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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 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. It is an active, thriving research and educational environment. Furthermore, our building is in the midst of 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.

Currently, the lab has an annual research budget from extramural grants, gifts, and endowments > \$12,000,000 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 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. These are:

- Andrew Kuntz, M.D., is PI of a VA SPiRE grant entitled “Effect of Scaffold-delivery Growth Factors in Rotator Cuff Repair.”
- Xiawei Liu, Ph.D., is PI of a grant from the NIH entitled “The effect of parathyroid hormone on modeling-based bone formation.”
- Robert Mauck, Ph.D. and Maurizio Pacific, Ph.D. are PIs of a VA SPiRE grant entitled “Cartilage Repair with Synovial Joint Precursors.”
- Robert Pignolo, M.D., is PI of a grant entitled “Natural History Study Protocol A Natural History, Non-Interventional, Two-Part Study in Subjects with Fibrodysplasia Ossificans Progressiva (FOP).”
- Robert Pignolo, M.D., is PI of a grant entitled “Identification of plasma soluble biomarkers for Fibrodysplasia Ossificans Progressiva disease progression and treatment response.”
- Ling Qin, Ph.D., is PI of a grant from the NIH entitled “Mechanism of radiotherapy-induced osteoporosis and its treatment.”
- Lachlan Smith, Ph.D., is PI of a grant from the NIH entitled “Mechanisms of Vertebral Bone Disease in Mucopolysaccharidosis VII.”
- Louis Soslowsky, Ph.D., is PI of an NIH supplement grant entitled “Challenging Treatment Paradigms for Achilles Tendon Ruptures in an Animal Model Supplement.”
- Louis Soslowsky, Ph.D., is PI of an NIH grant entitled

“Mouse Models for SLRP Roles in Tendon Aging and Impaired Healing in Aging.”

- Miltiadis Zgonis, M.D., is PI of a Young Investigator Grant from the OREF entitled “Strain Transfer in the Knee Meniscus: Novel Mechanisms to Guide Treatment and Inform Tissue Engineering Strategies.”

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 for our research and surgeon faculty this year. These are:

- Dana Farber, M.D., is PI of a grant entitled “A Phase 3 Randomized, Placebo-Controlled, Blinded Study to Investigate the Safety and Efficacy of a Topical Gentamicin Collagen Sponge in Combination with Systemic Antibiotic Therapy in Diabetic Patients with an Infected Foot Ulcer.”
- Samir Mehta, M.D., is PI of a SRA entitled “A Phase 2a Randomized, Single-Blind, Placebo-Controlled, 24-week Escalating Dose Study to Assess the Safety, Tolerability and Clinical Activity of 3 Concentrations of Locally Applied MBN-101 to Infected Osteosynthesis Sites.”
- Robert Pignolo, M.D., is PI of a SRA entitled “A Phase 2, Open-Label Extension, Efficacy and Safety Study of a RAR(gamma)-Specific Agonist (Palovarotene) in the Treatment of Preosseous Flare-ups in Subjects with Fibrodysplasia Ossificans Progressiva (FOP).”
- Robert Pignolo, M.D., is PI of a clinical trial entitled “A Phase 2, In-Home, Safety and Efficacy Evaluation of Episodic Administration of Open-Label Palovarotene in Subjects with Fibrodysplasia Ossificans Progressiva (FOP).”
- Louis Soslowsky, Ph.D., is PI of a SRA entitled “sNAG in a Rotator Cuff Tendon Healing Rat Model.”
- Louis Soslowsky, Ph.D., is PI of a SRA entitled “Unilateral supraspinatus injury + repair.”
- Kristy Weber, M.D., is PI of a clinical trial entitled “Open-label, multicenter, dose escalation Phase 1a/1b study with expansion phase to evaluate safety, pharmacokinetics and activity of RO5509554, administered as an intravenous infusion as monotherapy and in combination with Paclitaxel in patients with advanced solid tumors.”

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.