

| Easel #                     | Presenter Name                  | Poster Abstract Title                                                                                                                                                                  | Authors                                                                                                                                                                       |
|-----------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MICRO CT CORE ABSTRACTS     |                                 |                                                                                                                                                                                        |                                                                                                                                                                               |
| 1                           | Marggie Tamburro                | High-Speed Treadmill Running Does Not Induce a Tendinopathic Phenotype in Rat Achilles Tendon                                                                                          | Shetye SS, Tamburro MK, Fung AK, Leahy TP, Magee MN, Raja HA, Weiss SN, Nuss CA, Bein AJ, Farber DC, Soslowsky LJ                                                             |
| 2                           | Maha Essaidi                    | Trabecular Development in Caprine Phalanges and Metacarpal Bones                                                                                                                       | Essaidi M, Panebianco CJ, Vancíková K, Brama P, Nowlan N, Boerckel J                                                                                                          |
| 3                           | Yasaman Moharrer                | YAP and TAZ mediate mechanical load-induced bone adaptation                                                                                                                            | Moharrer Y, Horan D, Azar T, Lang A, Robling A, Liu XS, Boerckel JD                                                                                                           |
| 4                           | Wonsae Lee                      | Assessment of Marrow Adiposity Using Micro-Computed Tomography (μCT) with Image Registration in Female Mice with Metabolic and Hormonal Challenges                                     | Lee W, Lu K, Xu X, Sang W, Jojo J, Azar T, Jin YV, Liu XS                                                                                                                     |
| 5                           | Christopher Panebianco          | Maternal exercise rescues fetal akinesia-impaired bone and joint development                                                                                                           | Panebianco CJ, Huang Y, Khatib N, Gottlieb DC, Dymnt N, Boerckel J, Nowlan NC                                                                                                 |
| 6                           | Lauren Paschall                 | Diabetes Enhances Periodontitis Through Akt1                                                                                                                                           | Paschall L, Huang X, Liu M, Park J, Graves DT                                                                                                                                 |
| 7                           | Alexandra Ciuciu                | Naproxen may increase bone stress fracture risk and decrease fracture healing                                                                                                          | Ciuciu A, Tomlinson RE                                                                                                                                                        |
| 8                           | Fatumata Diarra                 | Heterotopic Ossification Quantifications in a Pdgfra-FOP (Fibrodysplasia Ossificans Progressiva) Mouse Model                                                                           | Diarra F, Mejias Rivera L, Shore EM                                                                                                                                           |
| 9                           | Talayah Johnson                 | Reduced loading after sciatic nerve resection impairs hindlimb growth                                                                                                                  | Johnson T, Fogarty N, Lin A, Tsinman TK, Jiang X, Koyama E, Han L, Baxter JR, Boerckel JD, Mauck RL, Dymnt NA                                                                 |
| BIOMECHANICS CORE ABSTRACTS |                                 |                                                                                                                                                                                        |                                                                                                                                                                               |
| 10                          | Ke Song                         | Tendon Loads Measured over 2 Weeks of Daily Living are Associated with Achilles Tendinopathy Patient Outcomes                                                                          | Song K, Kwon MP, Smith AK, Grävare Silbernagel K, Baxter JR                                                                                                                   |
| 11                          | Katie Strand                    | Achilles subtendon morphology identified via isolated muscle stimulations is sensitive to ankle angle                                                                                  | Strand KS, Hullfish TJ, Wagner M, Baxter JR                                                                                                                                   |
| 12                          | Mariacristina Calcagno          | Methodologies for Testing Tendons                                                                                                                                                      | Calcagno M, Tamburro M, Thurlow N, Soslowsky LJ                                                                                                                               |
| 13                          | Emily Sharp                     | A Novel Approach to Annulus Fibrosus Repair via Streptavidin Functionalized Hydrogels                                                                                                  | Sharp E, Laforest L, Zhang Y, Xu KL, Burdick JA, Mauck RL, Gullbrand SE                                                                                                       |
| 14                          | Nat Thurlow                     | Collagens V and XI Jointly Regulate Fibril Assembly and Elastic Mechanical Properties during Tendon Maturation                                                                         | Thurlow NA, Eekhoff JD, Fung AK, Nuss CA, Weiss SN, Dymnt NA, Soslowsky LJ                                                                                                    |
| 15                          | Yuqi Zhang                      | Altered Transcriptional Landscape and Emergent Region-Dependent Mechano-Response in the Developing Porcine Meniscus                                                                    | Zhang Y, Kupratis ME, Kotsaris G, Dymnt N, Han L, Koyama E, Mauck RL                                                                                                          |
| 16                          | Maggie Tamburro                 | Reduced Type III Collagen Expression During Tendon Healing Impacts Cell Behavior and Mechanical Function Minimally                                                                     | Tamburro MK, Carlson JA, Weiss SN, Yen W, Volk SW, Soslowsky LJ                                                                                                               |
| 17                          | Jeremy Eekhoff                  | Strain-Induced Collagen Fibril Deformation is Diminished with Advanced Age in Mouse Supraspinatus Tendon                                                                               | Eekhoff JD, Weiss SN, Soslowsky LJ                                                                                                                                            |
| 18                          | Andre Roots                     | Developing in vitro hydrogel models to study mechanobiology in skeletal muscle tissue                                                                                                  | Roots A, Madl C                                                                                                                                                               |
| 19                          | Ashkan Sedigh                   | Understanding the Relationship between Material Distribution, Femur Geometry, and Atypical Femoral Fractures Utilizing MRI-Based Finite Element Modeling                               | Sedigh A, Cottrell C, Kamona N, Vu B, Chinniah B, Pham F, Kim J, Shams R, Rosen A, Sivakumar R, Clark M, Gonzalez-Whitehouse E, Rajapakse CS, Ural A                          |
| 20                          | Michelle Meyers                 | Pregnancy Gait Biomechanics using Markerless Motion Capture                                                                                                                            | Meyers M, Nkansah-Andoh A, Russo D, Song K, Durnwald C, Humbyrd C, Baxter J                                                                                                   |
| 21                          | Mike DiStefano                  | Tendon-Targeted Collagen V Deficiency and Knockout Attenuate Mature Supraspinatus Tendon Mechanics                                                                                     | DiStefano MS, Weiss SN, Kuntz AF, Soslowsky LJ                                                                                                                                |
| 22                          | Shilpa Shree Kuduva Ramesh Babu | Age-related Normative Bone Strength Data for C3 vertebra using Cone Beam Computed Tomography - a retrospective study                                                                   | Kuduva Ramesh Babu S, Xu W, Del Collo D, Lattanzi D, Chang M, Truong E, Farhnam S, Chen L, Song MK, Sun M, Dai A, Ranaweera L, Wang S, D Le A, Casper D, Chang G, Rajapakse C |
| 23                          | Theodore Ganley                 | Finding Balance: What We Can Learn About Early Post-Operative Recovery from Examining Center of Pressure Data during Y-Balance Testing after Anterior Cruciate Ligament Reconstruction | Kebeh M, Landrum KM, Greenberg E, VanEenaam D, Stevens A, England P, Graci V, Ganley TJ                                                                                       |
| 24                          | Yuchen Liu                      | Impacts of Type V Collage Haploinsufficiency on the Structural Integrity and Immunoresponses of Dermal Wound Healing                                                                   | Liu Y, Stewart DC, O'Brien EM, Wang C, Kwok B, Birk DE, Spiller KL, Volk S, Han L                                                                                             |
| 25                          | Chet Friday                     | Treadmill Running Does Not Induce Mechanical Changes in the Rat Subscapularis Tendon                                                                                                   | Friday C, Nuss C, Eekhoff J, Soslowsky L, Kuntz A                                                                                                                             |
| 26                          | Meghan Kupratis                 | Morphogenesis and Mechano-response of the Developing Porcine Meniscus                                                                                                                  | Kupratis M, Zhang Y, Xiang J, Kwok B, Dymnt N, Han L, Koyama E, Mauck R                                                                                                       |
| 27                          | Afua Nkansah-Andoh              | Using an instrumented insole to estimate Achilles tendon loading in pregnant women during walking.                                                                                     | Nkansah-Andoh A, Meyers M, Russo D, Humbyrd C, Baxter J                                                                                                                       |
| 28                          | Stephen Ching                   | 3D Collagen Fibril Orientation Mitigates Microscale Fatigue in Bone                                                                                                                    | Ching S, Sharma R, Tertuliano O                                                                                                                                               |
| 29                          | Reshma Sudhesh                  | O-PTIR Spectral Imaging of Bone Composition at the Sub-micron Scale                                                                                                                    | Sudhesh R, Hast M, Rajapakse C Pleshko N, Querido W                                                                                                                           |

| Easel #                  | Presenter Name         | Poster Abstract Title                                                                                                                                           | Authors                                                                                                       |
|--------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| HISTOLOGY CORE ABSTRACTS |                        |                                                                                                                                                                 |                                                                                                               |
| 30                       | Devin Gottlieb         | Effects of Maternal Exercise on Embryonic Bone Formation                                                                                                        | Tian Z, Lu J, Shofer F, Qin L, Sun H, Zhang Y                                                                 |
| 31                       | Yeja Zhang             | Tnfaip8 and Tipe2 Gene Deletion Ameliorates Immediate Inflammatory Responses and Proteoglycan Loss in the Injured Mouse Intervertebral Disc                     | Gottlieb D, Panebianco C, Nowlan N, Boerckel J                                                                |
| 32                       | Kate Sharp             | Determining the Effect of CD14 Deficiency on Osteoblastogenesis and Subchondral Bone Remodeling in Mice                                                         | Sharp K, Murphy L, Burt K, Rapp AE, Nguyen V, Hu B, Mauck R, Scanzello C                                      |
| 33                       | Tyler Blanch           | Aging Alters Tenocyte Response to Inflammation with Enhanced Sensitivity and Cellular Dysfunction                                                               | Blanch T, Zhang EY, Jiang X, Dymnt N, Heo SC                                                                  |
| 34                       | Qiushi Liang           | sPLA2 Inhibitor-Loaded Lipid Nanoparticles for Osteoarthritis Treatment                                                                                         | Liang Q, Gui T, Luo L, Wei Y, Popov AV, He Q, Ortved K, Tsourkas A, Cheng Z, Qin L                            |
| 35                       | Lance Murphy           | CD14-deficiency increases osteoclastogenesis via a reduction in Type I Interferon signaling                                                                     | Murphy L, Burt K, Sharp K, Hu B, Nguyen V, Mauck R, Scanzello C                                               |
| 36                       | Carly Smith            | Promoting an Enhanced Tissue Repair Response with Cold Plasma Stimulation                                                                                       | Smith C, Watkins A, Lucas A, Moniodes A, Schaer T, Hickok N, Freeman T                                        |
| 37                       | Annika Bergstrom       | Biomimetic proteoglycan-dexamethasone conjugate for rescue of inflammation-induced cartilage degradation – a novel therapeutic                                  | Kahle E, Bergstrom, Fallahi H, Lu XL, Han L, Marcolongo M                                                     |
| 38                       | Bonhycock Koo          | TGFβ1-dependent mTORC1-STAT3 signaling pathway is indispensable for tenocyte maturation in vitro Three-Dimensional (3D) tendon construct.                       | Koo1 BH, Smith A, Joeng KS                                                                                    |
| 39                       | Marggie Tamburro       | Type III Collagen Expression Decreases During Neonatal Tendon Development and is Unchanged in Early Neonatal Tendon Healing                                     | Tamburro M, Carlson J, Doro M, Weiss S, Volk S, Soslowsky L                                                   |
| 40                       | Kevin Burt             | Imaging Mass Cytometry Reveals Distinct Synovial Cell Immunophenotypes in Overloading and Surgical OA Models                                                    | Burt K, Nguyen V, Moharrer Y, Boerckel J, Hakobyan N, Miller R, Mauck R, Scanzello C                          |
| 41                       | Matthew Fainor         | Assessing Cell Therapy Retention and Survival Across a Spectrum of Intervertebral Disc Degeneration in Rabbits                                                  | Fainor M, Bazaz A, Smith H, Gullbrand S                                                                       |
| 42                       | Zizhao Li              | A Multiphasic ECM Scaffold System for Rotator Cuff Repair with Tailored Stiffness and Structure for Enhanced Regeneration                                       | Li Z, Lee SH, Zhang E, Santos M, Xu L, Lu R, Kim DH, Jung J, Shin J, Tran R, Dymnt N, Schaer T, Heo SC        |
| 43                       | Ellie Bernstein        | Inhibition of Fibroblast Activation Protein Restores the Homeostatic Phenotype of Mechano-activated Synovial Fibroblasts                                        | Bernstein ER, Stoeckl B, Flaugh R, Mauck R, Miller L                                                          |
| 44                       | Hannah Bonelli         | Analysis of Accessible Stem Cell Sources for Chondrogenic Repair of Temporomandibular Joint Osteoarthritis                                                      | Bonelli H, Barbella C, Kenawy H, Gottardi R                                                                   |
| 45                       | Loreilys Mejias Rivera | Periosteal Pdgfr $\gamma$ -lineage cells contribute to heterotopic ossification in Fibrodysplasia Ossificans Progressiva                                        | Mejias Rivera L, Herman B, Ocaranza Nuñez D, Goodwin A, Diarra F, Mourkioti F, Shore E                        |
| 46                       | Christopher Panebianco | YAP and TAZ regulate fetal growth plate chondrocyte hypertrophy and maturation                                                                                  | Panebianco C, Boerckel JD                                                                                     |
| 47                       | Jonathan Marcelin      | Innovative Scaffold Delivery for Localized Hh Pathway Activation in Tendon-to-Bone Repair                                                                       | Marcelin J, Madi R, Kamalitinov T, Assi S, Jiang X, Kim DK, Bernstein E, Kokubun T, Mauck R, Kuntz A, Dymnt N |
| 48                       | Matheus Moreira Perez  | SIRT6 activation and Axitinib restricts endochondral ossification in vivo                                                                                       | Moreira Perez M, Mansalay A, Melvage A, Slaweski A, Freeman T, Collins J                                      |
| 49                       | Alannah Bratten        | Determining the Microbicidal Efficacy and Tissue Toxicity of Liposomal Vancomycin with and without Cold Thermal Plasma Treatment to Combat Orthopedic Infection | Bratten A, Smith C, Watkins A, Duncan R, Melvage A, Schaer T, Gilmore B, Hickok N, Freeman T                  |

| Easel #                          | Presenter Name   | Poster Abstract Title                                                                                                                     | Authors                                                                                                                                                                                                                                 |
|----------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OTHER RESEARCH (NO P30 CORE USE) |                  |                                                                                                                                           |                                                                                                                                                                                                                                         |
| 50                               | Yejia Zhang      | Biomarker Signature Discovered by SomaScan in Patients with Severe Low Back Pain-a Pilot Study                                            | Tate Q, Markova D, Shofer F, Chen K, Kepler C, Canseco J, Baker J, Dillingham T, Zhang Y                                                                                                                                                |
| 51                               | Miranda Doro     | Col1a1 Expression Decreases while Col3a1 Expression Increases after Neonatal Tendon Injury                                                | Dor M, Tamburro M, Carlson J, Volk S, Soslowsky L                                                                                                                                                                                       |
| 52                               | Tyler Blanch     | Super-Resolution Tracking and Machine Learning of HDAC1 Predicts Dynamic Chromatin Remodeling                                             | Blanch T, Lee D, Pinto F, Kim D, Heo SC                                                                                                                                                                                                 |
| 53                               | Ji-Hyung Lee     | A distinctive non-telomeric function of TRF2 essential for stem cell identity and muscle repair                                           | Lee JH, Mourkioti F                                                                                                                                                                                                                     |
| 54                               | Sung Kim         | Emergent Mechano-Activated Synovial Fibroblasts Drive Fibrotic Remodeling in a Murine Model of OA                                         | Kim SY, Farrell E, Burt K, Knights A, Nguyen V, Maerz T, Scanzello C, Mauck R                                                                                                                                                           |
| 55                               | Yuna Heo         | Repetitive Mechanical Stress Triggers Epigenetic Reprogramming and Transcriptional Alterations in Tendon Cells                            | Heo Y, Zhang E, Bae Y, Heo SC                                                                                                                                                                                                           |
| 56                               | Stanton Godshall | Wearable Sensors Measure Wear Time and Step Count in Immobilizing Boots for Achilles Tendon Rupture                                       | Godshall S, Kwon M, Farber D, Ndu A, Humbyrd C, Baxter J, Boakye L                                                                                                                                                                      |
| 57                               | Anna Rapp        | Trans-Signaling by Soluble CD14 Sensitizes Chondrocytes to Lipopolysaccharide Stimuli, Increasing Chondrocyte Inflammatory Responses      | Rapp A, Hu B, Scanzello C                                                                                                                                                                                                               |
| 58                               | Qi He            | Tracing muscle mesenchymal progenitors in fracture healing                                                                                | He Q, Lu J, Duffy M, Ahn J, Dyment N, Boerckel J, Qin L                                                                                                                                                                                 |
| 59                               | Auhin Maparu     | A Novel Porous Microcarrier for Extended Release of mRNA-Lipid Nanoparticles for Musculoskeletal Tissue Repair                            | Maparu A, Iyer K, Siddiqui Z, Rajagopal K, Kim J, Mauck R, Mitchell M, Smith L                                                                                                                                                          |
| 60                               | Sam Whipple      | Targeting an Fgfr3 enhancer as a potential therapeutic tool for achondroplasia                                                            | Angelozzi M, Molin A, Karvande A, Fernandez-Iglesias A, Haseeb A, Whipple S, Lefebvre V                                                                                                                                                 |
| 61                               | Ellen Zhang      | Identifying Key Molecular Factors in Chondrocyte Dedifferentiation through Single-Nuclei Multiome Sequencing                              | Zhang E, Lee SH, Heo Y, Lakadamyali M, Mauck R, Jung I, Heo SC                                                                                                                                                                          |
| 62                               | Rocco Di Pedè    | Utilizing VNIR Spectroscopy to Assess Bone Graft Maturation: A Novel Approach for Optimizing Implant Timing in Alveolar Ridge Restoration | DiPedè R                                                                                                                                                                                                                                |
| 63                               | Suradip Das      | Investigating the Effect of Motor Neurons and Endothelial Cells on Skeletal Muscle Maturation and Regeneration                            | Das S, Hilman MC, Laimo FA, Yang F, Mourkioti F, Yang W, Cullen DK                                                                                                                                                                      |
| 64                               | Nada Kamona      | Bone-selective Ultrashort Echo Time MRI for Pediatric Patients with Craniofacial Abnormalities                                            | Kamona N, Ng JJ, Kim Y, Vu BT, Jones B, Lee H, Cordray H, Wagner C, Rajapakse C, Bartlett S, Wehrli F                                                                                                                                   |
| 65                               | Yi-An Hsieh      | Using Deep Learning for Gunshot Wound Bullet Fragment Detection in Emergency Medicine                                                     | Hsieh YA, Madi R, Xu W, Song MK, Gan E, Chen Y, Taratuta E, Cannon J, Chreiman K, Rosenblatt H, Grewal R, Cottrell C, Rosen O, Tyler A, Chatterjee D, Yan B, Rajapakse C                                                                |
| 66                               | Abdul Haseeb     | Missense variants weakening a SOX9 phosphodegron linked to odontogenesis defects, scoliosis and other skeletal features                   | Haseeb A, Karvande A, Ettaki I, Amalou G, Saih A, AitRaise I, Hamdi S, Wakrim L, Barakat A, Fellah H, El Alloussi M, Lefebvre V                                                                                                         |
| 67                               | Arianna Moniodes | Investigating Sex-Based Differences in a Rat Model of Orthopedic Infection                                                                | Moniodes AJ, Sonchen A, Smith C, Watkins A, Schaeer T, Freeman T                                                                                                                                                                        |
| 68                               | Catherine Wang   | Mechanical Priming of Fibrochondrocyte-Derived Extracellular Vesicles to Enhance Meniscus Regeneration                                    | Cheung C, Li Z, Roh Y, Ko J, Heo SC                                                                                                                                                                                                     |
| 69                               | Maggs Capalbo    | Investigating Hypoxia in Achilles Tendinopathy Through Oxygen Saturation Measurement                                                      | Capalbo M, Szczesny S                                                                                                                                                                                                                   |
| 70                               | David Barreto    | Optimizing Fracture Prediction: Deep Learning for Opportunistic MR Imaging of Osteoporosis                                                | Domi A, Barreto D, Gan E, Ranaweera L, Vu A, Kim J, Patel V, Pham F, Lan A, Pinnaduwege T, Clark M, Nandish N, Truong E, Diaz A, Shi H, Khan S, Gonzalez-Whitehouse E, Che E, Rosenblatt H, Bargamian S, Chang G, Casper D, Rajapakse C |
| 71                               | Reem Azar        | Evaluating the relationships between lesion size and location, muscle activation, and motor and cognitive impairment in stroke subjects   | Azar R, Johnson MJ                                                                                                                                                                                                                      |
| 72                               | Autumn Melvage   | Plasma Activated Liquid enhances the Bactericidal activity of Vancomycin against Staphylococcus aureus                                    | Melvage A, Smith C, Hickok N, Freeman TA                                                                                                                                                                                                |
| 73                               | Asia Winslow     | Bacterial Phenotype: Effects of Media Representative of Peri-Operative Joint Environment                                                  | Winslow A, Evans R, Purtill C, Isguven S, Schaeer T, Hickok N                                                                                                                                                                           |
| 74                               | Elizabeth Seidl  | YAP and TAZ mediate a transcriptional feedback loop to maintain tensional homeostasis in tenocytes                                        | Seidl E, Surti M, Dyment N, Boerckel J                                                                                                                                                                                                  |
| 75                               | Daniel Halloran  | Master roles for RUNX2 and RUNX3 in growth plate chondrocytes                                                                             | Halloran D, Angelozzi M, Haseeb A, Voskamp C, Whipple S, Lefebvre V                                                                                                                                                                     |
| 76                               | Maggie Wagner    | High-Density Surface Electromyography to Monitor Neuromuscular Activity Across Joints Affected by Common Musculoskeletal Pathologies      | Wagner M, Vitale F, Baxter JR                                                                                                                                                                                                           |
| 77                               | Eirene Choi      | ASK1 inhibition with Selonsertib results in decreased chondrogenic differentiation dependent on age and/or sex                            | Choi E, Chabronova A, Peffers M, Collins J, Freeman TA                                                                                                                                                                                  |
| 78                               | Cheri Saunders   | Diversification of synovial joint progenitors into articular cartilage and ligament cells: scRNAseq and computational analyses            | Saunders C, Mundy C, Catheline SE, Ramesh S, Song C, Long F, Koyama E, Pacifici M                                                                                                                                                       |