Penn Center for Musculoskeletal Disorders Pilot & Feasibility Grants
(all grants awarded since inception of Center)

**Awarded 2022-2023**
Chider Chen, Ph.D., Department of Oral and Maxillofacial Surgery/Pharmacology, School of Dental Medicine: “mTOR Mediated Ribosome Biogenesis Regulates CD4+ T Cell Activation in Osteoporotic Mice”
Carla R. Scanzello, M.D., Ph.D., Department of Medicine, Perelman School of Medicine: “Biophysical Regulation of Macrophage Fate and Function in OA”

**Awarded 2021-2022**
Christop Thaiss, Ph.D., Department of Microbiology, Perelman School of Medicine: “Microbiome Control of Musculoskeletal Physiology”
Melike Lakadamyali, Ph.D., Department of Physiology, Children’s Hospital of Philadelphia, and Perelman School of Medicine: “Chromatin Structural Regulation of Chondrocyte Fate in Cell Therapy”
Michael Hast, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Development of Load-Bearing Trauma Implants Using Biodegradable Zinc Alloy Scaffolds”

**Awarded 2020-2021**
Kyu Sang Joeng, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “The Function of Mtorc1 Signaling in the Regulation of the Provisional Matrix During Tendon Healing” (awarded extramural funding from NIH/NIAMS R01AR079486)
Patrick Seale, Ph.D., Department of Cell and Developmental Biology, Institute for Diabetes, Obesity and Metabolism, Perelman School of Medicine: “Fat and Synovial Tissue Development and Disease Remodeling in Joints” (awarded extramural funding from NIH/NIAMS R21 AR078650-01A1)
Josh R. Baxter, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Stimulating Muscle-Tendon Healing by Prescribing Mechanical Loading” (awarded extramural funding from R21 AR081497-01)

**Awarded 2019-2020**
Jaimo Ahn, M.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “The Interplay of Notch Suppression and Hypoxia on Bone Regeneration”
Riccardo Gottardi, Ph.D., Department of Pediatrics, CHOP Pulmonary Medicine: “Impact of Scaffold Microporosity in Guiding Local Stem Cell Differentiation for Osteochondral Repair”
Lachlan Smith, Ph.D., Departments of Neurosurgery/Orthopaedic Surgery: “Emergent Nucleus Pulposus Cell Heterogeneity during Intervertebral Disc Development and Growth” (awarded extramural funding from NIH/NIAMS R21AR077261)

**Awarded 2018-2019**
Miltiadis Zgonis, M.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Development, Maturation, and Function of Meniscal Radial Elements”
Joel Boerckel, Ph.D., Departments of Bioengineering/Orthopaedic Surgery, Perelman School of Medicine: “Role of Yap/Taz in Osteoprogenitor Cell-Induced Angiogenesis for Vascularized Bone Repair” (awarded extramural funding from NIH/NIAMS R01AR074948 and R01AR073809)
Awarded 2017-2018
Nathaniel Dyment, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Murine Anterior Cruciate Ligament Reconstruction Model to Understand the Cellular Origins and Mechanisms of Repair” (awarded extramural funding from NIH/NIAMS R01 AR076381)

Yangqin Gong, Ph.D., Department of Medicine, Perelman School of Medicine: “Role of Plasminogen in Mesenchymal Stem Cell Function and Post-Injury Bone Regeneration”

Carla Scanzello, M.D., Ph.D., Department of Medicine, Perelman School of Medicine: “Importance of Macrophage Responses in Osteoarthritis” (awarded extramural funding from NIH/NIAMS R01 AR075737 and T21 RX001757)

Susan Volk, V.M.D., Ph.D., D.A.C.V.S., Department of Small Animal Surgery, School of Veterinary Medicine: “The Regulatory Roles of Type III Collagen in the Cartilage Collagen Network: Implications for Osteoarthritis Prevention and Treatment” (awarded extramural funding from NIH/NIGMS R01 GM124091)

Susan Volk, V.M.D., Ph.D., D.A.C.V.S., Department of Small Animal Surgery, School of Veterinary Medicine: “The Regulatory Roles of Type III Collagen in the Cartilage Collagen Network: Implications for Osteoarthritis Prevention and Treatment” (awarded extramural funding from NIH/NIGMS R01 GM124091)

Foteini Mourkioti, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “A Novel Molecular Mechanism in Chronic Skeletal Muscle Injury” (awarded extramural funding R01 AR075914 NIH/NIAMS)

Awarded 2016-2017
Joseph Baur, Ph.D., Department of Physiology Institute for Diabetes, Obesity and Metabolism, Perelman School of Medicine: “Targeting Nad Metabolism in Muscular Dystrophy” (awarded extramural funding from Elysium Health)

Yongwon Choi, Ph.D., Department of Pathology and Lab Medicine, Perelman School of Medicine: “Cell Adhesion Regulation of Multiple-Myeloma Induced Bone Destruction”

X. Sherry Liu, Ph.D., Department of Orthopaedic Surgery and Bioengineering, Perelman School of Medicine: “Mechanical Consequences of Modeling- vs. Remodeling-Based Bone Formation” (awarded extramural funding from the NSF Award #1661858)

Hongtao Zhang, Ph.D., Department of Pathology and Lab Medicine, Perelman School of Medicine: “Novel Cartilage-Targeting Fc Fusion Proteins as Novel and Effective Treatments for Osteoarthritis”

Awarded 2015-2016
Yejia Zhang, M.D., Ph.D., Department of Physical Medicine and Rehabilitation, Perelman School of Medicine: “Inhibition of Adam-8 to Reduce Intervertebral Disc Degeneration” (Awarded extramural funding from the VA Merit; VA Competitive Pilot Fund)

Oren Friedman, M.D., Department of Otorhinolaryngology, Perelman School of Medicine: “Effect Of Injury To Cartilage And Recovery Treatment With Fgf-18”

Harvey Smith, M.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Impact of Pre-Culture and In Vivo Remobilization on Engineered Disc Replacement” (Awarded extramural funding from the VA RX002274-01A1)

Tejvir Khurana, M.D., Ph.D., Department of Physiology, Perelman School of Medicine: “Role of the Il-15 / Il-15rα Axis in Modulating Muscle-Tendon-Bone Adaptation and Repair”

Awarded 2014-2015
Joshua F. Baker, M.D., MSCE, Department of Rheumatology & Epidemiology, Perelman School of Medicine: “Assessment of Intramyocellular Fat Accumulation in Rheumatoid Arthritis Using MR Spectroscopy” (Awarded extramural funding from American Federation for Aging Research Foundation)

Russ P. Carstens, M.D., Department of Renal-Electrolyte and Hypertension Division, Perelman School of Medicine: “Roles of Epithelial Splicing Regulatory Proteins in Craniofacial Development” (awarded extramural funding NIH 1R56DE024749 and awarded R01 NIDCR)

Foteini Mourkioti, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “A Novel Molecular Mechanism in Chronic Skeletal Muscle Injury” (awarded extramural funding R01AR075914 NIH/NIAMS)
Chamith Rajapakse, Ph.D., Department of Radiology, Perelman School of Medicine: “Biomechanics of Hip Fracture Assessed by MRI” *(Awarded extramural funding from the NIH R01 AR068382)*

**Awarded 2013-2014**

X. Sherry Liu, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Structure and Strength Recovery in Post-Lactation Bone” *(awarded extramural funding from the NIH R03 AR065145 and NSF Career Award #1653216)*

Ling Qin, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Novel Anabolic Treatment for Radiation-Induced Osteoporosis” *(awarded extramural funding from the NIH R01AR066098)*

Lachlan Smith, Ph.D., Departments of Neurosurgery/Orthopaedic Surgery, Perelman School of Medicine: “Molecular Mechanisms of Failed Vertebral Bone Formation in Mucopolysaccharidosis VII” *(awarded extramural funding from the NIH R03 AR065142 and the MPS Society)*

Hansell H. Stedman, M.D., Department of Surgery, Perelman School of Medicine: “Molecular Pattern Recognition in Acute and Chronic Injury to Muscle and Myotendinous Junction” *(awarded extramural funding from the NIH R01NS094705)*

**Awarded 2012-2013**

Jason Burdick, Ph.D., Department of Bioengineering, School of Engineering and Applied Science: “Acellular Fibrous Scaffolds for Stem Cell Recruitment and Cartilage Repair” *(awarded extramural funding from the NIH R01 EB008722)*

James L. Carey, M.D., MPH, Department of Orthopaedic Surgery, Perelman School of Medicine: “Development of a Large Animal Model of Osteochondritis Dissecans” *(awarded extramural funding from the NIH R01 EB008722)*

Andrew Kuntz, M.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Effects of Intra-Articular Glenohumeral Injection of a Nonsteroidal Anti-Inflammatory Drug on Shoulder Joint Mechanics in a Rat Model”

Arjun Raj, Ph.D., Department of Bioengineering, School of Engineering and Applied Science: “Single Cell Analysis of Molecular and Micromechanical Heterogeneity in Mesenchymal Stem Cells and Engineered Tissues”

**Awarded 2011-2012**

Struan F.A. Grant, Ph.D., Department of Pediatrics, Children’s Hospital of Philadelphia and Perelman School of Medicine: “Utilization of ChIP-seq to Identify Genes Regulated by Osterix”

Motomi Enomoto-Iwamoto, DDS, Ph.D., Department of Orthopaedic Surgery, Children’s Hospital of Philadelphia and Perelman School of Medicine: “Tendon Repair by Retinoic Acid Receptor Agonists” *(awarded extramural funding from the NIH R21 AR062193)*

Ian N. Jacobs, M.D., Department of Otorhinolaryngology: Head and Neck Surgery, Children’s Hospital of Philadelphia and Perelman School of Medicine: “A Pilot Study for the Development of a Rabbit In-Vivo Tissue-Engineered Cartilage Graft for Pediatric Laryngotracheal Reconstruction” *(awarded extramural funding from The Triological Society)*

**Awarded 2010-2011**

Susan W. Volk, V.M.D., Ph.D., Dipl ACVC, Department of Small Animal Surgery, School of Veterinary Medicine: “The Role of Type III Collagen in Bone Repair and Regeneration”

Jaimo Ahn, M.D., Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Toward the Identification of Molecular Pathway Alterations in Aged Fracture Healing: A Pilot Study Utilizing a Genetic Model of Senescence” *(awarded extramural funding from the NIH R03 AG040670)*

Shannon Fisher, M.D., Ph.D., Department of Cell and Developmental Biology, Perelman School of Medicine: “Requirement for Osterix in Skull Formation and Maintenance of Adult Bone in Zebrafish” *(awarded extramural funding from the NIH R21 DE021509)*

**Awarded 2010-2011 (Jointly with IOA)**
Olena Jacenko, Ph.D., Department of Animal Biology, School of Veterinary Medicine: “Aging of the Hematopoietic Niche” *(awarded extramural funding from the NIH R01 DK088334-01)*

Eileen M. Shore, Ph.D., Departments of Orthopaedic Surgery and Genetics, Perelman School of Medicine: “Modulation of Progenitor Cell Differentiation through BMP Signaling” *(awarded extramural funding from the NIH R01 AR041916-15)*

Kurt D. Hankenson, DVM, Ph.D., Department of Animal Biology, School of Veterinary Medicine: “Notch Signaling in Bone Regeneration” *(awarded extramural funding from the DOD CDMRP)*

**Awarded 2009-2010**

Ling Qin, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Mechanisms of EGFR Action on Bone” *(awarded extramural funding from the NIH R01 DK095803)*

Steven Scherer, M.D., Ph.D., Department of Neurology, Perelman School of Medicine: “Are N-cadherin and L1 Adhesion Molecules Required for Recovery of Muscle Strength after Nerve Injury?”

Nader M. Hebela, M.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “A Pre-Clinical Rodent Model of Intervertebral Disc Autograft Transplant” *(awarded extramural funding from the DOD/CDMRP/PROP OR090090)*

**Awarded 2008-2009**

Sunday O. Akintoye, BDS, DDS, MS, Department of Oral Medicine, School of Dental Medicine: “Orofacial Bone Marrow Stromal Cells Promote Bisphosphonate-Associated Jaw Osteonecrosis” *(awarded extramural funding from the NIDCR R21 DE022826)*

Margaret M. Chou, Ph.D., Departments of Cell and Developmental Biology, Perelman School of Medicine: “Mechanisms of TRE17/USP6 Function in the Etiology of Aneurysmal Bone Cyst” *(awarded extramural funding from the NIH-NCI R01 CA168452 and R21-CA18601)*

Kenneth W. Leichty, M.D., Department of Surgery, Perelman School of Medicine: “The Role of Inflammation in Regenerative Fetal Tendon Wound Healing” *(awarded extramural funding from the NIH DP2 DK083085)*

Kathleen M. Loomes, M.D., Department of Pediatrics, Children’s Hospital of Philadelphia: “The Role of Jag1 in Osteogenesis”

Eileen M. Shore, Ph.D., Departments of Orthopaedic Surgery and Genetics, Perelman School of Medicine: “Analysis of an ACVR1 Knock-in Mouse Model for FOP” *(awarded extramural funding from the NIH R01 AR041916-15S1)*

**Awarded 2007-2008**

Sherrill L. Adams, Ph.D., Department of Biochemistry, School of Dental Medicine: “Collagen III-deficient Mice as a Model for Musculoskeletal Wound Repair”

Kurt D. Hankenson, DVM, Ph.D., Department of Animal Biology, School of Veterinary Medicine: “Regulation of Bone Formation by Novel Activators of Canonical Wnt Signaling”

**Awarded 2006-2007**

Robert J. Pignolo, M.D., Ph.D., Department of Medicine, Perelman School of Medicine: “Stem Cell Rescue of the Osteoporotic Phenotype in a Mouse Model of Accelerated Aging” *(awarded extramural funding from the NIH R01 AG028873)*

Robert L. Mauck, Ph.D., Department of Orthopaedic Surgery, Perelman School of Medicine “Meniscus Repair with a Novel Aligned Nanofiber Scaffold” *(awarded extramural funding from the NIH R01 AR056624 and the VA RR & D)*

Christopher S. Chen, M.D. Ph.D., Department of Bioengineering, School of Engineering and Applied Science: “Mechanotransduction in Mesenchymal Stem Cells” *(awarded partial funding as Co-Investigator on NIH P41 EB001046)*

Pedro K. Beredjiklian, M.D., Department of Orthopaedic Surgery, Perelman School of Medicine: “Role of Hyaluronic Acid Receptors in Tendon Healing” *(awarded extramural funding from the NIH R21 AR052393)*