



McKay Orthopaedic Research Laboratory

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The McKay Orthopaedic Research Laboratory of the Department of Orthopaedic Surgery in the Perelman School of Medicine continues to explore important problems in musculoskeletal research. The research facility, including labs and offices, occupies just over 15,000 sq. ft. of space on the 3rd, 4th and 5th Floors of Stemmler Hall. There are over 100 full- and part-time staff and trainees now in the labs. It is an active, thriving

research and educational environment.

Currently, the lab has an annual research budget from extramural grants, gifts, and endowments over \$7,000,000 and continues to rank within the top 5 orthopaedic programs in the country in terms of funding from the National Institutes of Health (NIH) with a 2014 ranking of #3. This past year has seen a very impressive and continued rise in new grant activity amongst the faculty.

We have had several new grants awarded this year. These are:

- George Dodge, Ph.D. and Robert Mauck, Ph.D. are PI's of a VA grant titled "Cartilage response to compression injury: A platform for therapeutics discovery."
- John Esterhai, M.D. and Lachlan Smith, Ph.D. are PI's of a VA grant titled "Engineered Multi-Functional Nanofibrous Meniscus Implants."
- Sherry Liu, Ph.D. is PI of an Institute on Aging grant titled "The stimulation of modeling-based bone formation in estrogen-deficient bone."
- Robert Mauck, Ph.D. and Lachlan Smith, Ph.D. are PI's of a VA grant titled "Bioactive Injectable Implants for Functional Intervertebral Disc Regeneration."
- Robert Mauck, Ph.D. is PI of a renewed NIH grant titled "Multi-scale biomechanics of engineered and native fibrous load-bearing tissue."
- Robert Mauck, Ph.D. is PI of a renewed NIH grant titled "Dynamic Fibrous Scaffolds for Repairing Dense Connective Tissues."
- Robert Mauck, Ph.D. is PI of a renewed NIH grant titled "Engineering developmental microenvironments: Cartilage formation and maturation."
- Faye Mourkioti, Ph.D. is PI of a McCabe grant titled "A stem cell therapy intervention in diseased skeletal muscles."
- Faye Mourkioti, Ph.D. is PI of a PCMD pilot grant titled "A Novel Molecular Mechanism in Chronic Skeletal Muscle Injury."
- Robert Pignolo, M.D., Ph.D. is PI of a new clinical trial titled "A Phase 2 Randomized, Double-Blind, Placebo-

Controlled Efficacy and Safety Study of a RAR α -Specific Agonist (Palovarotene) in the Treatment of Preosseous Flare-ups in Subjects with Fibrodysplasia Ossificans Progressiva (FOP)."

- Harvey Smith, M.D. is PI of a VA grant titled "Tissue-Engineered Constructs for Treatment of Intervertebral Disc Degeneration."
- Andy Kuntz, M.D. is PI of a McCabe grant titled "Development and Evaluation of a Multimodal Analgesia Protocol for Postoperative Pain Management in Shoulder Surgery."
- Andy Kuntz, M.D. is PI of an Institute on Aging grant titled "Effects of Autologous Juvenile, Adult, and Aged Tenocyte-Seeded Nanofibrous Scaffolds in Rotator Cuff Repair."
- Andy Kuntz, M.D. is PI of a VA grant titled "Genetic Response in the Adaptation of Supraspinatus Tendon and Muscle to Load."
- Lou Soslowsky, Ph.D. is PI of an NIH R01 titled "Injury Response in Normal and EDS Tendons: Regulatory Roles of Collagen V."
- Lou Soslowsky, Ph.D. is PI of an Orthofix, Inc SRA titled "Pre-Clinical Rotator Cuff Study: Effects of PEMF on rotator cuff repair in a rodent model."

In addition to the above-mentioned new grants this year, each of the McKay Laboratory faculty remains well-funded through existing research grants not identified in this new grants list. Further, there were several new grants and clinical trials for our surgeon faculty this year. These are:

- Joshua Gordon, M.D. is PI of an AANA grant titled "The Association between Adhesive Capsulitis and Diabetes Mellitus, A Genome Wide Analysis of Expression."
- G. Russell Huffman, M.D. received another Surgical Shoulder and Elbow Fellowship from DePuy.
- Craig Israelite, M.D. is PI of a clinical trial from Zimmer titled "TKA Outcomes Study Prospective Multicenter Study of the Persona Knee System."
- Brian Sennett, M.D. & Dr. Milt Zgonis received fellowship grants from DePuy Mitek, Conmed, and Arthrex.
- David Steinberg, M.D. received a Hand & Upper Limb Fellowship from ASSH.
- Jaimo Ahn, M.D. is PI on an OTA grant titled "Disruption of TSP-CD47 Pathway to Enhance Ischemic Fracture Healing," an FOT grant titled "Acceleration of Geriatric Fracture healing by local activation of notch signaling," and a clinical study from Design Science titled "DePuy Synthes Trauma Intramedullary (IM) Nail Ethnographic Market Research."
- David Bozentka, M.D. is PI of a clinical trial from Axogen



titled “A Multicenter, Prospective, Randomized, Subject and Evaluator Blinded Comparative Study of Nerve Cuffs and Avance Nerve Graft Evaluating Recovery Outcomes for the Repair of Nerve Discontinuities (RECON).”

- John Esterhai, M.D. is PI of a clinical trial from Johns Hopkins titled “Outcomes Following Severe Distal Tibia, Ankle and/or Foot Trauma: Comparison of Limb Salvage vs. Transtibial Amputation Protocol (OUTLET Study).”

We have also received several grants from Synthes for residents to attend various courses.

Growing musculoskeletal research in the Department of Orthopaedic Surgery and across the Penn campus has been a primary objective for our program, and this effort has been particularly fruitful thus far. We look forward to another exciting year of continued growth and success.