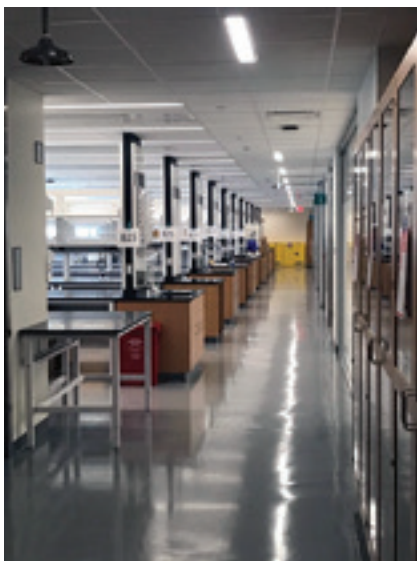




# McKay Orthopaedic Research Laboratory Update

Robert L. Mauck, PhD and Louis J. 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 over 22,000 sq. ft. of newly renovated space on the 3<sup>rd</sup> Floor of Stemmler Hall (Figure 1). There are more than 120 full- and part-time staff and trainees now in the labs. McKay is an active, thriving research and educational community committed to advancing basic and translational musculoskeletal research.



**Figure 1.** Newly renovated McKay laboratory work space in Stemmler Hall

The McKay labs have just completed a transformation both in terms of physical space and faculty. Our home, Stemmler Hall, underwent a >\$120 million dollar renovation, completed

in early 2019, which resulted in a fully modernized facility in which to grow our laboratory space, faculty, and research and training endeavors. We moved into our new space in November 2018. Last year, we were delighted to welcome Dr. Joel Boerckel, PhD, an expert in bone mechanobiology and Dr. Kyu Sang Joeng, an expert in disease models of bone and tendon, as our newest tenure track faculty members. We are also very excited that Dr. Lachlan Smith was recently promoted to Associate Professor with tenure. We are also now actively recruiting for an endowed chair faculty position, 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 > \$14,124,397 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 2018 ranking of #4. This past year has seen a very impressive and continued rise in new grant activity amongst the faculty. We were also excited that Sherry Liu was awarded the Kappa Delta Award at the 2019 American Academy of Orthopaedic Surgeons Meeting, Eileen Shore was named a Fellow of the American Society for Bone and Mineral Research (ASBMR), Robert Mauck was named a Fellow of International Orthopaedic Research (FIOR), and Lou Soslowsky was awarded the H.R. Lissner Medal from the American Society of Mechanical Engineers (ASME), the highest honor of that society.

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

- **Dr. Robert Mauck**
- “Evaluation of Cartilage Tissue Engineering Strategies by IR Imaging”
- a new R01 in collaboration with Temple University
- **Dr. Lou Soslowsky**
- “Collagen XI and XI/V regulatory mechanisms in assembly of tendon hierarchical structure and acquisition of mechanical properties in development and injury response”
- a new R01 from the National Institutes of Health
- **Dr. Foteini Mourkioti**
- “Telomeric protein requirements in cardiac dystrophy”
- a new grant from the Muscular Dystrophy Association
- **Dr. Eileen Shore and Dr. Robert Mauck**
- “Mechanobiology of Progenitor Cells in Heterotypic Ossification”
- a new R01 from the National Institutes of Health

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 clinical faculty this year. These include:

- **Dr. Scott Levin**
- “Reconstructive Vascularized Composite Allotransplantation: Qualitative Approach to Enhance Patient Reported Outcome Metrics and the Candidate Screening Process”, a new grant from the Department of Defense
- **Dr. Gwo-Chin Lee**
- Retrospective study to evaluate patients/ clinical factors related to positive response from hyaluronic acid injections
- from Ferring Pharmaceuticals, Inc.
- **Dr. Samir Mehta**
- “Diagnosis of Orthopaedic Trauma Related Infections at the Intersection of the Transcriptome and Microbiome”

- in collaboration with Virginia Commonwealth University
- **Dr. Samir Mehta**
- “PREPARE: Pragmatic Randomized trial Evaluating Pre-operative Alcohol skin solutions in Fractured Extremities”
- in collaboration with the University of Maryland

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. This spring will mark the 40<sup>th</sup> year of operation of the McKay labs, and we are excited to celebrate this occasion with all of you at the upcoming Ortho Alumni Weekend and McKay 40<sup>th</sup> Celebration. In the last decade alone, we have grown in terms of lab faculty (71% increase), lab personnel (95% increase), lab space (110% increase), and research expenditures (141% increase). With our 40 years of leadership, training, and scientific contributions to musculoskeletal research, we are excited for what the future will bring.