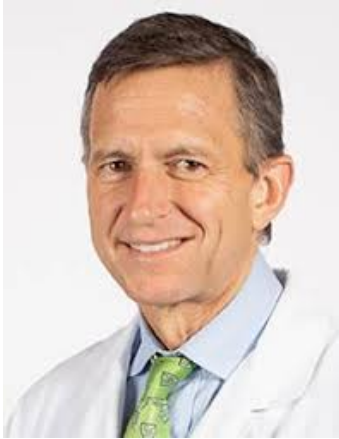


Looking back on the 2025 PCMD Annual Scientific Symposium - November 12, 2025



The 21st Annual Penn Center for Musculoskeletal Disorders Scientific Symposium was a great success. The symposium was held in the Smilow Rubenstein Auditorium on Wednesday, November 12, 2025. With a record number of registrants (>325) and poster submissions (>110). The keynote speaker, Dr. Scott Rodeo, Professor of Orthopaedic Surgery, Weill Medical College of Cornell University; Attending Surgeon at New York-Presbyterian Hospital and Hospital for Special Surgery gave a well-received lecture titled "*The Current Status of Regenerative Medicine in Orthopaedics*". Symposium attendees enjoyed scientific presentations from new Center members Drs. Engiles, Vitale and Madl. While at the symposium, attendees had the opportunity to view the posters which were judged in four categories. The

following posters presenters received awards: Biomechanics Core Winners: Jonathon Blank, Darcy Huang, Michelle Meyers, Katy Strand; Histology Core Winners: Ellie Bernstein, Devin Gottlieb, Haiying Hu, Umu Jalloh; MicroCT Core Winners: Daniel Halloran, Vincent Jin, Arianna Moniodes, Diego Ocaranzo-Nunez; Other Research Winners: Sina Dindarian, Michael Duffy, Zizhao Li, Chiebuka Okpara.

Please save the date for information on the upcoming 22nd PCMD Symposium to be held on November 11, 2026

Penn Center for Musculoskeletal Disorders Core News

Histology Core

The PCMD Histology Core continues to offer a complete spectrum of services, from sample preparation and processing to sectioning, staining, imaging and analysis, with capabilities for paraffin, plastic and frozen histology. Additionally, the core offers immunohistochemistry and in-situ hybridization services optimized for a range musculoskeletal tissue types. The core provides state-of-the-art equipment, which can be accessed either on a self-service basis (upon completion of training) or a full-service basis through our full-time technical director. Fees and turnaround times are highly competitive. The core also provides a popular free protocol development service that offers members the opportunity to work with the core directors and technical director to establish novel histology techniques for their projects. Please visit the core website for a comprehensive overview of available services: <https://www.med.upenn.edu/pcmd/histologycore-homepage>

Spotlight News/Publications From Our Members

Spotlight Publication

MEMBER SPOTLIGHT PUBLICATION

Kyle Vining, DDS, PhD

Matrix Stiffness Governs Fibroblasts' Regulation of Gingival Immune Homeostasis

Hardik Makkar, Nghi Tran, Yu-Chang Chen, Kank I. Ko, Rebecca G. Wells, Kyle H. Vining

Abstract

Periodontal disease is characterized by inflamed gingival tissues and degradation of the gingival extracellular matrix (ECM), yet the role of mechanical cues remains poorly understood. Gingival ECM in periodontal disease showed reduced fibrillar collagen compared to healthy samples. We hypothesized that ECM softening in periodontal disease contributes to inflammation by dysregulating gingival fibroblasts (GFs). A mechanically tunable hydrogel model of the gingival ECM was developed to investigate the mechano-immune crosstalk. Stiff and soft collagen-alginate hydrogels matched the rheological properties of healthy and diseased gingival biopsies respectively. Human donor GFs encapsulated in these stiff hydrogels showed significantly suppressed toll-like receptor-mediated inflammatory responses compared to those in soft hydrogels. The non-canonical NFκB pathway and epigenetic nuclear organization directed stiffness-dependent inflammatory responses of GFs. The direct impact of mechanical cues on immune responses was investigated ex vivo by co-culture of donor-derived human GFs with myeloid cells and in human gingival explants. Myeloid progenitors co-cultured with GFs in stiff hydrogels differentiated into immunomodulatory dendritic cells. Ex vivo crosslinking of human gingival tissue increased stiffness and reduced the production of inflammatory cytokines. Gingival mechano-immune regulation offers a novel approach to biomaterial-based treatments for periodontitis.

You can find the full publication at <https://advanced.onlinelibrary.wiley.com/doi/epdf/10.1002/adma.202520717>

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@pennterms.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 2026

April
14 **Tuesday, April 14, 2026, 1:30 pm-2:30 pm / RRB Austrian Auditorium Joint with CreATE Motion Center**
The Healing Potential of Progenitor Cells, from Preservation to Repair of Skeletal Tissues
Hicham Drissi, PhD
Professor, Department of Orthopaedics
Vice Chair of Research, Orthopaedics
Emory University

May
12 **Tuesday, May 12, 2026, 1:30 pm-2:30 pm / RRB Austrian Auditorium Joint with IRM**
MicroRNA Targeting to Control Bone Formation in the Context of Skeletal Disorders
Audrey McAlinden, PhD
Professor of Orthopaedic Surgery and Cell Biology & Physiology
Washington University, St. Louis

[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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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@penmedicine.upenn.edu

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