sanjitpal Gill, Jeremy Mercuri

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Intervertebral Disc Degeneration: Treatment with a Novel, Photopolymerizable Scaffold Seeded with Mesenchymal Stem Cells

Nicholas J. Vaudreuil, Karl Henrikson, Adam Olsen, Andrew Lee, Hang Lin, Robert Hartman, James Kang, Joon Lee, Nam Vo, Gwendolyn Sowa

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The Enhancement of ATP Production of Intervertebral Disc with Novel Polyurethane Mass Transfer Device

Yu-Fu Wang, Chun-Yuh Huang

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Difference in Gene Expression in Interbody Spinal Fusion with Two Different Rbmp-2 Release Mode: Rabbit Bone Chamber Model

Tao Hu, Mathanapriya Naidu, Zheng Yang, Raymond Wing Moon Lam, Felly Ng, Xiafei Ren, Ramruttun Amit Kumarsing, Ming Wang, Kim Cheng Tan, Kai Thong Mariner Kwok, Stuart Goodman, James Choh Hong Goh, Hee Kit Wong

PS2 Spine—Disc Biology

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Engineered Microenvironments Regulate Nucleus Pulposus Cell Phenotype of the Intervertebral Disc Through Serum Response Factor Signaling

Bailey V. Fearing, Liufang Jing, Michael P. Kelly, Jacob M. Buchowski, Lukas P. Zebala, Munish C. Gupta, Lori A. Setton

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TonEBP Maintains Inflammatory Gene Expression in the Hyperosmotic Nucleus Pulposus

Zariel Johnson, Irving Shapiro, Makarand Risbud

Poster No. 1815

Conditional Genetic Mouse Models Targeting Shh Signaling to Study Intervertebral Disc Aging and Disease

Chitra L. Dahia, Raffaella Bonavita, Sarthak Mohanty, Robert Pinelli, Elfie De Jesus

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Mast Cells in the Pathogenesis of Painful Intervertebral Disc Degeneration

Matthew G. Wiet, Andrew M. Piscioneri, Benjamin A. Walter, Naji Chaar, Safdar N. Khan, Judith A. Hoyland, Sarah Moore, William S. Marras, Devina Purmessur

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Hyperosmolar Overloading in a Mouse Organ Culture Model Induces Notochordal Cell Differentiation with Osmoregulatory Aquaporin3 Upregulation and Altered N-Cad and Connexin-43 Mechanotransduction Expression

Paolo E. Palacio-Mancheno, Thomas W. Evashwick-Rogler, Damien M. Laudier, Devina Purmessur, James C. Iatridis

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Temsirolimus Is a Candidate of the Optimal mTOR Inhibitor in Human Intervertebral Disc Nucleus Pulposus Cells

Yuji Kakiuchi, Takashi Yurube, Masaaki Ito, Yoshiki Takeoka, Yoshiki Terashima, Kenichiro Kakutani, Koichiro Maeno, Toru Takada, Ryosuke Kuroda, Kotaro Nishida

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The Role of the Cytoskeleton in Structurally Maintaining Vacuoles of Notochordal Cells

Lauren Resutek, Adam Hsieh

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Growth Differentiation Factor 6 Signaling Promotes a Non-Degenerate Phenotype and Increases Proteoglycan Production in Human Nucleus Pulposus Cells Through Smad and Smad-Independent Signaling Pathways

Tom Hodgkinson, Aiqun Wei, Bojiang Shen, Joachim Nickel, Lisa Williams, Walter Sebald, Ashish Diwan, Stephen M. Richardson, Judith A. Hoyland

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TonEBP-COX2 Axis Promotes Nucleus Cell Survival Under Hyperosmotic Conditions

Hyowon Choi, Weera Chaiyamongkol, Alexandra C. Doolittle, Zariel I. Johnson, Shilpa S. Gogate, Zachary R. Schoepflin, Irving M. Shapiro, Makarand V. Risbud

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Comparison of Preservation Strategies for Intervertebral Disc Whole Organ Tissues

James T. Stannard, Nicole L. Walden, Aaron M. Stoker, Theodore Choma, James L. Cook

Poster No. 1823

Expression of RANK/RANKL/OPG System in Human Intervertebral Disc Tissues in Early and Advanced Stages of Degeneration

Jenny Huang, Koji Akeda, Tomohiko Sano, Junichi Yamada, Kazuma Nakase, Kevin Cheng, Veronica Khauv, Koichi Masuda, Akihiro Sudo

Poster No. 1824

Physicochemical Stresses Alter Notochordal Cell Lineage and Maintenance

Shuichi Mizuno, Mark Erwin, Ajay Matta, James D. Kang

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Can Quantitative MRI and Matrix Composition of Nucleus Pulposus Predict Calcium and Phosphate Levels in Degenerative Intervertebral Discs?

Fackson Mwale, Ahmed Habis, Laura M. Epure, Michael Philip Grant, Husam Almajed, John Antoniou

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Ccaat/enhancer Binding Protein β Regulates the Expression of Tumornecrosis Factor- α Through the Mapk Pathways in the Rat Nucleus Pulposus Cells

Akihiko Hiyama, Tadashi Nukaga, Daisuke Sakai, Masahiko Watanabe

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HIF-1 α -Carbonic Anhydrase Axis Controls Acid-Base Metabolism in Hypoxic Nucleus Pulposus Cells

Elizabeth Silagi, Zachary Schoepflin, Erin Seifert, Ernestina Schipani, Irving Shapiro, Makarand Risbud

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Development of an In Vivo Model of Neonatal Intervertebral Disc Injury and Regeneration

Olivia M. Torre, Grace E. Mosley, Rohit Das, Alice H. Huang, James C. Latridis

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Caspase-3 Gene Knockout and Intervertebral Disc Degeneration in Genetically Modified Mice

Takashi Ohnishi, Hideki Sudo, Takeru Tsujimoto, Norimasa Iwasaki

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Effect of Growth and Differentiation Factor-5 on Cultured Human Annulus Cells: Measurement of GDF-5 Levels in Conditioned Media, Influence on Cell Proliferation, and Downregulation by Exposure to Proinflammatory Cytokines

Helen E. Gruber, H. James Norton, Edward N. Hanley

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A Novel In Vitro Organ Co-Culture System of Intervertebral Discs and Dorsal Root Ganglions

Kaixi Wang, Simon Y. Tang

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Involvement and Roles of Autophagy in Maintaining Notochordal Cell Homeostasis of the Intervertebral Disc Nucleus Pulposus

Takashi Yurube, Masaaki Ito, Yuji Kakiuchi, Yoshiki Terashima, Yoshiki Takeoka, Kenichiro Kakutani, Koichiro Maeno, Toru Takada, Ryosuke Kuroda, Kotaro Nishida

Poster No. 1834

Iapp Modulates Cellular Autophagy, Apoptosis, and Extracellular Matrix Metabolism in Human Intervertebral Disc Cells

Xinghuo Wu, Yu Song, Wei Liu, Kun Wang, Yukun Zhang, Zhenfeng Duan, Cao Yang

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Correlation between Interlukin-6 Serum Levels and Pre-Operative Health Related Quality of Life Outcome Metrics in Patients Undergoing an Anterior Cervical Discectomy and Fusion for Cervical Radiculopathy.

Gregory D. Schroeder, Dessislava Z. Markova, Paul W. Millhouse, John D. Koerner, Mayan Lendner, Jeffery A. Rihn, Greg Anderson, Alan S. Hilibrand, Alexander R. Vaccaro, Christopher K. Kepler

Poster No. 1836

The Fate of Allogeneic Injected Angiopoietin-1 Receptor Tie2+ Cells in Intervertebral Disc Organ Culture

Daniela A. Frauchiger, Adel Tekari, Lorin M. Benneker, Daisuke Sakai, Benjamin Gantenbein

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Reproducing Physicochemical Environment in Nucleus Pulposus In Vitro

Shuichi Mizuno, Hideaki Fukuda, Kenichi Maeda, James D. Kang

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Modelling the Degenerate Niche to Investigate Efficacy of Mesenchymal Stem Cell Therapies for Intervertebral Disc Degeneration

Louise Vickers, Abbey A. Thorpe, Chris Sammon, Christine Le Maitre

Poster No. 1839

A Potential Safe and Novel Drink for Preventing Pain Associated with Disc Degeneration—An In-Vivo Rat Model

Alon Lai, Thomas W. Evashwick-Rogler, Jonathan M. Salandra, Lap Ho, Damien M. Laudier, Samuel K. Cho, Andrew C. Hecht, Beth A. Winkelstein, Giulio M. Pasinetti, James C. Latridis

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Genomic Analysis of Pax1 and Pax9 in Embryonic Intervertebral Disc Development

Thomas Lufkin

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A Mouse Intervertebral Disc Degeneration Model by Surgically-Induced Instability

Takeshi Oichi, Yuki Taniguchi, Kazuhito Soma, Song Ho Chang, Fumiko Yano, Sakae Tanaka, Taku Saito

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Investigation of Aquaporin Expression in the Human and Canine Intervertebral Disc

Joseph W. Snuggs, Rebecca Day, Neil Chiverton, Ashley Cole, Rowena Bunning, Matthew Conner, Marianna Tryfonidou, Christine Le Maitre

PS2 Spine—Mechanics

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Assessing the Biofidelity of In-Vitro Spine Biomechanical Studies

Forbes Howington, William Anderst, William Donaldson, Joon Lee, Kevin Bell

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Biomechanical Contributions of Upper Cervical Ligamentous Structures in Type II Odontoid Fractures

Nicholas J. Vaudreuil, Robert Tisherman, Rahul Ramanathan, Robert Hartman, Joon Lee, Kevin Bell

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Application of Lateral Bending Range of Motion Measurement to Improve Diagnosis Sensitivity of Cervical Spine Ligamentous Injuries

P. Devin Leahy, Christian M. Puttlitz

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Resonance Frequency Analysis of Pedicle Screw Stability: A Cadaveric Study with Micro-CT

Daisuke Nakashima, Takeo Nagura, Ken Ishii, Masahiro Jinzaki, Morio Matsumoto, Masaya Nakamura

Poster No. 1847

Prolonged Hindlimb Suspended Induced Calcified Hypertrophy of Endplate Structure in Rat Lumbar Spine

Yueli Sun, Xiaofei Li, Zhulun Zhou, Jian Jiao, Dongye Zhang, Minyi Hu, Yi-Xian Qin

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Lag Screws Placed Across Adjacent Vertebral Bodies Stabilize the Segment Similar to Traditional Pedicle Screws

Manoj Kodigudla, Sushil Sudershan, Amey Kelkar, Vijay Goel, Anand Agarwal, Deniz U. Erbulut, Cengiz Gomeksiz

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The Relationship of Whole Human Vertebral Body Creep to Geometric, Microstructural and Material Properties

Daniel Oravec, Michael J. Flynn, Yener N. Yeni

Poster No. 1850

Bending of Lumbar Posterior Fixation Systems in Tension: A Large Database of Bending Stiffness for ASTM F1717

Amir Hooshidar, Mohammad Javad Ein-Afshar, Naghmeh Mohammadi Bandari, Seyed Ali Hooshidar Ahmadi, Javad Dargahi

Poster No. 1851

28-Day Recovery After Microgravity Conditions Restored Rodent Bone Quality but Not Intervertebral Disc Height

Jenny Huang, Kevin Cheng, Kenji Kato, Robert Sah, Koji Akeda, Brandon Macias, Nozomu Inoue, Alan Hargens, Koichi Masuda

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The Effect of Removing Vertebral Dorsal Bone on Pedicle Screw Pullout Strength

Yi Yang, Megan E. Jeffords, Christine Farnsworth, Peter Newton

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Regional Characteristics of 3D-Printed PLA Scaffolds and Lumbar Vertebral Bodies Under Fatigue Loading

Constance Maglaras, Victoria Maglaras, Antonio Valdevit

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The Effect of Facet Capsular Ligaments on Guiding Spinal Motion

Emily A. Bermel, Victor H. Barocas, Arin M. Ellingson

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Lumbopelvic Kinematics During Forward Bending in People with and Without Low Back Pain

Brittney Mazzone, Julianne Stewart, Sara Gombatto

Poster No. 1856

Development of a Fatigue Testing Method for Vertebral Fracture Therapies

Ruth H. Coe, Sebastien N.F. Sikora, David C. Barton, Ruth K. Wilcox

Poster No. 1857

The Rib Cage Has a Strong Stabilizing Effect on the Human Thoracic Spine: An In Vitro Study Using Stepwise Reduction of the Single Rib Cage Structures

Christian Liebsch, Nicolas Graf, Konrad Appelt, Hans-Joachim Wilke

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Quantitative Computed Tomography Evaluation of Bone Density of the Vertebral Bodies Compared to Along Pedicle Screw Path

Tara Funk, Steven Marincel, Tomas Kuprys, Muturi Muriuki, Leonard Voronov, Robert Havey, Avinash Patwardhan

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Relationship Between Facet Joint Osteoarthritis and Segmental Motion in Lumbar Canal Spinal Stenosis with Spondylolisthesis Using In Vivo Three-Dimensional Image Analysis

Shigeyuki Kitanaka, Ryota Takatori, Yuji Arai, Masateru Nagae, Hitoshi Tonomura, Atsushi Makinodan, Nozomu Inoue, Taku Ogura, Toshikazu Kubo

PS2 Spine—Biology

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Lumbar Multifidus Muscle Inflammation and Degeneration in Individuals with Chronic Lumbar Spine Pathology

Bahar Shahidi, Michael C. Gibbons, James C. Hubbard, Vinko Zlomislic, Richard T. Allen, Steven R. Garfin, Samuel R. Ward

Poster No. 1863

Autograft Volume but Not Instrumentation Affects Fusion Results in the Sheep Intertransverse Process Fusion Model

Jeffrey M. Toth, Mei Wang, Steven M. Peckham, Jeffrey M. Badura, Jeffrey L. Scifert

Poster No. 1864

NFAT1 Deficiency Causes Chondrocyte Dysfunction and Ectopic Ossification in Murine Intervertebral Joints

Yi Feng, Qinghua Lu, Brian M. Egan, Kenneth D. Brandt, Jinxi Wang

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Normal Values of Craniometry in the Craniocervical-Junction Using Computed Tomography

Hirokazu Inoue

PS2 Knee—Kinematics and Gait

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Biomechanical Function on Anterolateral Structure of Knee: Quantitative Evaluation Using the Electromagnetic Measurement System

Daisuke Araki, Takehiko Matsushita, Yuichi Hoshino, Kanto Nagai, Kyohei Nishida, Hideyuki Koga, Tomomasa Nakamura, Mai Katakura, Takeshi Muneta, Ryoosuke Kuroda

Poster No. 1867

Effect of Medial Collateral Ligament Release in High Tibial Osteotomy on Medial and Lateral Contact Forces

Tserenchimed Purevsuren, Won Man Park, Kyungsoo Kim, SuKyoung Lee, Yoon Hyuk Kim

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Knees Exhibit Two Distinct Patterns of Instability in Response to Pivoting Loads

Robert N. Kent, Brendan M. Hardy, Thomas L. Wickiewicz, Andrew D. Pearle, Carl W. Imhauser

Poster No. 1869

Evaluation of Contact Area and Pressure on Total Surface Bearing and Patellar Tendon Bearing Sockets During Gait and Sit-to-Stand and Stand-to-Sit Movements

Koji Totoribe, Etsuo Chosa, Go Yamako, Xin Zhao, Hiroaki Hamada, Koki Ouchi, Gang Deng

Poster No. 1870

In Vivo Three-Dimensional Kinematics of Normal Knees During Deep Bending Activities

Kenichi Kono, Tetsuya Tomita, Takaharu Yamazaki, Toshitaka Fujito, Kazuma Futai, Sakae Tanaka, Hideki Yoshikawa, Kazuomi Sugamoto

Poster No. 1871

Evaluating Joint Kinematics in Humans and Large Animals via a Wearable Magnet-Based System

Feini Qu, Brendan D. Stoeckl, Peter M. Gebhard, Todd J. Hullfish, Josh R. Baxter, Robert L. Mauck

Poster No. 1872

Knee Gait and Quantitative Cartilage Imaging Variables After Anterior Cruciate Ligament Reconstruction

Ashutosh Khandha, Jacob J. Capin, Kevin McGinnis, Kurt Manal, Lynn Snyder-Mackler, Thomas S. Buchanan

Poster No. 1873

A Novel Method for Remotely Monitoring Knee Function Using Inertial Measurement Units

Ryan M. Chapman, Wayne Moschetti, Douglas Van Citters

Poster No. 1874

The Optimal Reference Line for Tibial Rotation in Total Knee Arthroplasty: The Takashiba-Line

Kenichiro Takashiba, Gen Uehara, Eunhee Chung, Kei Osano, Hiroki Kaneko

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Changes in Knee Adduction Rotation and Not Adduction Moment Influence Joint Compartmental Load Partitioning

Hafedh Marouane, Saeed Shirazi-Adl

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An Approach to Benchmark Automated Markerless Tracking of Biplanar Videoradiography Data

Christopher M. Saliba, Allison Clouthier, Myles Ashall, Darryl G. Thelen, William S. Selbie, Peter Loan, Kevin J. Deluzio, Lionel Reveret, Michael J. Rainbow

Poster No. 1877

The Contributions of Pathological Volume and Kinematics to the Etiology of Adolescent Patellofemoral Pain

Richard M. Smith, Natalia Alexandridi, Katharine E. Alter, Barry P. Boden, Frances T. Sheehan

Poster No. 1878

Does Knee Hyperextension Affect Dynamic In Vivo Kinematics After Anterior Cruciate Ligament Reconstruction?

Kanto Nagai, Tom Gale, Yasutaka Tashiro, Elmar Herbst, James J. Irrgang, William Anderst, Freddie H. Fu, Scott Tashman

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Lower Extremity Joint Power Differs Between Lead and Trail Limbs Among Female Adolescent Fast-pitch Softball Pitchers During Box Drop Activity

Donna Moxley Scarborough, Shannon Linderman, Taylor Flaxington, Alex Lo, Luke S. Oh

Poster No. 1880

Recovery Process of the Muscle Activities During Ambulation After Total Knee Arthroplasty.

Takao Yoshida, Hideji Kura, Eiichi Uchiyama, Kazuhiro Sasaki, Jun Ebiko

Poster No. 1881

Does the Total Knee Arthroplasty with a Medial Ball in Socket Design Induce Medial Pivot Motion?

Kouta Miura, Yasumitsu Ohkoshi, Takumi Ino, Yuhei Ohsumi, Satoshi Kotake, Kengo Ukishiro, Keiji Ohmori, Toshinori Yoshida, Kensaku Kawakami, Sho'ji Suzuki, Tatsunori Maeda, Ko Suzuki

Poster No. 1882

Posterior Tibial Subchondral Bone and Meniscal Slope Correlate with In Vivo Internal Tibial Rotation

Elmar Herbst, Tom Gale, Kanto Nagai, Yasutaka Tashiro, James Irrgang, William J. Anderst, Scott Tashman, Freddie H. Fu

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Poster No. 1883

Radiographic Analysis of the Lower Limbs Using the True Mechanical Axis in Healthy Individuals and in Patients with Osteoarthritis

Toshikazu Tanaka, Tomoyuki Matsumoto, Koji Takayama, Noriyuki Kanzaki, Shinya Hayashi, Shingo Hashimoto, Ryosuke Kuroda

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Errors in Computing A-P Tibial Contact Locations Using Single-Plane Fluoroscopy: An In Vitro Validation Study of Two Methods

Derrick Ross, Stephen Howell, Maury Hull

Poster No. 1885

Muscle Activities During Nordic Walking in Patients with Osteoarthritis of the Knee

Kurumi Ueno, Namiko Sugai, Kazuhiro Sasaki, Hideji Kura, Eiichi Uchiyama

PS2 Knee—Mechanics

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Side-to-Side Asymmetry During Recovery Following Anterior Cruciate Ligament Reconstruction

Robin M. Queen, Christopher T. Franck

Poster No. 1887

Knee Joint Stability and Muscle Coactivation: A Novel Hybrid Musculoskeletal Model Study in Gait

Masoud Sharifi, Saeed Shirazi-Adl, Hafedh Marouane

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The Association Between Subjective Feelings of Instability and Accelerations of the Knee Joint in Total Knee Arthroplasty During Walking

Tatsuya Soeno, Tomoharu Mochizuki, Osamu Tanifuji, Hiroki Hijikata, Takashi Sato, Satoshi Watanabe, Takayuki Murayama, Naoto Endo

Poster No. 1889

The Influence of a Functional Knee Brace and Orthopaedic Tights on Lower Extremity Mechanics During Land and Cut Maneuvers

Michael D. Harris, Ke Song, Bradley S. Davidson, Michael J. Decker, Kevin B. Shelburne

Poster No. 1890

The Effects of the General and Local Geometric Characteristics of Cartilage and Meniscus on Knee Mechanics

Qingen Meng, John Fisher, Ruth K. Wilcox

Poster No. 1891

Computational Muscle Force Prediction in Complexly Shaped Joints by Means of Instantaneous Screw Axes

Andreas Geier, Christoph Woernle, Rainer Bader

PS2 Knee—Computational Modeling

Poster No. 1892

Dynamic Simulation to Characterize the Influence of Surgical Stabilization on Patellar Tracking

John J. Elias, Molly K. Lalonde, Ali Alshehri, Andrew J. Copa, Andrew J. Cosgarea, Kerwyn C. Jones

Poster No. 1893

The Influence of Modeling Choices on the Predictive Capability of the Human Knee Joint Finite Element Models

Hamid Naghibi Beidokhti, Dennis Janssen, Sebastian van de Groes, Ton van den Boogaard, Nico Verdonsocht

Poster No. 1894

The Anteroposterior Axis of the Proximal Tibia Can Change After Tibial Resection in Total Knee Arthroplasty: Computer Simulation Using Asian Osteoarthritis Knees

Tetsuro Ushio, Hideki Mizu-Uchi, Ken Okazaki, Satoshi Hamai, Yukio Akasaki, Yuan Ma, Umito Kuwashima, Koji Murakami, Yasuharu Nakashima, Darryl D'Lima

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Effect of Statistical Shape Modelling Features of the Knee Joint on Alignment

Allison L. Clouthier, Colin R. Smith, Michael F. Vignos, Kevin J. Deluzio, Darryl G. Thelen, Michael J. Rainbow

Poster No. 1896

Determination of Muscle Force and Joint Loading in a Simulated Jump Landing Task Using AnyBody

Rodney Summers, Venkat Vaddamani, Tim Hewett, Vijay Goel

Poster No. 1897

Clinical Validation of Forward Dynamic Knee Kinematic Model to Predict TKA Kinematics

Xiangyi (Cheryl) Liu, Damon Servidio, Ronald Ehlert, Amanda Kirk, Walter Schmidt, Joseph Racanelli

Poster No. 1898

Biomechanical Effect of PL Tunnel Positioning in Double-Bundle Reconstruction—A 3D Computational Study

Nathan Varady, Willem A. Kernkamp, Jing-Sheng Li, Lianxin Wang, Hiroshi Koga, Peter D. Asnis, Guoan Li

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Comparing the Form and Volume of IPFP Between 30 and 0 Degrees of Knee Flexion in Normal Knees: Cross-Sectional Study Using Three-Dimensional Models

Yuriko Okita, Hiroyuki Oba, Masashi Morimoto, Yusuke Takefuji, Ryohei Miura, Kento Shirai, Kei Sato, Kazuya Ito, Kazuyoshi Gamada, Toshihiro Sadamatsu

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Length Change Sensitivity of the Atlas™ Knee System: A Novel Joint-Unloading Prosthesis for the Treatment of Medial Knee Osteoarthritis

Oliver J. Morgan, Howard J. Hillstrom, David Lowe, Anil Ranawat, Austin T. Fragomen, S. Robert Rozbruch, Rajshree Mootanah

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A Novel Computational Model of a Total Knee Replacement Implant with Synthetic Ligaments

Taylor Gambon

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Altered In Vivo Patellofemoral Kinematics in Anterior Cruciate Ligament Deficiency: A Comparative Study with Healthy Knees During a Step-Up Activity

Seung-Hoon Baek, Jing-Sheng Li, Willem A. Kernkamp, Peter Asnis, Thomas J. Gill, Guoan Li

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Effect of Fixation Wire's Diameter on the Damage of Transplanted ACL Graft Under Repetitive Loads

Tae Soo Bae, Han Wool Seo, Joon Ho Wang

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Eli L. Pratte, Aaron M. Stoker, James L. Cook

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Factors Affecting the Postoperative Malalignment in an Opening-Wedge High Tibial Osteotomy

Kei Osano, Takenori Akiyama, Shunsuke Nakamura, Ryuji Nagamine, Kenichiro Takashiba

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Intraoperative Outcomes of ACL-Reconstruction: A Probabilistic Simulation of the Surgery

Yasin Dhaher, Shahab Salehghaffari, Malek Adouni

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Longitudinal Investigation of In Vivo Tibiofemoral Kinematics Following ACL Injury and Reconstruction

Michael F. Vignos, Jarred Kaiser, Richard Kijowski, Geoffrey S. Baer, Darryl G. Thelen

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Brian Walczak, Darrin Trask, Matthew Squire, Geoffrey Baer

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Alignment Reference Impacts the Accuracy of Tibial Resection Planning During TKA

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The Biomechanical Influence of the Lateral Hinge Fracture on Opening Wedge High Tibial Osteotomy

Kentaro Shinohara, Naoto Mitsugi, Naoya Taki, Hirohiko Ota, Yohei Sasaki, Tomoyuki Saito

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Influence of Bone Mineral Density and Insertion Torque on ACL Soft Tissue Graft Fixation with Interference Screws

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Steroid Injection in Total Knee Arthroplasty—Study with Different Procedure

Takao Yamamoto, Atsushi Narita, Akemi Suzuki, Sadami Toyoshima, Tamon Asano, Taku Nakajima, Shuji Toyono, Yoshihiro Wanezaki, Michiaki Takagi

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Is a High Tibial Osteotomy Superior to Non-Surgical Treatment or Valgus Unloader Bracing in Patients with Varus Malaligned Medial Knee Osteoarthritis? A Propensity Matched Study Using 2 RCT Datasets

Mark Van Outeren, Erwin Waarsing, Max Reijman, Reinoud Brouwer, Susanne Eijgenraam, Jan Verhaar, Sita Bierma-Zeinstra

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Effects of Remnant Tissue Preservation on Tunnel Enlargement and Coalition After Anatomic Double-Bundle Anterior Cruciate Ligament Reconstruction using Hamstring Tendon Autografts

Tetsuro Masuda, Eiji Kondo, Jun Onodera, Nobuto Kitamura, Hiroshi Mizuta, Norimasa Iwasaki, Kazunori Yasuda

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Sensitivity of ACL Volume and MR T2* Characteristics To MR Scan Parameters

Jillian E. Beveridge, Edward G. Walsh, Martha M. Murray, Braden C. Fleming

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Gait Mechanics Differ After ACL Reconstruction Based On Medial Meniscal Pathology and Surgical Treatment

Jacob J. Capin, Ashutosh Khandha, Kurt Manal, Thomas S. Buchanan, Lynn Snyder-Mackler

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Does Triple Semitendinosus Autograft Tendon Have the Same Thickness as Quadrupled Semitendinosus and Gracilis Autograft Tendons in ACL Reconstruction?

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Age-Related Changes in Ligament and Cartilage Composition Are Altered With Exercise

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Geographic Incidence of Second Anterior Cruciate Ligament Tears (2001–2010) and Associated Risk Factors

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The Position of the Anterior Cruciate Ligament Graft During Reconstruction Affects the Failure Load

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Restoration of the ACL Footprint Can Prevent Tibial Tunnel Enlargement After ACL Reconstruction Surgery

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The Correlation of Femoral Tunnel Length and the Shape of the Lateral Wall of Femoral Intercondylar Notch in the Anatomical Single Bundle ACL Reconstruction

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Effect of Graft Fixation Protocol on Graft In-Situ Forces in One-Stage Anterior Cruciate Ligament and Posterior Cruciate Ligament Reconstruction

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Takeshi Utsunomiya, Goro Motomura, Satoshi Ikemura, Kazuhiko Sonoda, Yusuke Kubo, Hiroyuki Hatanaka, Shoji Baba, Takuaki Yamamoto, Yasuharu Nakashima

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Influence of Bone Pathology on Strength Assessed by MRI-Based Finite-Element Modeling

Malika Shukurova, Hamza Alizai, Abigail L. Hong, Keren De Jesus, Chamith S. Rajapakse, Gregory Chang

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How Does Transtrochanteric Rotational Osteotomy Change the Dynamic Three-Dimensional Intact Ratio in Hips with Osteonecrosis of the Femoral Head? A New Method and Pilot Study

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Hip Braces for Conservative Femoroacetabular Impingement Treatment Reduce Injury Inducing Motions During Activities of Daily Living

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Does Gait Become Slower and More Asymmetrical with Age?

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Penny Atkins, Niccolo Fiorentino, Sara Fauver, Stephen Aoki, Christopher Peters, Travis Maak, Andrew Anderson

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Going Beyond Patient Reported Outcome Measures (PROMs) in Assessing Surgical Management of Femoroacetabular Impingement

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Mahsan Bakhtiarinejad, Amirhossein Farvardin, Ryan J. Murphy, John Edgar Tis, Amit Y. Merchant, Mehran Armand

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Jocelyn Todd, Huashan Zou, Travis Maak, Jeff Weiss

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Evaluation of the Effect of Total Hip Arthroplasty on Spine-Hip-Knee Alignment and Pain Using EOS System

Daigo Kobayashi, Yutaka Inaba, Hyonmin Choe, Naomi Kobayashi, Taro Tetsuka, So Kubota, Takashi Sakai, Tomoyuki Saitou

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Ryota Nakaya, Masaki Takao, Hidetoshi Hamada, Takashi Sakai, Nobuhiko Sugano

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Anterior Inferior Acetabular Horn Morphology: A Factor in Hip Instability

Asadullah Helal, Munif A. Hatem, Ricardo G. Schroder, Anthony Khoury, Ian J. Palmer, Hal D. Martin

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Factors Influencing Progressive Collapse of the Transposed Necrotic Lesion After Transtrochanteric Anterior Rotational Osteotomy for Osteonecrosis of the Femoral Head

Yusuke Kubo, Goro Motomura, Takuaki Yamamoto, Satoshi Ikemura, Kazuhiko Sonoda, Hiroyuki Hatanaka, Takeshi Utsunomiya, Shoji Baba, Yasuharu Nakashima

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Differences in Acetabular Rim Thickness Between the Symptomatic and Asymptomatic Hip in Patients with Unilateral Femoroacetabular Impingement

Gift C. Ukwuani, Alexander Weber, Benjamin Kuhns, Nozomu Inoue, Asheesh Bedi, Michael Salata, Shane J. Nho

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Kazunori Tamura, Masaki Takao, Takashi Sakai, Hidetoshi Hamada, Nobuhiko Sugano

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3D Acetabular Changes Following Ischemic Osteonecrosis of the Femoral Head in a Piglet Model

Vidyadhar V. Upasani, Megan Jeffords, Christine Farnsworth, David Padilla, Nick Lopreiato, Olumide Aruwajoye, Harry K.W. Kim

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Femoral Head Coverage Is Affected by Acetabular Retroversion in Dysplastic Hips: A Novel Ct-based Technique

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Natural History of Asymptomatic Hips in Patients with Bilateral Osteonecrosis of the Femoral Head

Kenyu Iwasaki, Satoshi Ikemura, Goro Motomura, Takuaki Yamamoto

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Nathan Carrington, Bryce Kunkle, Jeffrey Anker, John DesJardins, Caleb Behrend, Tom Pace

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Does Corrective Surgery in Femoroacetabular Impingement Improve Joint Kinematics During Squatting?

Danilo Catelli, Erik Kowalski, Mario Lamontagne, Paul Beaulé

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The Effect of Limb Position on Radiographic Assessment of Limb Length Inequality During Anterior Total Hip Arthroplasty: A Quantitative Analysis

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Anteroposterior Translation and Range of Motion After Total Knee Arthroplasty using Posterior Cruciate Ligament-Retaining vs. Substituting Prostheses

Yoshinori Ishii, Hideo Noguchi, Junko Sato

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Melissa M. Mansfield, Peter S. Walker, Ryan T. Willing

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Marzieh Ardestani, Aaron Resenberg, Markus A. Wimmer

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Donna Moxley Scarborough, Javier E. Sanchez, Shannon Linderman, Tsung-Yuan Tsai, Young-Min Kwon

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How Sensitive Are the Contact Force Imbalance and Varus-Valgus Laxity to Varus-Valgus Adjustments of the Tibial Component in Total Knee Arthroplasty?

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Knee Joint Deficits Of Patients With Total Knee Arthroplasty During Stair Descent

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Shinichiro Nakamura, Yi Tian, Yoshihisa Tanaka, Shinichi Kuriyama, Hiromu Ito, Moritoshi Furu, Shuichi Matsuda

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Nick Dong, Jiang Wang, Changsheng Chen, Aiguo Wang, Yixin Zhou

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The Effect of Tibial Slope on the Biomechanics of Cruciate Retaining TKA: A Musculoskeletal Simulation Study

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Supine Position Increased the Risk of Outliers of the Cup Alignment in THA Using the Muscle Sparing Modified Watson-Jones Approach

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Does Acetabular, Femoral and Combined Hip Anteversion in Standing Position Reside Within the Proposed Safe Zone in Most Patients After Primary Total Hip Arthroplasty?

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Residual Varus Alignment Does Not Increase Varus Laxity at a Minimum of Five Years After Total Knee Arthroplasty.

Kazuhsa Hatayama, Masanori Terauchi, Kenichi Saito, Hiroshi Higuchi

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Short-Term Morbidity and Readmissions Are Increased with Skilled Nursing Facility Discharge Following TJA

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Katharine Hollnagel, Rachel Michael, Jeffrey Devitt, Sumon Nandi

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Breast Cancer Cells Expressing Cancer-Associated Sialyl-tn Antigen Have Less Ability to Develop Metastatic Bone Lesions in a Mouse Model of Bone Metastasis

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Ju-Fang Liu, Sheng-Mou Hou, Chun-Han Hou

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Timothy A. Damron, Tina Craig, Joseph Inzinna, Hal Cohen

Poster No. 2253

Targeting Mitochondrial Function Using Transcutaneous CO₂ Application for the Sarcoma Treatment

Teruya Kawamoto, Takeshi Ueha, Hitomi Hara, Naomasa Fukase, Masayuki Morishita, Etsuko Katayama, Toshiyuki Takemori, Ryosuke Kuroda, Toshihiro Akisue

Poster No. 2254

MicroRNA-21 in Proliferation, Metastasis, and Transformation of Osteosarcoma Cells

Bo Miao, Xuan Gong, Shang-You Yang

POSTERS

Poster No. 2255

Exploring the Role of CXCR4 Expression on Osteosarcoma Cells Chemotherapy Resistance

Gabriele O. Ribeiro, Juliana Lima Souza, Ana Cristina Sá, Walter Meohas, Maria Eugênia Leite Duarte, Anneliese Fortina Costa, Amanda Santos Cavalcanti

Poster No. 2256

The Prophylactic Antibiotic Regimens in Tumor Surgery (PARITY) Randomized Controlled Trial: International Expansion of the Collaborative Network

Michelle Ghert

Poster No. 2257

PTH Protection of Trabecular Bone Mass Post-Irradiation Is Extended by Bisphosphonate Augmentation

Megan E. Oest, Nicholas D. Zimmerman, Kenneth A. Mann, Timothy A. Damron

Poster No. 2258

Targeting DYRK1B Protein Kinase Suppresses the Proliferation and Migration of Human Liposarcoma Cells

Zhenfeng Duan, Hua Chen, Jacson Shen, Edwin Choy, Francis J. Hornicek

Poster No. 2259

Characterization of Doxycycline-Loaded Calcium Phosphate Cement for Treatment of Aneurysmal Bone Cysts

Erika Daley, Denise Koueiter, Michael Kurdziel, Drew Moore

Poster No. 2260

Five-Aminolevulinic Acid Photodynamic Therapy for Myxofibrosarcoma

Shachar Kenan, Haixiang Liang, Howard Goodman, Daniel A. Grande, Adam Levin

Poster No. 2261

Disruption of TET Mediated ShmC Deposition and Differentiation in Osteosarcoma

Fiorella C. Grandi, Shin Mei Chan, Amanda Koehne, Eric A. Sweet-Cordero, Nidhi Bhutani

Poster No. 2262

Inhibitors of the Irf1- α -xbp1 Pathway Reveals Cytotoxic to Ewing's Sarcoma Cells

Yu Tanabe

Poster No. 2263

Antitumor Effects by Combined Therapy of Smac Mimetic and Doxorubicin on Human Osteosarcoma Cells

Naomasa Fukase, Teruya Kawamoto, Hitomi Hara, Etsuko Katayama, Takeshi Ueha, Masayuki Morishita, Toshiyuki Takemori, Ryosuke Kuroda, Toshihiro Akisue

Poster No. 2264

Genome-wide Mistargeting of Oncogenic SWI/SNF(BAF) Complexes in SMARCB1(BAF47)-Deficient Sarcomas

Robert Nakayama, John Pulice, Alfredo M. Valencia, Robert T. Williams, George D. Demetri, Cigall Kadoch

Poster No. 2265

Screening of Synergistic Reagent with Pazopanib Against Osteosarcoma Using Compound Library

Yuki Yada, Kunihiro Asanuma, Tomohito Hagi, Tomoki Nakamura, Takao Matsubara, Akihiko Matsumine, Akihiro Sudo

POSTER SESSION 1

LATE BREAKING POSTERS

Posters will be displayed all day Monday and Tuesday morning.

Paper No. 2275

Design and Evaluation of a Clinically Relevant Challenge Device for Cleaning of Additive Manufacturing Residues

Jorge Hernandez, James Coburn

Paper No. 2276

In Vitro Electrical Stimulation-Mediated Human Mesenchymal Stem Cell Differentiation for Nerve Regeneration

Ohan S. Manoukian, Swetha Rudraiah, Sangamesh G. Kumbhar

Paper No. 2277

Surface Chemistry of a Silicon Nitride Bioceramic Enhances Spinal Fusion: A Case Study

Giuseppe Pezzotti, Naoki Oba, Wenliang Zhu, Elia Marin, Alfredo Rondinella, Francesco Boschetto, Bryan J. McEntire, Kengo Yamamoto, B. Sonny Bal

Paper No. 2278

Cellular Interaction and Mechanical Properties of Electrospun Poly(L-lactic acid)/gelatin Yarns: A Novel Scaffold with Potential Application in Angiogenesis

Elham Rahimtoroghi, Mehran Kasra, Nafiseh Mirabdolhosseini

Paper No. 2279

Local Delivery of SDF-1 beta via Titania Nanotube Surface to Promote Osseointegration

Jonathan O. Wright, Erin A. Baker, Chikezie Okeagu, Mackenzie M. Fleischer, Meagan R. Salisbury, Michael Newton, Tristan Maerz, Paul T. Fortin, Craig Friedrich

Paper No. 2280

Effect of Teriparatide on Subchondral Bone Lesions and Pain in Mono-iodoacetate-induced Osteoarthritis Rat

Koji Aso, Masashi Izumi, Masahiko Ikeuchi

Paper No. 2281

Co-axial Bio-printing of Stem Cells for the Regeneration of Articular Cartilage

Claudia Di Bella, Serena Duchi, Carmine Onofrillo, Romane Blanchard, Peter Pivonka, Cathal O'Connell, Gordon Wallace, Peter Choong

POSTERS

Paper No. 2282

Freeze Dried Chitosan/platelet-rich-plasma Implants Improve Marrow Stimulated Cartilage Repair in Rabbit Chronic Defect Model

Garima Dwivedi, Anik Chevrier, Caroline Hoemann, Michael Buschmann

Paper No. 2283

Novel Interpenetrating Hydrogel Reconstitutes Articular Cartilage Mechanical Properties

Janne T.A. Mäkelä, Benjamin G. Cooper, Rami K. Korhonen, Mark W. Grinstaff, Brian D. Snyder

Paper No. 2284

MRI UTE-T2* Profile Analyses Correlate to Patient Reported Outcomes 2 Years After ACL Reconstruction

Ashley A. Williams, Matthew R. Titchenal, Constance R. Chu

Paper No. 2285

Heat Enhanced Bone Elongation in Growth Plates Is IGF-I Dependent

Maria A. Serrat, Holly L. Racine, Chad A. Meadows, Gabriela Ion

Paper No. 2286

Online Quantitative Monitoring of Live Engineered Cartilage Growth Using Diffuse Fiber-Optic Raman Spectroscopy

Michael Albro, Mads S. Bergholt, Molly M. Stevens

Paper No. 2287

Drilling Effects on Fibrocartilage Regeneration at the Tendon-to-bone Insertion After Rotator Cuff Repair

Toru Morihara, Haruhiko Nakagawa, Yukichi Kabuto, Hiroyoshi Fujiwara, Toshikazu Kubo

Paper No. 2288

Simvastatin Exhibits Pro-differentiation Effects on Chondrocyte Morphology and Biosynthesis

Kenya Terabe, Nobunori Takahashi, Emily B. Askew, Cheryl B. Knudson, Warren Knudson

Paper No. 2289

Intra-articular Injection of MgCl₂ Alleviates the Progression of Osteoarthritis Through a “Double Actions” Property

Hao Yao, Jiankun Xu, Can Cui, Nianye Zheng, Jiang Yue, Jiali Wang, Ling Qin, Kiwai Ho

Paper No. 2290

Gait Adaptations to Pain 12 Months Post Medial Meniscectomy

Jessica L. Asay, Shannon N. Edd, Nicholas J. Giori, Thomas P. Andriacchi

Paper No. 2291

Role of Intra-articular Mast Cells in a Mouse Model of Osteoarthritis

Masashi Izumi, Hiroko Habuchi, Osami Habuchi, Masahiko Ikeuchi, Takahiro Ushida

Paper No. 2292

Temporal Changes in Synovial Fluid Composition and Elastoviscous Lubrication in the Equine Carpal Fracture Model

Elizabeth Feeney, Bridgette Peal, Jacqueline Inglis, Alan Nixon, Lawrence J. Bonassar, Heidi Reesink

Paper No. 2293

Medial Compartment Decompression by Fibular Osteotomy: A Biomechanical Cadaver Study

Jesse Roberts, Todd Baldini, Jiandong Hao, Michael R. Dayton, Kenneth J. Hunt, Craig Hogan

Paper No. 2294

Knee Osteoarthritis Induces Depression-Like Behavior but Not Anxiety in a Mouse Model

Hidetoshi Tsushima, Terese Camp, Samuel Adams

Paper No. 2295

Structural and In Vivo Functional Measures Predict Achilles Tendon Fatigue Mechanics During Healing

Snehal S. Shetye, Benjamin R. Freedman, George W. Fryhofer, Corinne N. Riggan, Joshua A. Gordon, Stephen J. Thomas, Daniel C. Farber, Louis J. Soslowsky

Paper No. 2296

Tensile and Torsional Structural Properties of the Native Scapholunate Ligament and Structural Properties of the Palmaris Longus and Brachioradialis Tendons as Potential Grafts for Scapholunate Ligament Reconstruction

Eric Q. Pang, Nathan Douglass, Anthony Behn, Matthew Winterton, Michael Rainbow, Robin N. Kamal

Paper No. 2297

A Novel Cadaver Model of Simulating Trigger Finger

Yu-Shiuan Cheng, Hsiao-Feng Chieh, Chien-Ju Lin, Li-Chieh Kuo, Fong-Chin Su, Kai-Nan An

Paper No. 2298

T lymphocyte Deficient Mice Exhibit Increased M2 Macrophages and Improved Healing

Connie S. Chamberlain, Anna E.B. Clements, Ugeun Choi, Ray Vanderby

Paper No. 2299

Tranexamic Acid Toxicity in Human Tenocytes: Caution in Clinical Practice

Michael M. McLean, Susan Kitson, Lindsay A.N. Crowe, Ian Kennedy, Mark Blyth, Innes Smith, Derek S. Gilchrist, Moeed Akbar, Neal Millar

Paper No. 2300

In Vitro and In Vivo Characterization of Human Pluripotent Stem Cell Pericytes in a Murine Model of Massive Rotator Cuff Tear

Gina M. Mosich, Paras Shah, Claire D. Eliasberg, Andrew R. Jensen, Benjamin V. Kelley, Allison Ariniello, Brandon Vu, Bruno Peault, April Pyle, David R. McAllister, Ayelet Dar, Frank A. Petrigliano

POSTERS

Paper No. 2301

Reactive Oxygen Species and Mitochondrial Dysfunction Contribute to the Pathological Changes That Occur Following Rotator Cuff Tear

Jonathan Gumucio, Brian McDonagh, Christopher Mendias

Paper No. 2302

Human Myogenic Precursor Cells Are Multipotent Stem Cells That Inhibit Allogeneic T Cell Proliferation

Thomas Laumonier, Vincent Kindler, Didier Hannouche

Paper No. 2303

Multifunctional Biomaterial to Modulate the Behavior of Mscs and to Enhance Skeletal Muscle Regeneration

Sven Geissler, Taimoor H. Qazi, Matthias Pumberger, Tobias Winkler, Carsten Perka, David J. Mooney, Georg N. Duda

Paper No. 2304

Inorganic Nitrite Promotes Proliferation and Myogenic Differentiation of Myoblasts

Dukens LaBaze, Baoli Qian, Justin Hicks, Wanyan Ma, Jennifer Miller, MaCalus V. Hogan, Hongshuai Li

Paper No. 2305

Fibroblast Growth Factors Receptor 1 and 2 Regulate Periosteal and Trabecular Morphometry in the Murine Tibia

Michael A. Sonnenfeld, Kendra K. Wernlé, Kannan Karuppaiah, David M. Ornitz, Megan L. Killian

Paper No. 2306

Mouse and Human Osteocyte-derived Extracellular Vesicles (EVs) Stimulate Adipocyte and Osteoclast Differentiation In Vitro: A Role for EVs in Cell-Cell Communication in Bones and Joints?

Nicole E.E. Scully, Giorgos Kremastiotis, Robert D. Young, Mike Stone, Bronwen A.J. Evans

Paper No. 2307

Enhanced Bone Formation Using Freeze-dried Allograft Bone with Human Basic Fibroblast Growth Factor Containing a Collagen-bonding Domain from Clostridium Histolyticum Collagenase After Lumbar Posterolateral Fusion Surgery in Rats

Gen Inoue, Kentaro Uchida, Hisako Fujimaki, Wataru Saito, Masayuki Miyagi, Hiroyuki Sekiguchi, Jun Aikawa, Naoshige Nagura, Shotaro Takano, Masashi Takaso

Paper No. 2308

Loss of Murine Gfi1 Causes Neutropenia and Induces Osteoporosis Depending on the Pathogen Load and Systemic Inflammation

Sven Geissler, Martin Textor, Simon Reinke, Sabine Stumpp, Jirko Kuehnisch

Paper No. 2309

Tissue Composition and Material Properties of Lumbar Spine Cortical Bone from Individuals with and Without Type 2 Diabetes

Todd L. Bredbenner, Donald E. Moravits, Jesus W. Hernandez, Brandon May, Zachary Child, Roberto J. Fajardo

Paper No. 2310

Application of 3D Digital Trabecular Bone Model in Validating the Efficacy of DXA in Extracting Information on Trabecular Architectures: A Pilot Study

Xuanliang Neil Dong, Matt Kirby, Xiaodu Wang

Paper No. 2311

Spatiotemporal Interactions of Osteogenic and Angiogenic Cells During Long Bone Repair

Chao Liu, Alesha B. Castillo

Paper No. 2312

Effect of Audible Sound Waves on Human Umbilical Vein Endothelial Cell Response: Application in Wound and Fracture Healing

Nafiseh Mirabdolhosseini, Mehran Kasra, Elham Rahimtoroghi

Paper No. 2313

Gene Expression Differences Underlying Age-related Changes in Human Bone Cells

Eric Y. Chen, Louis Gerstenfeld, Charles Farber

Paper No. 2314

Local Delivery of Calpain Inhibitor Mdl28170-loaded Pcl Film Improves Sci Functional Recovery by Reducing Neuronal Cell Death

Linlin Wang, Dongling Shi, Heyangzi Li, Weijian Tang, Mingzhi Zheng, Yueming Ding, Yueliang Shen, Xiaoming Zhang, Yingying Chen

Paper No. 2315

MicroCT Characterisation of 3D Micro-Structure and Strain in Intervertebral Discs

Catherine Disney, Andrew J. Bodey, Brian K. Bay, Peter D. Lee, Judith Hoyland, Michael J. Sherratt

Paper No. 2316

MRI Quantification of Lumbar Spine Epidural Lipomatosis: Association with Risk Factors

Anuj Patel, Douglas D. Robertson Jr., Marcus Walker, Yara Younan, Catphuong Vu, Michael Gottschalk, John Rhee

Paper No. 2317

What Are the Distractive Forces Applied During Percutaneous Reduction of a Single Level Lumbar Spine Burst Fracture?

Nicholas Sacksteder, Gary Bledsoe, Dirk Alander

Paper No. 2318

An Injectable Hydrogel Composite Scaffold Replacement for Nucleus Pulposus Repair for the Degenerated Intervertebral Disc

Thomas R. Christiani, Tyler Christy, Jennifer Doss, Kyle Grootenboer, Kyle Heckler, Emily Ilic, Quinn Perlstein, Karl Dyer, Jennifer Kadlowec, Cristina Iftode, Jennifer Vernengo

POSTERS

Paper No. 2319

Identification of Potential Novel Biomarkers Associated with the Pathogenesis of Human Intervertebral Disc Diseases: A Pilot Metabolomics Study Reveals Metabolite Differences in Intervertebral Disc Tissue During Aging, Degeneration and Herniation

Xiaohua Zong, Liufang Jing, Sivapriya Ramamoorthy, Elizabeth M. Leimer, Lori A. Setton, Richardson J. William, Robert D. Fitch, Melissa M. Erickson, Brian L. Dial, Jun Chen

Paper No. 2320

The Proinflammatory Cytokines IL-1 β and TNF- α Influence Human Annulus Cell Signaling Cues for Neurite Growth

Helen E. Gruber, Brittany Jones, Emilio Marrero, Edward N. Hanley

Paper No. 2321

Comparison of Quantitative Imaging Techniques for Detecting Degenerative Changes in a Mouse Caudal Intervertebral Disc Injury Model

Matthew Piazza, Sun Peck, Sarah Gullbrand, Justin Bendigo, Harvey Smith, Neil Malhotra, Lachlan Smith

Paper No. 2322

Pre-Operative Cervical Spine Kinematics in Anterior Arthrodesis Patients

Samuel W. Pitcairn, William J. Anderst, Bryan D. Rynearson, Joon Y. Lee, William F. Donaldson

Paper No. 2323

Tibiofemoral Kinematics of Healthy Older Adults During Dynamic Seiza-Style Kneeling: A Pilot Study

Erin M. Mannen, Vasiliki Kefala, Azhar A. Ali, Jonathan P. Walter, Kendra M. Reilly, Melissa K. Jackels, Xiangyi (Cheryl) Liu, Walter Schmidt, Paul J. Rullkoetter, Kevin B. Shelburne

Paper No. 2324

Smart Patellar Implant for Characterization of Patellofemoral Joint Forces—An In Vitro Study

Matthew Dion, Khaled Abdoun, Andree Caruso, Benjamin Beretvas, Reena Dahle, Vishal Desai, Jared Roberts, Nathaniel Cady, Eric Ledet

Paper No. 2325

Biomechanical and Clinical Evaluations of a Novel Fixation System for Medial Open Wedge High Tibial Osteotomy: Comparison with Conventional Locking Plate

Koji Yabuuchi, Eiji Kondo, Jun Onodera, Toshiaki Kameda, Dai Sato, Tomohiro Onodera, Tomonori Yagi, Norimasa Iwasaki, Kazunori Yasuda

Paper No. 2326

The Effect of Positioning Error on the Hilgenreiner Epiphyseal Angle Compared to the Femoral Neck-Shaft Angle

Carly E. Jones, Kishore Mulpuri, David R. Wilson, Agnes G. d'Entremont

Paper No. 2327

Assessing Cam Impingement in Three Dimensions Using Geometric Parameterisation

Robert J. Cooper, Marlène Mengoni, Dawn Groves, Sophie Williams, Marcus J.K. Banks, Philip Robinson, Alison C. Jones

Paper No. 2328

The Influence of Total Knee Replacement Constraint on Frontal Plane Stability and Collateral Ligament Strain

Joshua Slane, Pieter Berger, Orcun Taylan, Ronny De Corte, Hilde Vandenneucker, Lennart Scheys

Paper No. 2329

Total Knee Antibiotic Spacer Outcomes for Periprosthetic Joint Infection

Keely Boyle, Scott Nodzo, Allina Nocon, Andy O. Miller, Geoffrey Westrich

Paper No. 2330

Direct Anterior Approach Total Hip Arthroplasty: Fracture Table vs. Standard Operating Table, Is There a Difference?

Preliminary Results

Erik Zachwieja, William M. Hannay, Samuel Rosas, Charles Lawrie, Luis Grau, Michaela Schneiderbauer

Paper No. 2331

Impact of Obesity on Patient-reported Outcomes Following Total Knee Arthroplasty

David F. Hamilton, Fanny L. Loth, Johannes M. Giesinger, Karlmeirad Giesinger, Deborah J. MacDonald, Hamish Simpson, Colin R. Howie

Paper No. 2332

Robotic-Arm Assisted Total Knee Arthroplasty Demonstrated Soft Tissue Protection

Emily L. Hampp, Manoshi Bhowmik-Stoker, Laura Y. Scholl, Jason K. Otto, David J. Jacofsky, Michael A. Mont

Paper No. 2333

Urinary Biomarkers Differentiate Patients with Osteolysis from Patients With Stable Implants Prior to Radiographic Evidence

Ryan D. Ross, Youping Deng, Joshua Jacobs, D. Rick Sumner

Paper No. 2334

Monocyte Activation, Migration and Functional Differentiation in Response to Mediators released from Aseptic Loosening Revision Surgery Periprosthetic Tissues

Krishnamurthy Genasan, Margaret Roebuck, Valentina Barrera, Amanda Wood, Haiyi Wang, Azhar Mahmood Merican, Azlina Amir Abbas, Chan Chee Ken, Jesús Reiné, Murali Malliga Raman, Azura Mansor, Tunku Kamarul, Simon Frostick

Paper No. 2335

Application of Polycaprolactone Nanofibers and MgO Nanoparticles for a Cemented Implant Surgery

Morshed Khandaker

Paper No. 2336

Uncemented vs. Cemented Cruciate Retaining Total Knee Arthroplasty in Patients with a Body Mass Index Over 30

Keely Boyle, Scott Nodzo, Joseph Ferraro, David Augenblick, Sonja Pavlesen, Matthew Phillips

POSTERS

Paper No. 2337

Contribution of Oxidative Stress in Human Rotator Cuff Tear

Keiichi Yoshida, Yoshiaki Itoigawa, Yuichiro Maruyama, Hidetoshi Nojiri, Kazuo Kaneko

Paper No. 2338

The Positive Correlation Between IL-20 and TNF-alpha Can Be the Biomarker in De Quervain's Disease

Tai-Hua Yang, Tai-I Hsu, Being-Whey Wang, Wei-Jen Su, Chyun-Yu Yang, Cheng-Yo Yen, Yuan-Kun Tu, I-Ming Jou

Paper No. 2339

The Effect of Triangular Fibrocartilage Complex (TFCC) Tear on Wrist Proprioception

Ji Hun Park, Jong Woong Park

Paper No. 2340

Anterior and Posterior Misalignment of the Talar Component in Total Ankle Arthroplasty

Daniel McKearney, Christina Stender, Brian Cook, Erik S. Moore, Lea Gunnell, Bryan Monier, Bruce J. Sangeorzan, William R. Ledoux

Paper No. 2341

Predictive Factors for Diabetic Lower Extremity Amputation in Texas

Molly Jenner, Aurora Kareh, Lei Shi, Daniel Sass, Roberto J. Fajardo

Paper No. 2342

Promis Instrument Responsiveness in Patients with Foot and Ankle Disorders

Man Hung, Tom Greene, Judith Baumhauer, Jerry Bounsanga, Maren Voss, Yushan Gu, Charles L. Saltzman

Paper No. 2343

Diagnostic Potential of Serum Anti-staphylococcus Aureus Iggs to Identify Musculoskeletal Infections

Kohei Nishitani, Sandeep P. Soin, Hiromu Ito, Shuichi Matsuda, Kates L. Stephen, Johan L. Daiss, Edward M. Schwarz

Paper No. 2344

Immune-dysregulation in a Rat Model of Infected Femoral Segmental Bone Defect

Hyunhee Ahn, Mara L. Schenker, Rishin J. Kadakia, Pallab Pradhan, Laura D. Weinstock, Levi B. Wood, Krishnendu Roy, Robert E. Guldborg, Nick J. Willett

Paper No. 2345

Effect of Centrifuging Synovial Fluid on Leukocyte Esterase Test for Periprosthetic Joint Infection

Pakpoom Ruangsombon, Sriprapa Chinprasertsuk, Varanya Khejonit, Keerati Chareancholvanich

Paper No. 2346

Flash Autoclave Does Not Fully Eradicate Well-Established Biofilms on Porous Coated or Smooth Titanium

Dustin L. Williams, Richard T. Epperson, Mattias Nielsen, Nicholas Taylor

Paper No. 2347

Minimum Tensioning of Cerclage Cables to Achieve Pre-Fracture Stability After Intra-operative Periprosthetic Proximal Femoral Fractures: A Cadaveric Model

Joshua Namm, David Kaimrajh, Edward Milne, Ronald Lindsey, Loren Latta

Paper No. 2348

Effects of Tethering on Pediatric Neck Injury During Rear End Collisions

Carrie O'Donel, Jamie Williams

Paper No. 2349

Combination of Measures of Handgrip Strength and Red Cell Distribution Width Can Predict In-Hospital Complications Similar to the ASA Grade After Hip Fracture Surgery in the Elderly

Hyung-Min Ji, Ye-Yeon Won, Jun Han

Paper No. 2350

Health Literacy and Patient Reported Outcomes in Orthopaedic Surgery Patients

Thiran Udawatta, Lance Flesch, Michael Eng, Jane E. Oliphant, Scott Kaar

Paper No. 2351

Bone-targeting Liposome Formulation of Salvianic Acid A Accelerates the Healing of Delayed Fracture Union in Mice

Yanzhi Liu, Zhenshan Jia, Xiang Gao, Mohammed P Akhter, Xiaobei Wang, Xiaoyan Wang, Xin Wei, Gang Zhao, Liao Cui, Dong Wang

Paper No. 2352

Low-dose Lithium Treatment Significantly Improves Fracture Healing in Osteoporotic Rodent Bone

Kathak Vachhani, Cari Whyne, Yufa Wang, Diane Nam

Paper No. 2353

Dynamic Knee Imaging Using 4D Self-Gated MRI with Compressed Sensing Reconstruction

Valentina Mazzoli, Jasper Schoormans, Martijn Froeling, Andre M. Sprengers, Klaas Nicolay, Bram F. Coolen, Aart J. Nederveen, Gustav J. Strijkers, Nico Verdonschot

Paper No. 2354

A SPECT-CT Registration Framework for high Resolution Inter- and Intra-Subject Clinical Evaluation—An Application in Unicondylar Knee Arthroplasty

Félix Dandois, Lucas Beckers, Laura C. Slane, Stijn De Buck, Dirk Ooms, Koen Van Laere, Hilde Vandenneucker, Lennart Scheyls

Paper No. 2355

Bilateral Differences in Patellar Tendon T2* Values Correlate with Differences in Morphologic Grade of Patellar Tendinosis Within Collegiate Basketball Players

Erin C. Argentieri, Parina H. Shah, Ogonna Nwawka, Matthew F. Koff

POSTERS

POSTER SESSION 2

LATE BREAKING POSTERS

Posters will be displayed Tuesday afternoon and all day Wednesday.

Paper No. 2356

Freeze-dried Chitosan-PRP Injectable Surgical Implants for Meniscus Repair: Result from Pilot Ovine Studies

Leili Ghazi Zadeh, Anik Chevrier, Mark B. Hurtig, Jack Farr, Scott Rodeo, Caroline D. Hoemann, Michael D. Buschmann

Paper No. 2357

Dimensional Deviation of Additive Manufactured Test Specimens

Jorge Hernandez, James Coburn

Paper No. 2358

Rapid Heat Treatment for Anatase Conversion of Titania Nanotube Orthopaedic Surfaces

Sachin M. Bhosle, Craig R. Friedrich

Paper No. 2359

Cellular Interaction and Mechanical Properties of Electrospun Poly(L-lactic acid)/gelatin Yarns: A Novel Scaffold with Potential Application in Angiogenesis

Elham Rahimtoroghi

Paper No. 2360

Self-stiffening Degradable Shape Memory Membranes for Stem Cell Delivery to Bone Grafts

Ben Zhang, Tera Filion, Jie Song

Paper No. 2361

Acceleration of Bone Repair During Fracture Healing by Poly(pro-hyp-gly)10 and Basic Fibroblast Growth Factor Containing Collagen-binding Domains from Clostridium Histolyticum Collagenase

Hiroyuki Sekiguchi

Paper No. 2362

Mesenchymal Stem Cells (MSCs) Delivered in a Novel Hydrogel for the Treatment of Chondral Defects in a Rabbit Animal Model

Cecilia Pascual Garrido, Francisco Rodriguez Fontan, Stephanie Bryant, Elizabeth A. Aisenbrey, Jorge Chahla, Karin Payne, Laurie J. Goodrich

Paper No. 2363

Incorporation of Anionic or Zwitterionic Chemical Residues into Photocrosslinked Hydrogel Differentially Modulates Encapsulated Chondrocytes Behavior In Vitro

Henry Huang, David Ayers, Jie Song

Paper No. 2364

Effects of Scaffold Morphology and Cell Co-culture on Tenogenic Differentiation of hAdMSC on Centrifugal Melt Electrospun Poly (L-lactic Acid) Fibrous Meshes

Shaohua Wu, Hao Peng, Philipp N. Streubel, Yong Liu, Bin Duan

Paper No. 2365

A Novel Approach to Detection of Acetabular Cartilage Delamination in Patients with Femoroacetabular Impingement

Michael A. Samaan, Valentina Padoia, Alan L. Zhang, Matthew C. Gallo, Thomas M. Link, Richard B. Souza, Sharmila Majumdar

Paper No. 2366

Evaluation of a Chitosan Drug Delivery System for Endogenous Repair of Growth Plate Injuries

Christopher Erickson, Michael S. Riederer, Yangyi Yu, Francisco R. Fontan, Melissa D. Krebs, Nancy Hadley-Miller, Karin A. Payne

Paper No. 2367

Kappa Opioid Receptor Signaling Protects Cartilage Tissue Against Posttraumatic Degeneration

Denis Evseenko, Ling Wu

Paper No. 2368

Inhibition of the Mechanosensitive Piezo Ion Channels Protects Against Load-induced Chondrocyte Death and Joint Pain

Andrea G. Schwartz, Paul Greenfield, Lauren Votava, Whasil Lee, Wolfgang Liedtke, Farshid Guilak

Paper No. 2369

Effects of Platelet-derived Products on Matrix Turnover by Osteoarthritic Chondrocytes in Collagen Hydrogels

Vivek Jeyakumar, Eugenia Niculescu-Morza, Christoph Bauer, Daniela Kern, Zsombor Lacza, Stefan Nehrer

Paper No. 2370

Enhancing Regenerative Potential of Articular Cartilage with a Novel Regulator of Gp130 Signaling

Denis Evseenko, Ruzanna Shkhyan, Jacob Bogdanov

Paper No. 2371

Inter-tie Coils Revealed by Unfixed Histology in Rabbit and Sheep Meniscus

Colleen Mathieu, Jessica Guzman-Morales, Dongfang Qian, Anik Chevrier, Robert McCormack, Mark Hurtig, Caroline D. Hoemann

Paper No. 2372

Follistatin Gene Therapy Decreases Systemic Inflammation and Pain Sensitivity Following Knee Injury in High-Fat Diet Induced Obese Mice

Ruhang Tang, Kelsey Collins, Chia-Lung Wu, Harasymowicz Natalia, Farshid Guilak

Paper No. 2373

Comparison of PRP, Stromal Vascular Fraction, and Stromal Vascular Fraction Supplemented with a Biodegradable Nanofiber Polymer for the Treatment of Cartilage Pathology in Dogs

Samuel P. Franklin, Aaron Stoker, Chantelle Bozynski, Kei Kuroki, Kevin Clarke, James L. Cook

POSTERS

Paper No. 2374

A Unifying Framework for Understanding the Lubricating Properties and Clinical Efficacy of Injectable Hyaluronic Acid Therapies

Edward D. Bonnevie, Devis Galesso, Cynthia Secchieri, Lawrence J. Bonassar

Paper No. 2375

Metabolic Profiling of Moderate and Severe Osteoarthritic Knee Synovial Fluid

Nidal Khatib, Andreas Papageorgiou, Stephen Fairhurst, Christopher Wilson, Cathy Holt, Deborah J. Mason

Paper No. 2376

Biomechanical Comparison of 2 Variations of Double-Row Suture Tape Rotator Cuff Fixation: Knotless vs. Knot-Tying Medial Row

Andrew D. Hiller, Ali Alhandi, Loren Latta, Michael Baraga

Paper No. 2377

Fibre Torsion in The Achilles Tendon Reduces Stress Concentrations and Improves Tissue Strength

Vickie Shim, Geoffrey Handsfield, Justin Fernandez, David Lloyd, Thor Besier

Paper No. 2378

Silk-Based Sheath for Augmentation of Tendon Graft Anterior Cruciate Ligament Reconstruction Outcome

Thomas K. The, Si-Ning Png, Pujiang Shi, Xiafei Ren, James Hoi Po Hui, Jun Li, James Cho Hong Goh

Paper No. 2379

Tendon to Bone Healing Potential of Fascia Lata Autograft in Rotator Cuff Reconstruction

Daisuke Mori, Masahiko Kobayashi, Yoshikazu Kida

Paper No. 2380

Suppression of Osteogenic Differentiation in Mesenchymal Stem Cells from Patients with Ossification of the Posterior Longitudinal Ligament by a Histamine-2-receptor Antagonist

Xizhe Liu, Gentaro Kumagai, Kanichiro Wada, Toshihiro Tanaka, Ayako Sasaki, Ken-Ichi Furukawa, Yasuyuki Ishibashi

Paper No. 2381

Single-Stem Cell Imaging Analysis and Molecular Dysregulation of Muscle Stem Cells

Elisia Tichy, Nicholas Oyster, Foteini Mourkioti

Paper No. 2382

Promethazine Hydrochloride Inhibits Ectopic Fat Formation in Skeletal Muscle

Takehiro Kasai, Akiyoshi Uezumi, Masashi Nakatani, Naoki Ishiguro, Kinji Ohno, Harumoto Yamada, Kunihiro Tsuchida

Paper No. 2383

Identification of Novel Interstitial Progenitor Cells that Efficiently Contribute to Muscle Regeneration After Rotator Cuff Tears

Ayelet Dar, Andrew R. Jensen, Allison Ariniello, Benjamin V. Kelley, Michael R. Hicks, Majib Jan, Paras Shah, Gina M. Mosich, Brandon Vu, Lain R. Murray, April Pyle, David R. McAllister, Bruno Péault, Frank A. Petrigliano

Paper No. 2384

Co-application of LMHFV and HMB Supplement Improves Muscle Function and Fiber Composition in Sarcopenic SAMP8 Mice

Jinyu Wang, Kwok-Sui Leung, Simon Kwoon-Ho Chow, Wing-Hoi Cheung

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CRISPR/Cas9- Mediated Gene Editing of Dystrophic Muscle Progenitor Cells as a Potential Cell Therapy for DMD

Polina R. Matre, Jianbo Wu, Joshua H. Lee, Krishna Sinha, Aiping Lu, Xiaodong Mu, Xueqin Gao, Radbod Darabi, Johnny Huard

Paper No. 2386

Celecoxib Leads to Impaired Cartilage and Bone Extracellular Matrix Formation in the Growth Plate of Skeletally Immature Mice

Marjolein M.J. Caron, Tessy M.R. Castermans, Bert van Rietbergen, Lodewijk W. van Rhijn, Adhiambo M.A. Witlox, Tim J.M. Welting

Paper No. 2387

Differential Responses of T1DM Bone Marrow-Derived Stromal Cells and Periosteum-Derived Cells to Growth Factor Treatments in Normal and High-Glucose Cultures

Tera Filion Potts, Jordan Skelly, Henry Huang, Dale Greiner, David Ayers, Jie Song

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Indications of VEGF-A Signaling Impairment in Diabetic Spine Tissue

Roberto J. Fajardo, Jesus W. Hernandez, Brandon May, Todd Bredbenner, Zachary Child

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Relation Between Fracture Toughness and Global Phosphorylation of Organic Matrix in Human Bone

Grazyna Sroga, Deepak Vashishth

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Anisotropy and Heterogeneity in Finite Element Models of Trabecular Bone Alters Expected Failure Outcomes

Max A. Hammond, Joseph M. Wallace, Matthew R. Allen, Thomas Siegmund

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Towards a Robust, Simple, Objective Measure of Bone Healing Using Image Analysis of Plain Radiographs

Jeffrey Duryea, Chris Evans, Vaida Glatt

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The Effect of Platelet-Rich Plasma (PRP) on Osseous Healing in Dogs Treated with High Tibial Osteotomy

Samuel P. Franklin, Emily Burke, Shannon P. Holmes

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Micromotion Dramatically Changes the Gene Expression Profile of the Bone Healing Response Around Implants

Renan de Barros e Lima Bueno, Rima Wazen, Katia J. Ponce, Jill A. Helms, John B. Brunski, Antonio Nanci

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Characterization of Facet Joints in Adolescent Idiopathic Scoliosis

Daniel Bisson, Polly Lama, Derek Rosenzweig, Jean A. Ouellet, Lisbet Haglund

Paper No. 2395

Nanoscale Behavior of Collagen Is Reflected in Whole-Disc Biomechanical Behavior and Is Impaired by Diabetes

Claire Acevedo, Sara Sampson, Eric Schaible, James Graham, Peter Havel, Robert Ritchie, Tamara Alliston, Jeffrey Lotz, Aaron J. Fields

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Psychometrics of the PROMIS Pain Interference Instrument in an Orthopaedic Population

Man Hung, Darrel Brodke, Charles L. Saltzman, Tom Greene, Maren Voss, Jerry Bounsanga, Yushan Gu, Bill Wagner, Ryan Spiker, Brandon Lawrence, Richard Kendall

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Clinical and Radiographic Outcomes in Single-Level Transforaminal Lumbar Interbody Fusion with Polyetheretherketone or Porous Tantalum Cages

Cheng-Min Shih, Cheng-Hung Lee

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Long-term Results of A Prospective Study Of Anterior Decompression with Fusion and Laminoplasty for the Treatment of Cervical Spondylotic Myelopathy

Takashi Hirai, Toshitaka Yoshii, Satoru Egawa, Atsushi Okawa

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Vimentin Upregulation in Human Mesenchymal Stem Cells Increases Cell Traction

Zachary T. Bolten, Poonam Sharma, Carlos Luna, Diane R. Wagner, Adam Hsieh

Paper No. 2400

Toll-Like Receptor 4 Inhibition Decreases Degeneration and Pain in a Mouse Model

Emerson Krock, Magali Millecamps, Laura S. Stone, Lisbet Haglund

Paper No. 2401

Microrna-494 Promotes Apoptosis and Extracellular Matrix Degradation in Degenerative Human Nucleus Pulposus Cells by Targeting Sox9

Liang Kang

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Sirtuin 6 Prevents Matrix Degradation Through Inhibition of the Nf- κ B Pathway in Intervertebral Disc Degeneration

Liang Kang

Paper No. 2403

Longitudinal Fracture Prediction of Lumbar Vertebrae Affected by Osteoporosis

Marianna L. Oppenheimer-Velez, Hugo Giambini, Asghar Rezaei, Sundeep Khosla, Michael J. Yaszemski, Lichun Lu

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Activating the Somatosensory System Can Assist in Restoring Quadriceps Function During Gait

Arielle G. Fischer, Jessica L. Assay, Jennifer C. Erhart-Hledik, Thomas P. Andriacchi

Paper No. 2405

Contact Forces Acting on Large Osteochondral Allografts: Implications for Patient Rehabilitation

Peter Z. Du, Keith L. Markolf, Christopher J. Lama, David R. McAllister, Kristofer J. Jones

Paper No. 2406

Comparison of Adjustable and Fixed Femoral Cortical Suspension Devices in Tendon Bone Healing Observed In Anterior Cruciate Ligament Reconstruction

Sato Yusuke

Paper No. 2407

Revision Total Hip Arthroplasty Using Cementless Cup Supporter and Iliac Autograft: A Minimum of 15-year Follow-Up

Kensuke Yoshino, Tadashi Tsukeoka, Yoshikazu Tsuneizumi

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Influence of Post-Cam Design on Dynamic Kinematics of Posterior-Stabilized Knee Replacements

Yung-Chang Lu, Lin-I Hsu, Cheng-Yu Wu, Shu-Ting Yeh, Ting-Kuo Chang, Chun-Hsiung Huang, Chang-Hung Huang

Paper No. 2409

Do Simulated Ligament Releases to Restore Balance After Total Knee Arthroplasty Compromise Knee Stability?

Joshua D. Roth, Colin R. Smith, Darryl G. Thelen

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Prehabilitation Using a Novel, Mobile Application Reduces Length of Stay in Patients Undergoing Primary Total Knee Arthroplasty

Emily E. Bogue, Joshua Twiggs, David Liu

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Accuracy in Acetabular Cup Placement Using Alignment Guide with Laser Pointer

Yusuke Okanoue, Teruhiko Kawakami, Koji Aso, Yoichi Igarashi, Masashi Izumi, Masahiko Ikeuchi

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Robotic-Arm Assisted Total Knee Arthroplasty Demonstrated Greater Accuracy to Plan Compared to Manual Technique

Emily L. Hampp, Laura Y. Scholl, Michael Prieto, Ta-Cheng Chang, Abdullah Z. Abbasi, Manoshi Bhowmik-Stoker, Jason K. Otto, David J. Jacofsky, Michael A. Mont

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Continuous Assessment of Ligamentous Tension During Total Knee Replacement Demonstrates an Anatomic Cause for Mid Flexion Instability: A Cadaveric Study

Wayne Moschetti, John Keggi, Leonid Dabuzhsky, Dave Jevsevar, Sami Shalhoub, Christopher Plaskos

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Biological Response of Human Myogenic Precursor Cells to Cobalt and Chromium Ions Generated After Metal on Metal Hip Replacement

Etienne Ruffieux, Didier Hannouche, Thomas Laumonier

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An Experimental Model of Femoral Stem Loosening and Detection via Strain Sensing

Kevin M. Labus, Kirk C. McGilvray, Hilmi V. Demir, David Kieser, Christian M. Puttlitz

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Influence of Clinically Relevant System Compliance on Initial Taper Stability

Sezen Buell, Laura Scholl, Reginald Lee, Gregg Schmidig, Jason Longaray, Raga Rajaravivarma, Ahmad Faizan, Lizeth Herrera, Steven Harwin

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Role of Transplanted Bone Marrow Cells in Development of Fatty Degeneration of Rotator Cuff Muscles Following Chronic Rotator Cuff Tear

Naseem Zomorodi, Lawrence V. Klomps, Hyunmin M. Kim

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Functional and Histological Anatomy of the Sternoclavicular Joint Anatomy of the Sternoclavicular Joint

Yasushi Shinohara, Tsukasa Kumai, Ichiro Higashiyama, Yasuhito Tanaka, Stefan Milz

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Responsiveness of the PROMIS and Legacy Instruments for Upper Extremity Conditions

Man Hung, Charles L. Saltzman, Tom Greene, Maren Voss, Jerry Bounsanga, Yushan Gu, Angela A. Wang, Douglas T. Hutchinson, Don Coleman, Andrew R. Tyser

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Leupeptin Aids in Recovery of Rat Nerve and Muscle After Nerve Crush Injury

Mikhail Gurevich, Kerri A. Kulovitz, David E. Komatsu, Marie A. Badalamente, Lawrence C. Hurst

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Ankle Kinematics and Resting Length After Achilles Tendon Rupture: A Comparison of Short-Term and Long-Term Assessments

Alison N. Agres, Sebastian Manegold, Tobias Gehlen, William R. Taylor, Adamantios Arampatzis, Georg N. Duda

Paper No. 2422

The Compensatory Correlation Between Knee And Hindfoot Joints in Patients with Rheumatoid Arthritis

Kohei Nishitani, Hiromu Ito, Moritoshi Furu, Masayuki Azukizawa, Shuichi Matsuda

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Does the First Metatarsal Bone Twist Itself in Severe Cases of Hallux Valgus? Investigation with CT Scans

Kazunori Maruyama

Paper No. 2424

Synovial Aspiration Cell Counts in Short Term Postoperative Primary Total Knee Arthroplasty

Rishi Dave

Paper No. 2425

Photodynamic Therapy for reducing Pseudomonas Aeruginosa Biofilms in Prosthetic Joint Infections

Rita Ramalhete, Melanie Coathup, Tim Briggs, Simon Hislop, Alex Liddle, Gordon Blunn

Paper No. 2426

Are Molecular Diagnostics as Sensitive As Intraoperative Cultures to Detect the Presence of Infection in Recurrent Total Joint Arthroplasty?

Hilda Kriel, Matthew Igbinigie, Daniel Ortiz, Ronald W. Lindsey, Zbigniew Gugala, Michael Loeffelholz

Paper No. 2427

Transforming Growth Factor Activated Kinase 1 Induces an Inflammatory Response and Neuropathic Pain in Spinal Microglia In Vitro

Hisako Fujimaki, Gen Inoue, Kentaro Uchida, Masayuki Miyagi, Hiroyuki Sekiguchi, Jun Aikawa, Masashi Takaso

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pMUCL Reconstruction Recovers Elbow Stability in the Presence of Posteromedial Rotatory Instability: A Cadaveric Study

Matthew J. Gluck, Christina M. Beck, Elan J. Golan, Philip R. Nasser, Dave R. Shukla, Michael R. Hausman

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Failure of Depuy Synthes VA-LCP Curved Condylar Plate in the Management of OTA/AO 33-A3.3 Fractures—Does Filling Open Screw Holes Make a Difference?

Luis C. Grau, David Kaimrajh, Kevin W. Collon, Ali A. Alhandi, Loren Latta, Fernando Vilella

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Impact of Chronic Analgesic Use on Fracture Nonunion

R. Grant Steen, Robert Zura, Thomas Buchheit, Zhe Wang, Samir Mehta, Gregory Della Rocca

Paper No. 2431

Local Androgen/bisphosphonate Combination Treatment To Enhance Bone Healing: Proof of Principle in Human and Porcine Bone Explants

Nicole Bakker, Cindy van de Ven, Jan A. Gossen

Paper No. 2432

High Fat Diet Leads to Decreased Fracture Healing in Mice Model

David R. Veltre, Eric Chen, Amira I. Hussein, Cassie Huang, Elise Morgan, Jennifer Schlezinger, Louis Gerstenfeld

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The Potential of ^{18}F —Fluoride Positron Emission Tomography as a Predictive Indicator of Skeletal Regeneration

Neashan Mathavan, Janine Koopman, Deepak Bushan Raina, Magnus Tägil, Hanna Isaksson

Paper No. 2434

Determine Alterations in Bone Composition with Fragility Fracture by Transcutaneous In Vivo Raman Spectroscopy

Hao Ding, Ping Wang, Andrea L. Baker, Nahid J. Rianon, Philip R. Orlander, William H. Ip, James F. Kellam, Catherine G. Ambrose, Xiaohong Bi

Paper No. 2435

Quantitative Ultrasound Assessment of the Achilles Tendon Under Varied Load

Ogonna K. Nwawka, Daniel R. Sturnick, Meghan Sahr, Theodore T. Miller

Paper No. 2436

Size Dependent Effects of Gold Nanoparticles in Osteosarcoma Cells

Tewodros Mamo