



Report from the McKay Orthopaedic Research Laboratory



The McKay Orthopaedic Research Laboratory of the Department of Orthopaedic Surgery in the School of Medicine continues to explore important problems in musculoskeletal research. The research facility, including labs and offices, occupies just over 11,000 sq. ft. of space on the 4th Floor of Stemmler Hall. Operations have been expanded to the 3rd floor, and discussions are currently taking place to gain space on the 5th floor as well. It is a common-use, shared facility in that each faculty member has access to all the rooms and suites. Use of each facility is permissible as long as the appropriate expertise exists. There are over 60 full- and part-time staff and trainees now in the labs. Currently, it is an active, thriving research and educational environment.

Currently, the lab has an annual research budget from extramural grants, gifts, and endowments, over \$5,000,000 direct costs, and remains the 5th ranked Department of Orthopaedic Surgery in the country in terms of funding from the National Institutes of Health (NIH). This past year has seen a continued rise in new grant activity amongst the faculty.

We have had several new grants awarded this year. Congratulations to **Dr. Soslowsky** and the other lab faculty for the successful competitive renewal of our NIH T32 Institutional Training Grant titled “Training in Musculoskeletal Research”. This is an extremely competitive process and has resulted in another five years of our training program. This is likely the longest continuous training grant in orthopaedic research in the country.

Congratulations to **Dr. Elliott and Dr. Soslowsky** who have received another NIH R01 grant this year studying the anisotropic and nonlinear structure-function relationships of normal and degenerate tendon. **Dr. Soslowsky** also received a grant from Xylos Corporation to study the strength retention of biosynthesized implants comparing them to human allograft and xenograft implants. **Drs. Bernstein, Beredjikian, Steinberg and Soslowsky**, received a grant

from the VA to study fetal tissue engineering for tendon regeneration. **Drs. Abboud and Soslowsky** received a grant from the Orthopaedic Research and Education Foundation to study the effect of hypercholesterolemia on tendons.

Drs. Elliott and Mauck received an NIH R01 grant titled “Biomechanical Engineering of Fibrous Load-Bearing Tissue”. Dr. Elliott and Grace O’Connell received a graduate student fellowship from NIH titled Structural and Tissue Mechanics of Normal and Degenerate Intervertebral Disc. **Dr. Mauck and Jeffrey Stambough** received a Medical Student Summer Orthopaedic Research Fellowship from the Orthopaedic Education and Research Foundation to study multi-scale tissue engineering of a composite intervertebral disc. **Dr. Shore and Dr. Kaplan** received a grant from the Rita Allen Foundation for support of the Center for Research in Fibrodysplasia Ossificans Progressiva and Related Disorders.

Dr. Lee received a grant from Ceramtech Medical Products to study in-vivo transfer function across the hip joint. **Dr. Huffman** received a grant from Wyeth-Ayerst Pharmaceuticals titled: Phase 2, Multicenter, Double-blinded, Randomized, Stratified, Controlled, Efficacy, Safety and Feasibility Study of RHBMP-2/CPM as an Adjuvant Therapy in Closed Fractures of the Humerus. **Dr. Esterhai** received a grant from Wyeth-Ayerst Pharmaceuticals titled: A Phase 2/3, Multicenter, Double-Blind, Randomized, Controlled Study of Recombinant Human Bone Morphogenetic Protein-2 (RHBMP-2)/Calcium Phosphate Matrix (CPM) in Closed Diaphyseal Tibial Fractures.

In addition to the above-mentioned new grants this year, each of the McKay Laboratory faculty remains well funded through existing research grants.

This year, we began recruitments for additional research faculty through funds provided by the School of Medicine, in coordination with the Penn Center for Musculoskeletal Disorders which became an official Center at Penn earlier this year. Through this Center, we will be adding several thousand square feet of additional space for growth of existing faculty programs as well as contiguous space for our new faculty recruits. Growing musculoskeletal research, not only within the Department of Orthopaedic Surgery, but across the Penn campus has been a primary objective for our program this year and these efforts have been particularly successful thus far. We look forward to another exciting year.

-- **Lou Soslowsky, PhD**; Director, McKay Orthopaedic Research Laboratory