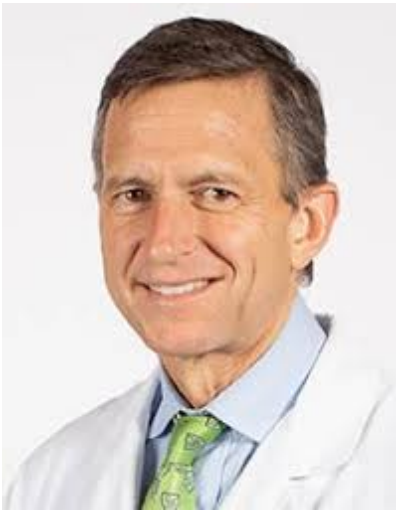
Penn Center for Musculoskeletal Disorders
University of Pennsylvania

Registration Now Open for the 2025 PCMD Annual Scientific Symposium - November 12, 2025



Registration is now open for the 21st Annual Penn Center for Musculoskeletal Disorders Scientific Symposium in the Smilow Rubinstein Auditorium and Commons to be held on Wednesday, November 12, 2025. The year's keynote speaker will be Dr. Scott Rodeo from Weill Medical College of Cornell University, New York-Presbyterian Hospital and Hospital for Special Surgery.

The day will begin at 8am with registration and poster set-up followed by scientific presentations from new Center Full and Affiliate members and PCMD Pilot Grant recipients. The symposium will also include lunch and a judged poster session with prizes for trainees. The day will conclude with a reception in the commons area of Smilow. **Register Now**

Penn Center for Musculoskeletal Disorders Grant Renewal

Announcement - PCMD Renewal

The PCMD center will be submitting the renewal application and we need your help with the required NIH information. In the coming days, we will be reaching out to each member to request the following information.

1) NIH biosketch in the new format
2) Extramural Grant Support for Center Members Table:
   -Name
   -Principal Investigator
   -Supporting Organization & Grant Number
   - Project Period (Total Years)
   -Current Annual Amount (Direct)
3) A 1-3 paragraph description of your research program
4) A brief summary/listing of actual or potential uses of the 3 Cores we will be proposing:
   - Musculoskeletal Histology *(frozen, paraffin, plastics, also including bone histomorphometry)*
   - Biomechanical Testing *(including both small and large samples).*
   - CT Imaging *(including micro-CT).*

Spotlight News/Publications From Our Members

Congratulations to all Award Recipients!

Joel Boerckel, PhD Recipient of the 2025 Fuller Albright Award!

The Esteemed Award is presented by The American Society for Bone and Mineral Research. This award is given in recognition of admirable scientific accomplishment in the bone and mineral field to an ASBMR member who has completed a Ph.D., M.D/ residency training within the past 15 years.

CONGRATULATIONS JOEL!

Congratulations to Gail K. Smith, VMD, PhD!

At the 2025 Annual Meeting of the Veterinary Orthopedic Society held in Breckenridge, CO, Dr. Gail Smith was awarded the Steven M. Fox VOS Lifetime Achievement Award.

The VOS Lifetime Achievement Award was created to honor Dr. Steve Fox. Dr. Fox's contributions to the VOS, veterinary orthopedics and pain management have been numerous and impactful. This award is presented annually to members who have shown a lifelong commitment to collaboration between research, practice and industry with significant contribution to the field of veterinary orthopedics.

Su Chin Heo, PhD Receives the BMES CMBE 2026 Rising Star Award!

The BMES Cellular and Molecular Bioengineering Special Interest Group brings together researchers with diverse scientific and clinical interests with a common goal of understanding and engineering molecules, cells, their interactions, and microenvironments in the pursuit of controlling biological processes, and improving the practice of medicine.

The "Rising Star" award has been given to a select group of exceptional junior principal investigators each year. Awardees provide a podium presentation in a special session at the annual conference.

CONGRATULATIONS SU CHIN!

Congratulations to Dennis Discher, PhD!

For being named the 2025 ASCB Fellow. The American Society for Cell Biology (ASCB) is proud to announce the election of 14 outstanding scientists for this award - a prestigious honor recognizing their exceptional contributions to cell biology and the Society.
ASCB Fellows are selected by their peers and approved by the ASCB Council, celebrating a career of scientific excellence, leadership, and service to the cell biology community. These individuals have shaped the field through groundbreaking research, tireless mentorship, and commitment to advancing science.

MEMBER SPOTLIGHT PUBLICATION

Damaris N. Lorenzo

Ankyrin-B Modulates Mitochondrial Fission in Skeletal Muscle and is Required for Optimal Endurance Exercise Capacity

Voos KM, Tzeng J, Patel P, Rubinsky S, Choi HE, Pharr T, Sookram S, Baur JA, Soderblom EJ, Lorenzo DN

Abstract

Mitochondrial dynamics enable cellular adaptation to fluctuations in energy demand, such as those imposed on skeletal muscle by exercise, metabolic disorders, or aging. Here, we report a novel pathway that modulates mitochondria dynamics in skeletal muscle involving the scaffolding protein ankyrin-B. Rare variants in ankyrin-B, encoded by ANK2, increase risk for cardio-metabolic syndrome in humans and mice. We show that mice selectively lacking skeletal muscle ankyrin-B have reduced endurance exercise capacity without alterations in muscle strength or systemic glucose regulation. Muscle fibers in these mice have increased oxidative stress, reduced fatty acid oxidation, and enlarged and hyperconnected mitochondria. We found that ankyrin-B interacts with and is required for efficient mitochondria recruitment of fission modulators and sarcoplasmic reticulum-mitochondria coupling. Thus, we conclude that ankyrin-B enables substrate adaptability and bioenergetic homeostasis under energetic stress, and exercise capacity by promoting efficient mitochondrial fission in skeletal muscle.

MEMBER PUBLICATIONS

Continuous pore size gradient enhances zonal-specific differentiation of stem cells in an osteochondral scaffold
Gioacchino Conoscenti, Kyra W Y Smith, Alessandro Pirosa, Francesco Carfì Pavia, Emily Y Zhang, Vincenzo La Carrubba, Valerio Brucato , Rocky S Tuan, Riccardo Gottardi
Supported by PCMD

Synovial joint cavitation during limb skeletogenesis entails Na/K-ATPase ion pump expression and osmoregulatory activity.
Eiki Koyama, Lutian Yao, Cheri Saunders, Christina Mundy, Sarah E. Catheline, Minwook Kim, Chao Song, Fanxin Long and Maurizio Pacifici

PTH stimulation of Rankl transcription is regulated by SIK2 and 3 and mediated by CRTC2 and 3 through action of protein phosphatases 1, 2, 4, and 5
Mosca MJ, He Z, Selvamurugan N, Joseph J, Petrosky W, Le Henaff C, Partridge NC

Therapeutic Implants: Mechanobiologic Enhancement of Osteogenic, Angiogenic, and Myogenic Responses in Human Mesenchymal Stem Cells on 3D-Printed Titanium Truss
Lee SH, Kiapour A, Stoeckl BD, Zhang EY, Begley MR, Oldham J, Harrison L, Hunt J, Mauck RL, Heo SC

MEMBER AWARDED GRANT

Congratulations to Drs. Sarah Gullbrand and Harvey Smith the award of their R01 titled Accelerating AF Repair with a Multi-Factor Mechanoactive Patch

Abstract:
Intervertebral disc herniations, caused by extrusion of nucleus pulposus tissue through a defect in the annulus fibrosus (AF), affect 2 to 3% of the world population and can be a significant contributor to back pain and disability. The gold standard clinical treatment for patients with persistent pain from disc herniation that is unresolved after conservative treatment is microdiscectomy surgery, during which the herniated tissue is removed to relieve pressure on the nerve roots. However, the AF is not

surgically repaired during this procedure. Given the limited endogenous healing capacity of the AF, 10 to 30% of patients will experience a symptomatic recurrent herniation. Due to the clinical burden of disc herniations and the absence of alternatives to discectomy, there is a substantial need to develop and translate novel AF repair devices which can facilitate annular healing, restore disc mechanics, and prevent re-herniation. Endogenous repair following injury is hindered by AF cell apoptosis, increased local inflammation and ultimately the formation of disorganized scar tissue. Repair strategies that address this complex biological milieu, while restoring AF mechanical function and preventing re-herniation have yet to be established and proven efficacious in large animal studies. Here, we will optimize and translate a novel tension-activated annular repair scaffold (TARS) to address both the structural and biological requirements for annular repair. The TARS implants are composed of two layers of aligned nanofibrous polymer scaffolds, containing depots of microcapsules between the scaffold layers which release their contents under mechanical loading (MAMCs). When the TARS is loaded in tension, the MAMCs are compressed, leading to release of bioactive molecules. In Aim 1, we will define the release profiles of the TARS in vitro under dynamic uniaxial tensile loading in a physiologic environment, and in situ when affixed to the AF in cadaveric goat cervical spine motion segments. From this Aim, we will validate a TARS design that can deliver bioactive molecules to the repair site over acute and chronic timescales. In Aim 2, we will target the biological sequalae of annular injury and evaluate the ability of an anti-inflammatory and pro-anabolic TARS to promote local AF repair and global spine functional restoration in vivo in a goat cervical disc injury model. AF injury and repair will be thoroughly evaluated across length scales, with a focus on the restoration of healthy AF structure, biology and mechanical function. This novel and translationally relevant AF repair technology could change clinical practice for the treatment of disc herniations, reduce the incidence of reherniation, and improve the long-term spine health of patients.

PENN CENTER FOR MUSCULOSKELETAL DISORDERS FUNDS AVAILABLE:

PCMD FUNDS AVAILABLE:

Summary Statement Driven Funding Request

If you have a recent summary statement from an NIH grant (eligible NIH mechanisms include all “R” grants such as R03, R21 and R01 and “K” grants such as K01, K08 on their first submission—please inquire regarding eligibility of other proposal mechanisms) which requires you to run additional experiments, gather additional data, provide feasibility for an approach, or similar, we can provide small funds ($1,000-$15,000) with a very short turn-around time in order to allow you to complete these experiments and resubmit your proposal with the best chance of success. Requests for funding will be evaluated on a rolling basis and priority will be given to Assistant Professors with encouraging initial review priority scores better than ~30-35%. The format of the “Summary Statement Driven Funding Request”, which is limited to **one page**, is as follows:

Name of PI (must be a PCMD full member)
Title of Project Request
Specific Purpose of Request with Stated Outcome/Goal Referring Explicitly to the Summary Statement for Justification
Research Design and Methods
Budget with Brief Justification

Funding through this mechanism is available by submitting the one page proposal to **pcmd@pennmedicine.upenn.edu**

Affiliate Member Core Funding - Now Available

PCMD Funds Available for Affiliate members:

Affiliate members are now eligible for financial and intellectual support for PCMD core use. Center facilities and intellectual guidance are available to learners at all levels (e.g., faculty,

trainees, staff) at other institutions. To a large extent, this effort is to provide increased opportunities to engage investigators at affiliate institutions (defined broadly) that do not have extensive resources supporting musculoskeletal research.

All potential requests for support should start with an email to either a Core Director/s or to Lou Soslowsky at **soslowsk@upenn.edu** to discuss your needs. For more information on this please visit the Affiliate Member Core Funding page at **https://www.med.upenn.edu/pcmd/affiliate-member-core-funding.html**

Upcoming Seminars 2025

November 12

Wednesday, November 12, 2025, 8:00 am-6:00 pm / Smilow Rubinstein Auditorium & Commons
Annual Scientific Symposium
Regulation of Post-Natal Growth Plate Maturation
Keynote Speaker:
Scott Rodeo, M.D., Professor and Vice Chair of Orthopaedic Surgery
Weill Medical College of Cornell University

December 2

Tuesday, December 2, 2025, 1:30 pm-2:30 pm / CRB Austrian Auditorium
Repair Patrol: Sox9 Lineage Cells as Sentinels of Skeletal Regeneration
Francesca Mariani, PhD
Associate Professor of Stem Cell Biology and Regenerative Medicine
Keck School of Medicine, University of Southern California

January 13

Tuesday, January 13, 2026, 1:30 pm-2:30 pm / CRB Austrian Auditorium
Investigating the PD-1/PD-L1 immune checkpoint axis: Direct and indirect regulation of bone metabolism in breast cancer metastasis
Rachelle Johnson, PhD
Associate Professor of Medicine, Division of Hematology & Oncology
Program Director & Director of Graduate Studies
Program in Cancer Biology
Vanderbilt University

View All Activities...

Orthopaedic Research Club (ORC) Seminars

Membership Page

IMPORTANT INFORMATION
Remember to include reference to support from the Center in your abstracts and publications. Cite Grant NIH/NIAMS P30AR069619 from the National Institute of Arthritis and Musculoskeletal and Skin Diseases of the NIH.
Support has also been provided by the Perelman School of Medicine at the University of Pennsylvania.

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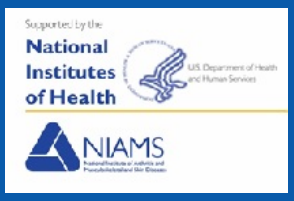

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If you have any news or information that you would like included in the next issue of the Musculoskeletal Messenger newsletter, please email the information to: **pcmd@pennmedicine.upenn.edu**