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Medical Research

Advancement of Medicine

In 2023, our research continued to focus on genetic factors that affect bone regeneration. This project will help discover new pathways that can be targeted to improve bone healing in many circumstances, including total joint replacement surgery and repair of fractures. The project is supported by an award from the National Institutes of Health, or NIH.

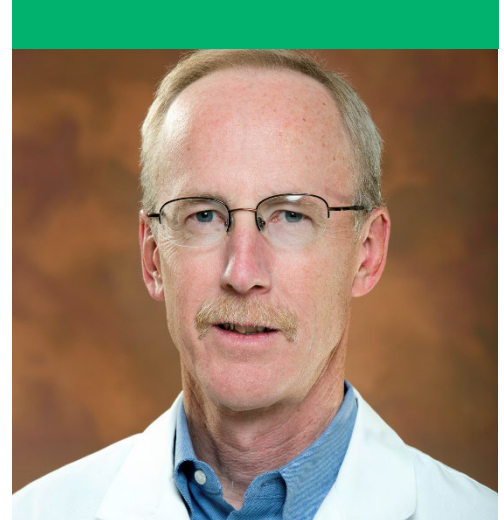
We are also investigating the effects of preterm birth on bone growth after birth. The immediate goal is to gain a better understanding of metabolic bone disease (osteoporosis) of prematurity. A longer-term goal is to determine if there are lifelong consequences of preterm birth on the skeleton. This project is also supported by an award from the NIH.

I am also the principal investigator on an NIH training grant that provides research opportunities for postdoctoral fellows and medical students in the general area of joint health. This program involves about 20 faculty at Rush.

I am a past president of multiple scientific societies, including the Orthopaedic Research Society, the American Association for Anatomy, the International Society of Bone Morphometry, and the Association of Anatomy, Cell Biology and Neurobiology Chairpersons. I am also an elected fellow in several societies, including the American Association for the Advancement of Science, the Orthopaedic Research Society, the American Society for Bone and Mineral Research, and the American Association for Anatomy.

Research

Your generosity supports our musculoskeletal, cancer and movement disorders research. Your support also bolsters the work of students, faculty and staff when external grant funds are not





sufficient. Finally, we are grateful your investment enables us to attend scientific meetings and conduct pilot experiments.

Clinical Trials

We continue to advance our NIH research investigations and other grant-funded research in the areas of bone regeneration, implant fixation, osteoarthritis and microcomputed tomography.

Publication Highlights – Abbreviated

- “Colon epithelial cell-specific Bmal1 deletion impairs bone formation in mice,” *Bone*. 2023
- “Contrast-enhanced micro-computed tomography of compartment and time-dependent changes in femoral cartilage and subchondral plate in a murine model of osteoarthritis,” *Anatomical Record*. 2023.

Grants

Multiple federal grant submissions, including to the NIH, Department of Defense, and National Science Foundation have been enabled in part by your support. We are pleased to report that several have been funded.

The Year Ahead: 2024 and Beyond

Our main priority is providing support to researchers who will leverage the resources for projects likely to gain extramural support. For instance, one of our newer recruits will receive a subaward from the National Science Foundation. This new faculty member’s primary effort is teaching medical and health science students, but she also dedicates time to research, which is supported by your generosity.

With Gratitude

As a chair of a basic science department, I have very limited discretionary funding to support trainees and faculty. Since it is not reasonable to expect faculty to be 100% funded from extramural sources, your support is critical to maintaining continuity. I am very grateful, on behalf of my faculty and trainees, for your support.