



McKay Orthopaedic Research Laboratory

Robert Mauck, PhD and Louis Soslowsky, PhD



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 16,000 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. McKay is an active, thriving research and educational environment.

The McKay labs are also undergoing a transformation both in terms of physical space and faculty. Our home, Stemmler Hall, is in the midst of an over a \$100 million dollar renovation, which will culminate in 2018 in a fully modernized and aesthetically pleasing facility in which to grow our laboratory space, faculty, and research and training endeavors. In terms of recruitment, we were delighted to welcome Dr. Nathaniel Dymant, PhD, an expert in tendon development and bioengineering, as our newest tenure track faculty member. We are also now actively recruiting for two additional faculty positions, and hope to grow our ranks further in the very near future.

Currently, the lab has an annual research budget from extramural grants, gifts, and endowments of over \$13,800,000 and continues to rank within the top five orthopaedic programs in the country in terms of funding from the National Institutes of Health (NIH) with a 2015 ranking of #4. This past year has seen a very impressive and continued rise in new grant activity amongst the faculty.

We have had several new grants (>\$25,000) awarded this year, representing the breadth and diversity of research undertaken by our faculty. These are:

- Dr. Jaimo Ahn—“Modulation of vascularity to enhance geriatric fracture healing”
- Dr. Jaimo Ahn—“Coupling role of osteoclast Notch signaling in physiology and fracture healing”
- Dr. John Esterhai and Dr. Robert Mauck—“Engineered Multi-Functional Nanofibrous Meniscus Implants”
- Dr. Robert Mauck, Dr. Jim Carey, and Dr. Jason Burdick—“Acellular Bioactive and Dynamic Nanofibrous Scaffolds to Promote Cartilage Repair”

- Dr. Lachlan Smith—“Therapeutic Targeting of Wnt/ β -Catenin Signaling to Improve Bone Formation in MPSVII”
- Dr. Lachlan Smith—“Enzyme Replacement Therapy for Treatment of Bone Disease in Mucopolysaccharidosis VII Dogs”
- Dr. Louis Soslowsky—“Stimulation of Tendon Repair by Metabolic Modifiers”
- Dr. Spencer Szczesny—“Role of Mechanical Loading and Stem Cell Mechanotransduction in Tendon Degeneration”

In addition, we are delighted to report that the NIH P30 grant supporting our Penn Center for Musculoskeletal Disorders, led by Dr. Lou Soslowsky and entitled “Resource-based Center for Musculoskeletal Disorders Research”, has been extended for another five years! This is as a testament to the excellent core facilities in McKay and the widespread impact of our department on the University, as a whole.

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 industry grants and clinical trials (>\$25,000) initiated by both basic science and surgeon faculty this year. These are:

- Dr. Ben Gray—“Protect Neuro Trial Post Marketing Surveillance Prospective Cohort Evaluation of Neurocap® In The Treatment of Symptomatic Neuroma”
- Dr. Eileen Shore—“Sponsored Research Agreement on FOP/MMB” from Gilead Sciences
- Dr. Gwo-Chin Lee “An Open-Label, Non-Randomized, Single-Arm Multi-Center Study to Evaluate Oral Sodium Fusidate (CEM-102) for the Treatment of staphylococcal Bone or Joint Infections in Subjects for whom Chronic Antibiotic Suppressive Therapy is Indicated”

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 in the past year. We look forward to another exciting year of continued growth and success.