PROGRAM

AIMM/ASBMR JOHN HADDAD
YOUNG INVESTIGATORS MEETING

April 9 – 12, 2019

SNOWMASS COLORADO

The purpose of this conference is to bring scientists and clinicians together in a format of open verbal communication that permits the translation of basic science advances into clinical concepts. Physicians and scientists working in the field of bone and mineral metabolism are encouraged to participate.

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education through the joint providership of the Minnesota Medical Association and Advances in Mineral Metabolism. The Minnesota Medical Association (MMA) is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The Minnesota Medical Association designates this live activity for a maximum of 26.*25 AMA PRA Category 1 Credit(s)™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

OBJECTIVES

- Learn about the clinical features of renal phosphate wasting disorders and their differences, effects of iron deficiency on FGF23 levels, potential effects of FGF23 on the heart in renal failure patients, pre-clinical studies of FGF23-neutralizing antibodies, efficacy of Burosumab compared to standard therapy for XLH, and potential application of Burosumab therapy beyond XLH

- Gain new perspectives on cellular senescence and its role in the aging process, how targeting senescent cells can prevent age-related bone loss, the potential advantages of senolytic therapy over conventional anti-resorptive therapy for treating osteoporosis, and distinctions between estrogen deficiency and cellular senescence in the pathogenesis of osteoporosis.

- Examine the applications and mechanisms of bone targeted therapies in cancer, including Denosumab and bisphosphonates effects on breast cancer recurrence and mortality, and the outcomes of recent clinical trials for myeloma.

- Learn about the newest findings on local mechanosensing by osteoblasts and osteocytes in response to normal load in fatigue loading, the effects of fatigue loading on osteonal microstructure and damage, and the impact of fatigue loading during military training on bone structure.

- Understand the roles of GPCR signaling in cancer, the mechanisms of GPCR-RAMP signaling and regulation, and RAMP3 as a potential therapeutic target, and discuss the importance of beta-adrenergic signaling in osteoblasts and the development of receptor antagonists for cancer treatment.

- Learn about the progenitor cells that contribute to bone regeneration, zebrafish models for bone regeneration, novel quantitative imaging approaches to study bone regeneration, the unique aspects of rib regeneration relative to long-bone regeneration, new findings in digit regeneration, and appreciate the contributions of novel animal models for developing better clinical therapies to repair bone.

- Discuss the support for and against treating low/normal testosterone in men with testosterone replacement therapy.

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AIMM Founders Lecture Fund

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Radius

SCANCO MEDICAL

AIMM/ASBMR John Haddad Young Investigators

Alanna Green, PhD	University of Sheffield Medical School
Blake "Eason" Hildreth, DVM, PhD	Medical University of South Carolina
Kazuki Inoue, PhD	Hospital for Special Surgery
Gabriel M Pagnotti, PhD	Indiana University
Sun Peck, PhD	University of Pennsylvania
Elizabeth Rendina-Ruedy, PhD	Maine Medical Center Research Institute
Roman Thaler, PhD	Mayo Clinic
Daniel Whitney, PhD	University of Michigan
Feitong Wu, PhD	University of Tasmania
Ren Xu, PhD	Weill Cornell Medical Center

The Charles H. Turner Young Investigator Bone Research Award

Megan Noonan	Indiana University

AIMM 2019 Program

All events at the Stonebridge first floor conference room/dining areas

MONDAY, APRIL 8

2:30 - 6:00 pm Registration

4:25-4:30 pm: *Dana Gaddy, Texas A&M University, AIMM President*: Introduction and Welcome

Session 1:

FGF23 Mediated Hypophosphatemic Disorders

Chair: *Clemens Bergwitz, Yale University*

4:30-5:15 pm: *Michael Econs, Indiana University:* FGF23-mediated hypophosphatemic disorders

5:15-6:00 pm: *Suzanne Jan de Beur*: Burosumab therapy in children and adults with X-linked hypophosphatemia.

6:00-6:15 pm: Break

6:15-6:45 pm: AIMM Charles Turner Young Investigator, *Megan Noonan, Indiana Universit*y: Intravenous EPO and HIF-PHDi in treating CKD-related anemia and control of circulating FGF23

6:45-7:00 pm: Discussion and Overview

7:45-10:00 pm: **Welcome Reception for registrants (no guests)**

TUESDAY, APRIL 9

SESSION 2:

Cellular Senescence in Bone

Chair: *Matt Greenblatt, Weill Cornell Medical School*

7:00-7:45 am: *Robert Pignolo, Mayo Clinic*: Cell senescence and aging in mouse models of osteoporosis

7:45-8:30 am: *Josh Farr, Mayo Clinic*: Targeting senescent cells to prevent age-related bone loss

8:30-8:45 am: Break

8:45-9:15 am: ASBMR John Haddad Young Investigator – *Elizabeth Rendina-Ruedy, Maine Medical Center:* PTH's bone anabolic response involves the modulation of lipid metabolism

9:15-9:30 am: Discussion and Overview

12:00-1:30pm: Mid-day consultations between Young and Established Investigators

3:00-4:00 pm ***Special Debate Session: Low/Normal Testosterone in Men Should be Treated with Testosterone Replacement***

Chair: *Daniel Bikle, UC San Francisco, VA Medical Center*

Against the Motion: *Shalander Bhasin, Brigham and Women's Hospital*

For the Motion: *Peter Snyder, Perelman School of Medicine, University of Pennsylvania*

4:00-4:15 pm: Break

TUESDAY, APRIL 9

SESSION 3
Young Investigators session
Chair: *Mary Barbe, Temple University*
4:15-4:45 pm: ASBMR John Haddad Young Investigator – *Ren Xu – Weill Cornell:* The osteoanabolic role of SLIT3 by targeting skeletal endothelium
4:45-5:15 pm: ASBMR John Haddad Young Investigator – *Roman Thaler – Mayo Clinic:* Epigenetic modifiers of bone
5:15-5:45 pm: ASBMR John Haddad Young Investigator – *Kazuki Inoue, PhD – Hospital for Special Surgery:* miR182 inhibition as a novel therapeutic strategy to prevent bone destruction
5:45-6:00 pm: Break
6:00-6:30 pm: ASBMR John Haddad Young Investigator – *Feitong Wu, Menzies Institute for Medical Research, University of Tasmania:* Early life strategies to improve bone health
6:30-7:00 pm: ASBMR John Haddad Young Investigator – *Daniel Whitney, University of Michigan:* Musculoskeletal health across the lifespan among individuals with cerebral palsy
7:00-7:15 pm: Discussion and Overview

8:00 -10:00 pm: **Welcome Dinner for registrants and guests**

WEDNESDAY, APRIL 10

SESSION 4
Use of Bone Targeted Agents in Cancer Therapy
Chair: *Bob Gagel, MD Anderson Cancer Center*
7:00-7:45 am: *Rob Coleman*, *University of Sheffield*: Inhibition of bone resorption necessary but not sufficient for prevention of metastasis in postmenopausal breast cancer
7:45-8:30 am: *David Roodman, Indiana University*: Antibody targeting for Myeloma bone disease.
8:30-8:45 am: Break
8:45-9:15 am: ASBMR John Haddad Young Investigator – *Alanna Green, University of Sheffield:* Bone Anabolic agents to treat myeloma
9:15-9:30 am: Discussion and Overview

12:00-1:30pm: Mid-day consultations between Young and Established Investigators

3:00-4:00pm: **Meet the Professor Session 1:**
1A. *Michael Econs, Indiana University:* Getting involved in ASBMR
1B. *Mary Bouxsein, Beth Israel Deaconess Medical Center*: Biomechanics/imaging/bone quality

SESSION 5:
Mechanical Loading from Local Responses to Fatigue Loading and Fracture
Chair: *Robert Blank, University of Pennsylvania*
4:30-5:15 pm: *Alex Robling, Indiana University*: Regulation of mechanosensing in bone cells
5:15-6:00 pm: *J Christopher Fritton, Rutgers University*: Role of osteonal microstructure on damage due to fatigue loading
6:00-6:15 pm: Break
6:15-7:00 pm: *Mary Bouxsein, Beth Israel Deaconess Medical Center*: Effect of initial military training on bone structure
7:00 -7:15 pm: Discussion and Overview

7:45-10:00 pm: **Past-Presidents Dinner for Young Investigators, Invited Speakers, AIMM Board**

THURSDAY, APRIL 11

SESSION 6:
Bone and Tissue Regeneration
Chairs: *Kurt Hankenson, University of Michigan* and *Alex Lambi, David Geffen School of Medicine UCLA*
7:00-7:45 am: *Francesca Mariani, USC:* Rib regeneration in a mouse model
7:45-8:30 am: *Stefano Di Talia, Duke University:* Quantitative imaging approaches to osteoblast regeneration in zebrafish
8:30-8:45 am: Break
8:45-9:15 am: AIMM Investigator - *Lindsay Dawson, Texas A&M University*: Directing bone and joint regeneration in the mouse digit
9:15-9:45 am: ASBMR John Haddad Young Investigator - *Sun Peck, University of Pennsylvania:* Abnormal GAG metabolism and failed bone formation in MPS VII
9:45-10:00 am: Discussion and Overview

10:30 – 12:00 **Ski Race – registrants and guests**
please sign up at registration desk by noon on Wednesday

12:00-1:30pm: Mid-day consultations between Young and Established Investigators

3:00-4:00 pm: **Meet the Professor Session 2:**
2A. *Suzanne Jan de Beur, Johns Hopkins University:* Discussion on Challenging Clinical Cases (participants bring their cases)
2B. *Andre van Wijnen, Mayo Clinic:* Managing RNA data from RNAseq and single-cell RNA analysis

4:00-4:45pm: Business Meeting

SESSION 7:
Late-breaking clinical topics
Chair: *Robert Gensure*, Tufts Medical Center
4:45-5:45 pm: Short oral presentations

Richard Bockman
The loss of anabolic momentum with brief nonadherence to denosumab therapy- The Faustian Dilemma
Q&A

Rob Gensure
A Case of Subcutaneous Fat Necrosis in an infant with Familial Hypocalciuric Hypercalcemia
Q&A

5:45-6:00 pm: Break

6:00-7:15 pm:
Eileen M. Shore (scientific)
Increased BMP signaling through ACVR1/ALK2 mutation alters mechanosensing and tissue stiffness
Q&A

8:00 -10:00 pm: **Awards Dinner for registrants and guests**

FRIDAY, APRIL 12

SESSION 8:
Late-breaking basic/translational science topics
Chair: Nan Hatch, University of Michigan, School of Dentistry

7:00-8:30 am:
Clemens Bergwitz
Skeletal muscle-specific ablation of Slc20a1/Pit1 and Slc20a2/Pit2 causes early postnatal lethality in mice
Q&A

Andrei S. Chagin
Peripheral glial cells contribute to the formation of skeleton during the embryonic development of both mice and zebrafish Q&A

Joshua Sakon
Structure and function and preclinical applications of clostridial collagenases
Q&A

René St-Arnaud
Dephosphorylation of NACA by PP1A enhances cJUN transcriptional activity
Q&A

Andre van Wijnen
Epigenetic Control of Bone Development
Q&A

8:30-8:45 am: Break

8:45 – 9:30am
Ivo Kalajzic
Local Transplantation of Skeletal Progenitor Cells Improves Bone Properties in Osteogenesis Imperfecta Mice
Q&A

Michael Mannstadt
oral presentations (three 15-minute presentations for 45 minute session)
Q&A

9:30-9:45 am: Discussion and Overview

12:00-1:30pm: Mid-day consultations between Young and Established Investigators

3:00-4:00pm: **Meet the Professor Session 3:**
3A. *Robert Coleman, University of Sheffield*: Designing clinical trials for measuring skeletal related events in cancer therapy
3B. *Larry Suva, Texas A&M University:* Enhancing diversity in bone and mineral research: Challenges and opportunities

SESSION 9:

G-Protein Coupled Receptors and Cancer

Chair: J*ohn Wysolmerski, Yale University*

4:15-5:00 pm: *Tim Skerry, University of Sheffield*: Regulation of GPCR function by RAMPs - implications in physiology and cancer

5:00-5:45 pm: *Florent Elefteriou, Baylor College of Medicine*: Beta-adrenergic receptor activation in progression of breast cancer bone metastasis

5:45-6:00 pm: Break

6:00-6:30 pm: ASBMR John Haddad Young Investigator – *Blake "Eason" Hildreth, Medical University of South* Carolina: Transcriptional regulation of osteoclast differentiation: A means to prevent and treat breast cancer bone metastasis

6:30-7:00 pm: ASBMR John Haddad Young Investigator – *Gabriel Pagnotti, Indiana University:* Low magnitude mechanical signals influence on cancer-associated bone loss

7:00-7:15 pm: Discussion and Close

SEE YOU NEXT YEAR!!

APRIL 6 – 10, 2020