



M^cCAIG INSTITUTE
FOR BONE AND JOINT HEALTH



**UNIVERSITY OF
CALGARY**



2023/24 ANNUAL REPORT

Research empowering mobility for life.

OVER 30 YEARS STRONG

Building on the vision of its founders, the McCaig Institute for Bone and Joint Health is committed to fostering interdisciplinary research. This commitment drives advancement in the diagnosis, treatment, and healthcare services for individuals affected by bone and joint diseases. Our dedication to enhancing musculoskeletal health contributes to a healthier future for our entire community.



Our Leadership



Dr. Cheryl Barnabe, MD, MSc'11, assumed the directorship of the McCaig Institute for Bone and Joint Health on January 1, 2024, succeeding Dr. Steven Boyd who served for eight dedicated years. Dr. Barnabe is a rheumatologist and a professor in the departments of Medicine and Community Health Sciences at the Cumming School of Medicine. To further strengthen the leadership of the institute, Dr. Roman Krawetz, PhD, was appointed deputy director.

Our Members



116
Faculty

(from Cumming School of Medicine, Kinesiology, Schulich School of Engineering, Veterinary Medicine, U of A, MRU, and UBC)



100
MSc Students

56
PhD Students



28
Postdoctoral Fellows



121
Staff

45
Others
(Undergraduates, Fellows, Residents)

New Recruits

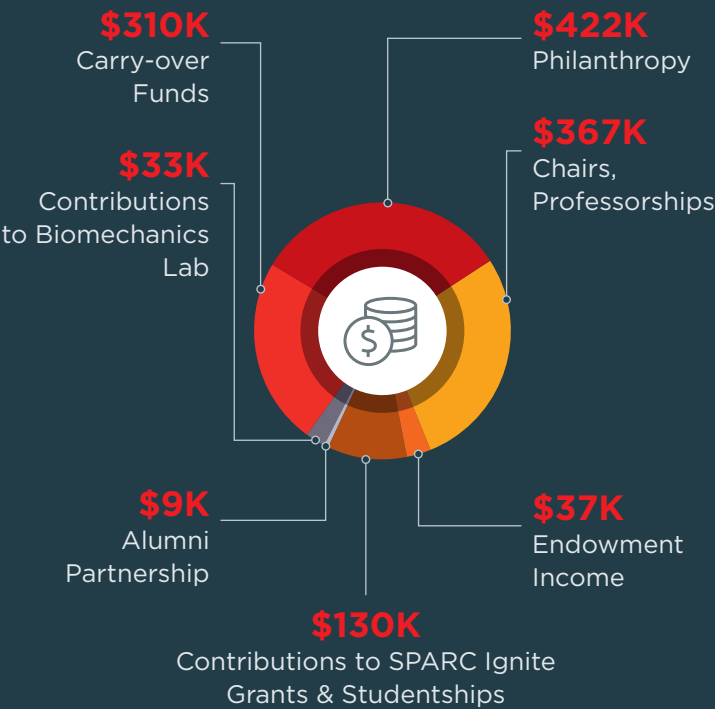


In July 2023, former trainee **Dr. Danielle Whittier** returned to the University as an Assistant Professor, and assumed appointment in the role of Canada Research Chair (CRC) Tier 2 in Pediatric Musculoskeletal Image Science in the Department of Cell Biology and Anatomy.

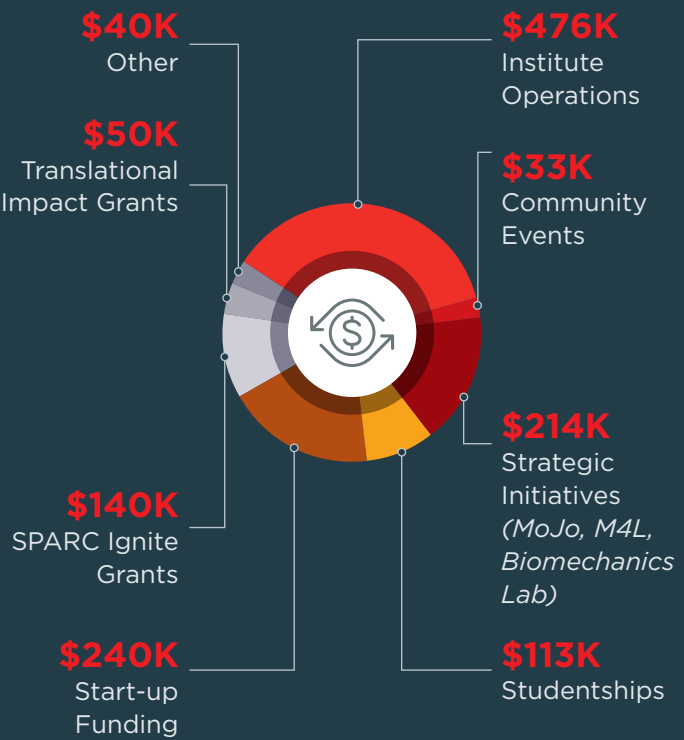


In January 2024, **Dr. Ejai Agbani** assumed his new role as an Assistant Professor in the Department of Physiology and Pharmacology.

Revenue \$1.308M



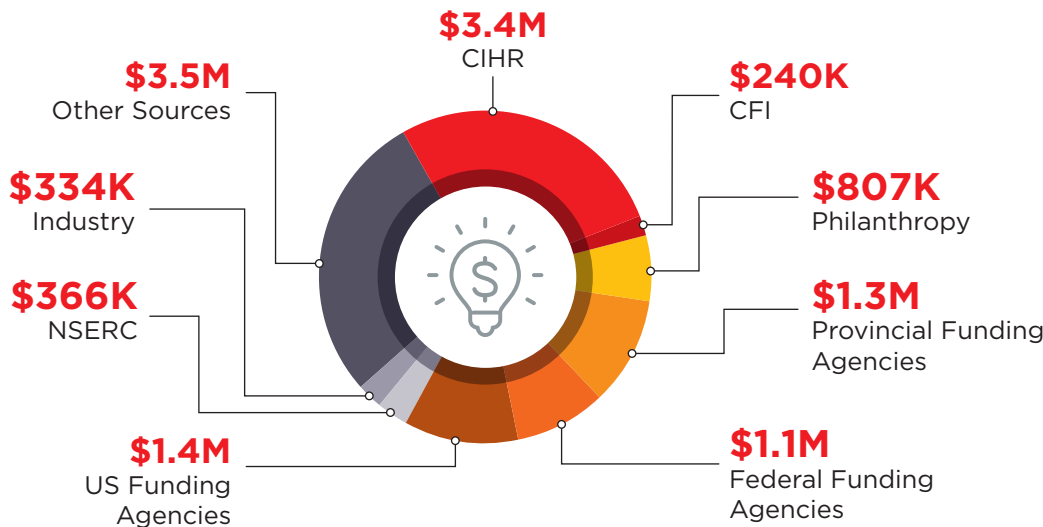
Total Expenses \$1.306M



Funding Success

Research funds received by full members:

\$12.4M



319

Peer-reviewed publications by full members



3,753

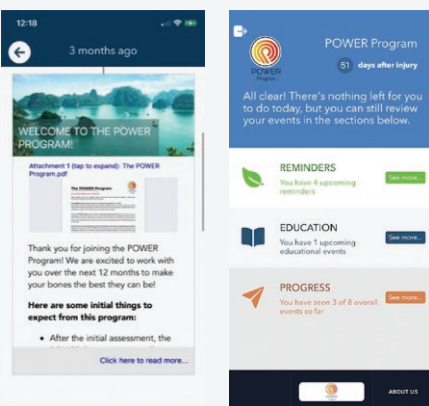
Citations of publications by full members

Research Highlights

Clinician-Scientist Empowering Patients with Personalized Approach to Bone Health

Dr. Prism Schneider secured over \$1.2 million in funding from the Partnership for Research and Innovation in the Health System – Digital Health program (PRIHS). This funding will bolster her ongoing digital healthcare initiative known as the POWER Program: Personalized Osteoporosis Care with Early Recognition.

The POWER Program utilizes a smartphone app to empower patients in monitoring their bone health and preventing fragility fractures, addressing a significant care gap in outpatient settings. With fragility fractures common in Alberta, particularly among post-menopausal women, early identification and intervention are crucial. The app provides personalized bone-health care plans, educational materials, medication reminders, and virtual consultations, benefiting rural and remote patients by reducing the need for frequent in-person appointments.



Screen captures from the POWER app



Pac-Man analogy to explain osteoarthritis research

Classic Pac-Man Game Offers Insight into McCaig Institute's Nationally Recognized Research

Dr. Tony Dufour and Dr. Roman Krawetz have been honored by Arthritis Society Canada for their groundbreaking research on osteoarthritis. To help explain this science, they compare the enzyme Trypsin β , which disrupts joint lubrication and triggers inflammation, to Pac-Man consuming dots in the game. In their research published in Nature Communications, they showed how this enzyme continues to cause harm even when protease inhibitors – in the analogy, the game's ghosts – attempt to slow its activity. This research is focused on better understanding these processes and finding ways to control them, to mitigate long-term damage and alleviate pain for those living with osteoarthritis. The team are now studying how administering a drug to the affected joint may inhibit the negative effects of Trypsin β .

Research Impact & Community Engagement



Community Events **760 attendees**

Dr. Cy Frank Legacy Lectureship *112 in-person & 98 virtual*

Dr. Walter Herzog presented his extensive work on pre-clinical models of knee joint osteoarthritis (OA). His focus was on post-traumatic OA, muscle weakness induced OA, and obesity/metabolic syndrome associated OA, including the potential clinical applications.

Wood Forum *230 in-person & 190 virtual*

Experts in the field of bone health shared insights with our community on topics including healthy bone development in youth, optimizing bone health in adulthood, eating well for your bones, and the search for bone-building therapies.

Science in the Cinema *130 in-person*

Members of the public watched Big Hero Six, followed by a Q&A session with Dr. Michael Kallos and Dr. Mariana Bento on the topic of innovations and developments in Alberta's medical device sector.

Digital Engagement Highlights



UTODAY
ARTICLES

14

RESEARCH IN
MOTION

4

issues

660+

subscribers

Social Media Subscribers



FACEBOOK

448 ↑12%



INSTAGRAM

590 ↑34%



TWITTER/X

883 ↑4%



YOUTUBE

474 ↑12%



LINKEDIN

142 (New in 2023)

Trainee-Led Art Enriches Community and Transforms Our Bridgeway



Trainees and ARTS Society founders, Valerie Cates (left) and Julianna Svishchuk

In spring of 2024, we proudly inaugurated the McCaig Arts Gallery, marking a momentous occasion for students, faculty, and staff who worked to bring this vision to life. The gallery, situated within the Bridgeway space, stands as a testament to the fusion of creativity and science within our community.

At the heart of this endeavor lies the ARTS Society, founded by passionate trainees. Not only did they establish the society, but they also spearheaded the transformation of the gallery into a vibrant space for artistic expression. The inaugural exhibition, "Science Through Art," was curated by a diverse cohort of artists, students and faculty.