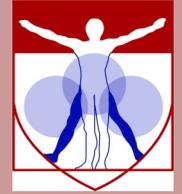




Musculoskeletal Messenger



Inside this issue:

Research Updates PCMD Members	2
In the News Renovated Home PCMD Funds Available	3
Upcoming events	4

University of Pennsylvania Penn Center for Musculoskeletal Disorders

Looking Forward to the 2019 PCMD Annual Scientific Symposium – November 13, 2019—Registration Now OPEN

Preparations are underway for the 16th Annual Penn Center for Musculoskeletal Disorders Scientific Symposium in the Smilow Rubinstein Auditorium and Commons to be held on November 13, 2019.

President and CEO of Syn-

<https://www.med.upenn.edu/pcmd/2019-annual-symposium.html>

thasome, Inc. 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 awarded in four categories.

The day will conclude with a reception in the commons area of Smilow.

Registration is free but is required.

Registration is now open. To register please visit



The keynote speaker will be Anthony Ratcliffe, Ph.D.

2019 PCMD Pilot and Feasibility Grant Recipients Announced

The Penn Center for Musculoskeletal Disorders Pilot and Feasibility Grant Program has awarded three investigators with one year of funding for their pilot grant projects with a start date of *July 1, 2019*

Lachlan Smith, Ph.D. will receive funding for his grant titled “Emergent Nucleus Pulposus Cell Heterogeneity during Intervertebral Disc Development and Growth”

Riccardo Gottardi, Ph.D. will receive funding for his grant titled “Impact of scaffold microporosity in guiding local stem cell differentiation for osteochondral repair”

Jaimo Ahn, M.D. will receive funding for his grant titled “The Interplay of Notch Suppression and Hypoxia on Bone Regeneration”

Penn Center
for

Musculoskeletal Disorders
University of Pennsylvania
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www.med.upenn.edu/pcmd

If you have any news or information that you would like included in the next issue of this newsletter, please email us at:

pcmd@penmedicine.upenn.edu

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.

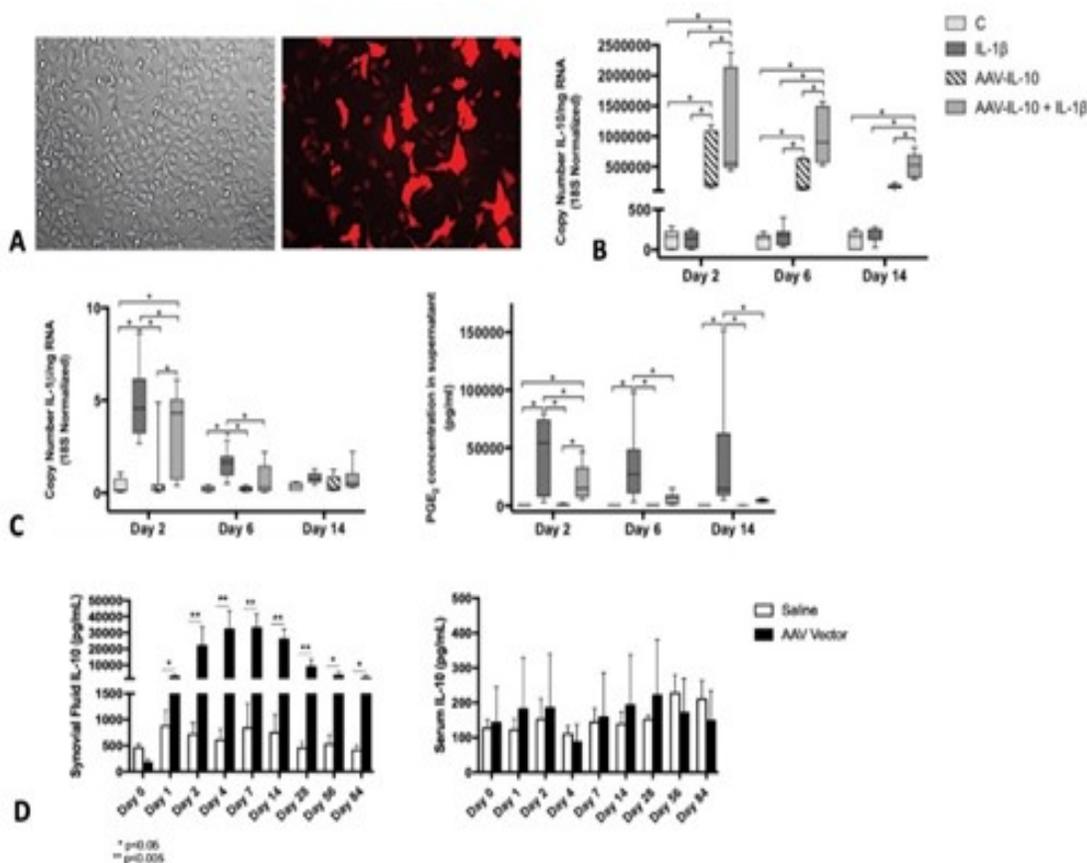
Research Update from PCMD Member

Kyla Ortvad, DVM, PhD, DACVS, DACVSMR

Immunomodulatory gene therapy may protect joints from development of posttraumatic osteoarthritis

Traumatic joint injury and cartilage damage are extremely common and often lead to progressive and degenerative posttraumatic osteoarthritis (PTOA). Following trauma, a posttraumatic inflammatory cascade drives degeneration of the joint. Currently, no effective disease modifying drugs are available to treat PTOA; therefore, intervention early in the disease process would be hugely beneficial. Using the horse as a model for human disease, we are investigating intraarticular gene therapy as a potential biotherapeutic that would target inflammation in the post-traumatic joint, thereby preventing development of PTOA. Using a non-pathogenic viral vector, adeno-associated virus (AAV), we have demonstrated efficient transduction of chondrocytes and synoviocytes both *in vitro* and *in vivo*. An AAV5 vector overexpressing the immunomodulatory cytokine, interleukin-10 (IL-10), was then designed in order to investigate the broad immunomodulatory properties of IL-10 in inflamed joints. Equine chondrocyte pellets

were transduced with AAV5-IL-10 and cultured in an osteoarthritic model using IL-1b as a stimulatory cytokine. AAV5-IL-10 transduction of chondrocytes led to significant increases in expression of the IL-10 transgene. Importantly, IL-10 overexpression also led to significantly decreased expression of IL-1 β and ADAMTS4, and decreased synthesis of PGE2, all of which play a significant role in the pathophysiology of PTOA. Recently, we evaluated direct intraarticular injection of AAV5-IL-10 in the middle carpal joints of horses in order to assess transduction efficacy and transgene expression. Injection with AAV5-IL-10 led to significantly increased IL-10 in synovial fluid over an 84-day period. Systemic IL-10 was not affected and joints did not demonstrate a significant inflammatory response to vector administration. Next, we are seeking to evaluate overexpression of IL-10 in an *in vivo* model of PTOA.



In the News!

Congratulations to Rob Mauck and team for their outstanding research on the intervertebral disc.

<https://www.philly.com/health/back-pain-disc-collapse-bulging-fusion-upenn-20190226.html>

Pictured: Drs. Gullbrand, Mauck, Schaer and Smith



New Home for Penn Center for Musculoskeletal Disorders!

It is with great pleasure that we announce that the renovation of Stemmler Hall is complete and the Penn Center for Musculoskeletal Disorders is fully operational. All Cores (Administrative, Biomechanics, Histology, and Micro-CT Imaging) are all now located on the 3rd floor of Stemmler Hall in beautiful new space. Core space and capabilities have been expanded and are available for use. Please see our website at www.med.upenn.edu/pcmd for more information on the Center and its Cores.

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@penntermedicine.upenn.edu



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pcmd@pennteam.upenn.edu

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**National
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U.S. Department of Health
and Human Services



NIAMS

National Institute of Arthritis and
Musculoskeletal and Skin Diseases

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.

PCMD Visiting Professorship Series Fall/Winter 2019-2020

Tuesday, September 17, 2019 1:30-2:30pm/CRB Austrian Auditorium

"Towards a better understanding of Musculoskeletal development and arthritis pathogenesis: A Systems approach"

Hiroshi Asahara, MD, PhD

Professor of MEM
Department of Molecular Medicine
Scripps Research, California Campus

Tuesday, December 10, 2019, 1:30-2:30pm/CRB Austrian Auditorium

"Osteoarthritis: Thinking Beyond the Cartilage"

Kyle Allen, PhD

Associate Professor, Associate Chair for UG Studies, ABET Coordinator
J. Crayton Pruitt Family, Department of Biomedical Engineering
University of Florida

Tuesday, October 15, 2019 1:30-2:30pm/CRB Austrian Auditorium

"Osteocytes and connexin channels in mechanotransduction and hormonal response in bone "

Jean Jiang, PhD

Professor and Zachry Distinguished University Chair
Department of Biochemistry and Structural Biology, UT Health San Antonio

Friday, January , 2020 1:30pm – 1:30pm, CRB Austrian Auditorium

TBD

Tuesday, February, 2020, 1:30pm – 2:30pm, CRB Austrian Auditorium

TBD

Tuesday, March, 2020, 1:30pm – 2:30pm, CRB Austrian Auditorium

TBD

Wednesday, November 13, 2019,

**Annual Scientific Symposium
Smilow Rubinstein Auditorium**

830am-5:30pm

Keynote Speaker:

Anthony Ratcliffe, PhD
President and CEO of Synthasome, Inc.

Tuesday, April, 2020, 1:30pm – 2:30pm, CRB Austrian Auditorium

TBD Director, Program in Regenerative Medicine

Tuesday, June, 2020, 1:30pm – 2:30pm, CRB Austrian Auditorium

TBD