



### PROGRAM

### AIMM/ASBMR JOHN HADDAD YOUNG INVESTIGATORS MEETING

### April 9 - 13, 2018

### **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 25 AMA PRA Category 1 Credit(s)<sup>TM</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

### **OBJECTIVES**

- Learn about bone anabolic effects of second generation osteoporosis treatments, differences in mechanisms of action from current treatments, and results of clinical trials;
- Gain new perspectives on the impact of diet, nutrition, and bariatric surgery on skeletal health;
- Consider novel developments of the interactions of the immune system with bone through macrophages resident to bone tissue and through the effects of the microbiome on bone biology;
- Learn new information about craniofacial skeletal development and disorders of development, and the similarities and differences between progenitor cell sources and functions in long bones vs. craniofacial bones;
- Learn about the pathogenic and clinical aspects of two rare genetic bone diseases, FOP and MHE, the cellular and molecular effects of their respective mutations, and identify possible targets of therapeutic intervention.
- Examine the historical perspective and new pharmacology and pathophysiology of PTH-related peptide, specifically functions of the PTHrP-PTH/PPR1 axis, humoral hypercalcemia of malignancy, and mammary function;
- Discuss the importance and deficits in reproducibility in scientific research and the responsibilities and initiatives of scientists, scientific journals, and scientific societies in ensuring reproducible and reliable data.

## SUPPORTED IN PART BY EDUCATIONAL GRANTS FROM:

### **AIMM Founders Lecture Fund**

### BIOQUANT

# Micro Photonics Inc.

### NIH: NATIONAL INSTITUTE OF ARTHRITIS AND MUSCULOSKELETAL AND SKIN DISEASES

### **NOVARTIS**

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### AIMM/ASBMR John Haddad Young Investigators

Claire Acevedo, PhD	University of Utah
Erin Bumann, DDS, PhD	University of Missouri, Kansas City
Yan Jing, DMD, PhD	Texas A&M University College of Dentistry
Tiffany Kim, MD	UCSF
Eva Liu, MD	Harvard/Brigham & Women's Hospital
Elsa Mevel, PhD	Indiana University School of Medicine
Wanida Ono, DDS, PhD	University of Michigan School of Dentistry
Tim Rolvien, MD	University Medical Center Hamburg-Eppendorf
Lauren Surface, PhD	Harvard/MGH
Ryan Tomlinson, PhD	Thomas Jefferson University

### The Charles H. Turner Young Investigator Bone Research Award

Hannah Davis

Indiana University School of Medicine

#### AIMM 2018 Program

### **MONDAY, APRIL 9**

- 2:30 6:30pm Registration
- 3:55 4:00pm Dana Gaddy, PhD, AIMM President Introduction and Welcome

### Inaugural AIMM Pre Meeting: A Non-CME Credit Session

### **Next Generation Osteoporosis Treatments**

Chair: Richard Bockman, MD, PhD, Hospital for Special Surgery

4:00 – 4:45pm Lorraine Fitzpatrick, MD, Radius Abaloparatide in the Evolving Osteoporosis Treatment Paradigm
4:45 – 5:30pm Andreas Grauer, MD, Amgen Romosozumab in the Evolving Osteoporosis Treatment Paradigm
5:30 – 5:45pm Break
5:45 – 6:30pm Mike McClung, MD, Oregon Osteoporosis Center How Abaloparatide and Romozusumab should be used in the clinical setting
6:30 – 7:00 pm Panel Discussion

7:45 - 10pm Welcome Reception for registrants and guests

#### **TUESDAY, APRIL 10**

#### **Nutrition and Bone**

Chair: Suzanne Jan De Beur, MD, Johns Hopkins University School of Medicine

- 7:00 7:45am Shivani Sahni, PhD Harvard University Dairy Foods, Vitamin D and Bone Measures 7:45 – 8:30am Elaine Yu, MD Harvard University - Efficacy of Diet Interventions on
- Bone Calcium Retention: Using Calcium Isotopes
- 8:30 8:45am Break
- 8:45 9:15am ASBMR John Haddad Young Investigator: Tiffany Kim, MD, UCSF Bone marrow fat and skeletal health in obesity and type 2 diabetes
- 9:15 9:30am Discussion and Overview

9:30am GROUP PHOTO

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

#### 3:00 - 4:15pm Special Session on Reproducibility in Research

- Chair: Robert Marcus, MD, Stanford University 3:00 - 3:15pm Yvette Seger, PhD, FASEB Scientific societies and the role of advocacy 3:15 - 3:30pm Dan Bikle, MD, PhD, UCSF Editorial and peer review responsibility 3:30 - 3:45pm Adam Marcus, Retraction Watch
- Peer monitoring of reproducibility
- 3:45 4:15pm Panel Discussion
- 4:15 4:30pm: Break

#### Session 2

#### Osteoimmunology and Osteomicrobiology

Chair: Ivo Kalajzic, PhD, University of Connecticut

- 4:30 5:15pm Laurie McCauley, DDS, PhD, University of Michigan
  - Osteal macrophages:inspiring the landscape in bone
- 5:15 6:00pm Roberto Pacifici, PhD, Emory University Microbiota, probiotics, and bone
- 6:00 6:15pm Break
- 6:15 6:45pm ASBMR John Haddad Young Investigator: Ryan Tomlinson, PhD, Thomas Jefferson University Inflammatory Signaling in Skeletal Adaptation to Load
- 6:45 7:00pm Discussion and Overview

7:45 - 10:00 pm: Welcome Dinner for registrants and guests

#### WEDNESDAY, APRIL 11

Session 3

#### Skeletal stem cells in craniofacial and long bone development

Chair: Nan Hatch, DDS, PhD, University of Michigan

- 7:00 7:45am Noriaki Ono, DDS, PhD, University of Michigan Skeletal stem cells for bone development: A lineage-tracing perspective.
- 7:45 8:30am Yuji Mishina, PhD, University of Michigan Functional analyses of BMP signaling on craniofacial neural crest cells; a novel cause of midline craniosynostosis.

8:30 - 8:45am Break

- 8:45 9:15am ASBMR John Haddad Young Investigator: Yan Jing, Texas A&M College of Dentistry Novel Roles of Endochondrogenesis in Mandible Formation and Remodeling
- 9:15 9:30am Discussion and Overview
- 12:00 1:30pm Mid-day consultations between Young and Established Investigators
- 2:30 3:45pm AIMM Board meeting at the bottom of the gondola State 38, 110 Carriage Way

#### 3:00 - 4:00pm Meet The Professor Session 1

1A: Laurie McCauley - Models of skeletal metastasis and osteal macrophage function 1B: Elaine Yu - Fidelity and Reproducibility in Bone Imaging

#### Session 4

#### Young Investigator Session

Chair: Mary Barbe, MD, Temple University

4:00 - 5:30 pm 2 ASBMR John Haddad Young Investigator, 1 Charles Turner Young Investigator presentations: Erin Bumann, DDS, PhD, Univ of Missouri, Kansas City - Mesenchymal Regulation of Jaw Length Elsa Mevel, PhD, Indiana School of Medicine - Calmodulin-dependent Protein Kinase Kinase 2 as a Novel Therapeutic Target Against Osteoarthritis Turner Award: Hannah Davis, Indiana Univ - Reduced osteocyte apoptosis and preservation of cortical bone quality with advanced age in mice with osteocytic Cx43 overexpression. 5:30 - 5:45pm Break 5:45 - 6:45pm 2 ASBMR John Haddad Young Investigator presentations: Claire Acevedo, PhD, Univ of San Francisco Medical School - New Perspectives in Bone Fragility Fracture Lauren Surface, PhD, Massachusetts General - Genome-wide screens reveal molecular determinants of nitrogen-containing bisphosphonates' action. 6:45 - 7:00pm Discussion and Overview

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

## **THURSDAY, APRIL 12**

Session 5

#### Late-Breaking Clinical Topics Session

Chair: Michael Mannstadt, MD, Massachusetts General Hospital

- 7:00 7:15am Lynn Kohlmeier, MD -
- 7:15 7:30am Eileen Shore, PhD A key role for immune cells in FOP heterotopic ossification.
- 7:30 7:45am Larry Suva, PhD FRAX predicts baseline vertebral fractures in multiple myeloma patients.
- 7:45 8:00am Ivo Kalaizic, MD. PhD Long term progenitor cells in the periosteum.
- 8:00 8:15am Marc Wein, MD, PhD Phosphoproteomic profiling reveals novel salt inducible kinase targets downstream of parathyroid hormone signaling in osteocytes.
- 8:15 8:30am Tamara King, PhD Exercise effects on osteoarthritis joint pain: Impact of sex, site and free will in a rat model of osteoarthritis.
- 8:30 8:45am break
- 8:45 9:00am Ivo Kalajzic, MD, PhD PDGFRb signaling regulates osteogenesis of periosteal mesenchymal stem cells.
- 9:00 9:15am TBD
- 9:15 9:30am TBD

10:30am – 12:00pm SKI RACE - SPIDER SABICH RACE ARENA – Open to registrants and guests

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

#### 3:00 - 4:00pm Meet The Professor Session 2

- 2A: Noriako Ono--Use of lineage tracing mouse models to answer important skeletal research questions 2B: Larry Suva and Andreas Grauer-Young Investigator Career Mentoring
- 2C: Maurizio Pacifici--Regulation of skeletal development by signaling proteins
- 4:00 4:45 pm Business Meeting

#### Session 6

Rare Disease Connections - Heterotopic Ossification and Osteochondromas		
Chair: I	Eileen Shore, PhD, University of Pennsylvania	
4:45 – 5:30pm	Maurizio Pacifici, PhD, Children's Hospital Philadelphia - Shared	
	pathogenic pathways offer common therapeutic targets in HME and FOP	
5:30 – 5:45pm	break	
5:45 – 6:30pm	Donna Grogan, MD, Clementia - Promising animal data – Now what?	
6:30 – 7:00pm	ASBMR John Haddad Young Investigator: Tim Rolvien, Univ Medical Center Hamburg-Eppendorf-	

7:45 - 10:00 pm: Awards Dinner for registrants and guests

#### FRIDAY, APRIL 13 Session 7

#### Late-Breaking Basic/Translational Science Topics Session

Chairs: Michaela Reagan, PhD, Maine Medical Center; Courtney Karner, PhD, Duke

- 7.00 7.15: Matthew Greenblatt, MD Osteoblast production of SLIT3
- controls skeletal vascular endothelium and bone formation. 7.15 – 7.30: Stephen Harris, PhD - Sost KO mice cannot rescue the conditional knockout
- of the Bmp2 gene using the Osterix-CreERt2 or aSMA-CreERt2 model.
- 7.30 7.45: Clemens Bergwitz, MD Endocrine control of phosphate homeostasis in Drosophila.
- 7.45 8.00: Joy Wu, MD, PhD Parathyroid Hormone Receptor Signaling in Osteoprogenitors Regulates Erythropoiesis in the Bone Marrow and Spleen.
- 8.00 8.15: Robert Gensure, MD, PhD A Bone-targeted Parathyroid Hormone-Related Peptide Antagonist
  - Inhibits Growth and Prevents Cortical Bone Destruction by Breast Cancer Metastatic Lesions.
- 8.15 8.30:Joshua Sakon, PhD Activation and binding mechanism of a clostridial collagen-binding segment.8:30 8:45:Break
- 8.45 9.00: Nan Hatch, DDS Tissue-Nonspecific Alkaline Phosphatase (TNAP) Mediates Cranial Progenitor Cell Cycle Progression via FGFR2 and MAPK.
- 9.00 9.15: Andre van Wijnen, PhD What's new in osteoblast epigenetics?
- 9.15 9.30: Dana Gaddy, PhD & Larry Suva, PhD Hypophosphatasia in sheep.
- 12:00 1:30pm Mid-day consultations between Young and Established Investigators

#### 3:00 - 4:00pm Meet The Professor Session 3

3A: Clemens Bergwitz - Technology session: Knock-in strategies 3B: Donna Grogan - Clinical Trials to Drug Approval

#### Session 8

#### Skeletal and non-skeletal roles of PTHrP

Chair: Clemens Bergwitz, PhD, Yale University

- 4:00 5:00pm Larry Suva, PhD, Texas A&M University
  - PTHrP biology and action: 30 years and counting
- 5:00 5:45pm John Wysolmerski, MD, Yale University PTHrP in humoral hypercalcemia of
- malignancy and breast development
- 5:45 6:00pm Break
- 6:00 6:30pm ASBMR John Haddad Young Investigator: Wanida Ono, DDS, PhD, Univ of Michigan School of Dentistry PTHrP-PPR autocrine regulation of mesenchymal progenitor cell fate orchestrates tooth eruption"
- 6:30 7:00pm ASBMR John Haddad Young Investigator: Eva Liu, MD, Harvard Medical School Molecular analysis of enthesopathy in the Hyp mouse model of XLH
- 7:00 7:15pm Discussion and Close