



Arnold and Madaleine Penner
**2nd Annual
Musculoskeletal Repair
and Regeneration
Symposium**

Thursday, October 10, 2013

Presented by:
Musculoskeletal and Orthopaedic
Research Laboratories and
Department of Orthopaedic Surgery
Albert Einstein College of Medicine
and Montefiore Medical Center

Scientific Director:
Hui (Herb) B. Sun, PhD



Albert Einstein College of Medicine
Michael F. Price Center and Harold and Muriel Block Research Pavilion
1301 Morris Park Avenue, Bronx, NY 10461

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2nd Annual Musculoskeletal Repair and Regeneration Symposium

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Symposium Mission

To promote and enhance collaborations for researchers in the NYC area and beyond. The meeting will primarily focus on five research areas:

- Osteoarthritis biology and biomechanics
- Metabolism regulation in health and diseased bone and joint tissue
- Bone remodeling and mechanotransduction
- Musculoskeletal tissue: injury response, repair and imaging
- Stem cell stimuli-response and musculoskeletal regeneration

FEATURES FOR 2ND ANNUAL SYMPOSIUM

- Twenty-two founding members from last year will return and give exciting research updates on the same or new topics
- Four new faculty from UPenn, Stony Brook, UConn, and North Shore-LIJ will share their research story
- Last year's Young Investigator Award winners will present their new progress and winners from the 2nd Annual Symposium will give a short talk

Symposium Location and Date

Thursday, October 10, 2013

Albert Einstein College of Medicine

Michael F. Price Center & Harold and Muriel Block Research Pavilion

1301 Morris Park Avenue, Bronx, NY 10461

Directions: www.einstein.yu.edu/visitors/

Registration

Before August 31, 2013, the registration fee is \$50. Afterwards, the fee is \$75. Registration includes continental breakfast, lunch, and dinner. Register online at: www.mecme.org

Who Should Attend

Basic scientists, clinical investigators and clinicians with interests in physiology, cell/molecular biology, biomechanics, pathology, genetics, as well as other areas that relate to musculoskeletal repair and regeneration.

Statement of Need

Damage to skeletal tissues is a significant cause of morbidity and increased mortality, and is a magnifier of mortality in other clinical diseases such as diabetes and cardiovascular disorders. The innate repair capacities are limited for articular cartilage, tendon/ligament, and extensive bone defects. In addition, current treatments for the repair of injured skeletal tissue are not sufficient to restore the functionality of the original tissue. These daunting challenges present a desperate need for a better understanding of musculoskeletal biology and emphasize the importance of discovering novel repair and regeneration strategies that can be translated to clinical use.

Activity Goals

This program will address current issues in musculoskeletal repair and regeneration. Discussions will focus on up-to-date laboratory discoveries and the potential impact of these findings on patient treatment and management in the future.

Learning Objectives

- Examine the impact of new discoveries on the homeostasis and repair of musculoskeletal tissues
- Discuss the potential role of stem cells in musculoskeletal repair and regeneration
- Assess a variety of treatment options for degenerative musculoskeletal diseases and injuries

Accreditation

Albert Einstein College of Medicine of Yeshiva University is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. Albert Einstein College of Medicine of Yeshiva University designates this live activity for a maximum of **9.0 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Special Needs (ADA)

Albert Einstein College of Medicine of Yeshiva University and Montefiore Medical Center fully complies with the legal requirements of the Americans with Disabilities Act. If any participant is in need of special accommodations, submit a written request at least two weeks prior to the activity to:

Center for Continuing Medical Education
3301 Bainbridge Avenue, Bronx, NY 10467

CALL FOR ABSTRACTS / YOUNG INVESTIGATOR AWARD

We invite investigators to submit abstracts for the poster session. As an important component of this conference, posters will be displayed throughout the day, with two dedicated poster sessions. Abstracts from graduate students and postdoctoral fellows will be considered for Young Investigator Awards. Winners will be presented a prize and a plaque during the evening session. To be considered, please submit an abstract by August 30th, 2013, and email it to: mia.thi@einstein.yu.edu.

For more information:

<http://einstein.yu.edu/departments/orthopaedic-surgery/symposium>

Conflict of Interest Statement

The "Conflict of Interest Disclosure Policy" of Albert Einstein College of Medicine of Yeshiva University requires that faculty participating in any CME activity disclose to the audience any relationship(s) with a pharmaceutical or equipment company. Any presenter whose disclosed relationships prove to create a conflict of interest, with regard to their contribution to the activity, will not be permitted to present.

Albert Einstein College of Medicine of Yeshiva University also requires that faculty participating in any CME activity disclose to the audience when discussing any unlabeled or investigational use of any commercial product or device, not yet approved in the United States.

The staff of CCME of Albert Einstein College of Medicine of Yeshiva University have no conflicts of interest with commercial interests related directly or indirectly to this educational activity.

Hotel Information

The Roosevelt Hotel, 45 East 45th Street, New York, NY 10017
For reservation call 1-888-833-3969 or 212-661-9600

For Further Information Contact:

Center for Continuing Medical Education
3301 Bainbridge Avenue, Bronx, NY 10467
Phone: (718) 920-6674 e-mail: npiacent@montefiore.org

AGENDA

- 8:00 – 8:40 am Check-in and Continental Breakfast
- 8:40 – 9:00 Welcoming Remarks
Allen M. Spiegel, MD, The Marilyn and Stanley M. Katz Dean
Neil J. Cobelli, MD, *University Chairman*, Department of Orthopaedic Surgery

SECTION 1: The Joint Organ: Osteoarthritis Biology and Biomechanics *Chair: John A. Hardin, MD*

- 9:00 – 9:10 Mechanisms of De-regulated Cartilage Remodeling in OA
Mary B. Goldring, PhD
- 9:10 – 9:20 Is Late Stage Osteoarthritis and Tumor Metastasis the Same Mechanobiological Disease Process? **Peter A. Torzilli, PhD**
- 9:20 – 9:30 Molecular Mechanisms Affecting Cartilage Destruction During Osteoarthritis **Thorsten Kirsch, PhD**
- 9:30 – 9:40 CITED2 and Chondroprotection **Neil J. Cobelli, MD** and **Herb Sun, PhD**
- 9:40 – 10:00 Signaling Pathways Regulating Chondrocyte Function and Matrix Turnover **Maurizio Pacifici, PhD**

10:00 – 10:20 COFFEE BREAK

SECTION 2: Regulatory Mechanisms of Healthy and Diseased Musculoskeletal Tissues *Chair: Neil J. Cobelli, MD*

- 10:20 – 10:30 GH/IGF-1 Effects on the Growing and Aged Skeleton
Shoshana Yakar, PhD
- 10:30 – 10:40 Oxidative Modifications of Cartilage Structural Proteins Drive Tissue Degeneration **Laura Santambrogio, MD, PhD**
- 10:40 – 11:00 Structure and Symptom-Modifying Therapies for Discogenic Back Pain **James C. Iatridis, PhD**
- 11:00 – 11:20 Effects of Inflammation on Cell Biomechanics and in the Etiology of Disc Degeneration **Nadeen O. Chahine, PhD**

11:20 – 11:40 COFFEE BREAK

SECTION 3: Young Investigator Presentations 2012 Winners: Awarding Projects and New Progress *Chair: Mitchell B. Schaffler, PhD*

- 11:40 – 11:45 Covalent Cross-Linking Accelerates Collagen Enzyme Mechanokinetic Cleavage: Nanomechanics Predicts Microscale Behavior **Jonathan W. Bourne, PhD**
- 11:45 – 11:50 Macromer Concentration of Photocrosslinked Carboxymethylcellulose Hydrogels Influences Nucleus Pulposus-Like ECM Elaboration and TGF-Beta Family Gene Expression of hMSCs **Michelle S. Gupta, BS**
- 11:50 – 11:55 Ex Vivo Calcium Responses of Osteocytes and Osteoblasts in Intact Mouse Tibiae Under Cyclic Mechanical Loading
Da Jing, PhD and **Andrea E. Morrell, BS**
- 11:55 – 12:05pm Q & A

12:05 – 1:15 LUNCH/POSTER SESSION (Lubin Hall)

Section 4: Bone Remodeling and Mechanotransduction *Chair: Sheldon Weinbaum, PhD*

- 1:15 – 1:25 Osteocyte Integrity and Bone Remodeling
Mitchell B. Schaffler, PhD
- 1:25 – 1:35 Polarized Mechanotransduction in Bone Cells
Mia M. Thi, PhD, Sylvia O. Suadicani, PhD, David C. Spray, PhD
- 1:35 – 1:45 Bone Changes Due to Estrogen Deficiency: Potential Role in Mechanotransduction
Susannah P. Fritton, PhD
- 1:45 – 1:55 Mechanotransduction in Osteocyte Networks
X. Edward Guo, PhD
- 1:55 – 2:15 Bone Fluid Flow and Mechanotransduction
Yi-Xian Qin, PhD

2:15 – 2:35 COFFEE BREAK

SECTION 5: Musculoskeletal Tissue: Injury Response, Repair and Imaging *Chair: Evan L. Flatow, MD*

- 2:35 – 2:45 Tendon Response to Fatigue Damage
Evan L. Flatow, MD
- 2:45 – 2:55 Biomaterial Design for MSC Induction
Helen H. Lu, PhD
- 2:55 – 3:05 An Adult Model of Tendon Regeneration
Nelly Andarawis-Puri, PhD
- 3:05 – 3:15 Characterization of Cartilage Morphology and Composition by Micro Computed Tomography
Luis Cardoso, PhD
- 3:15 – 3:35 Use of GFP Reporters for Visualizing and Isolating the Cells of the Skeletal Lineage
David W. Rowe, MD

3:35 – 3:55 COFFEE BREAK

SECTION 6: Stem Cell Stimuli-Response and Musculoskeletal Regeneration *Chair: Jeremy J. Mao, DDS, PhD*

- 3:55 – 4:05 Musculoskeletal Tissue Engineering by Endogenous Stem/Progenitor Cells
Jeremy J. Mao, DDS, PhD
- 4:05 – 4:15 The Role of Heat Shock Protein 70 in Thermal Facilitation of the hMSC Differentiation Toward Bone Lineage
Sihong Wang, PhD
- 4:15 – 4:25 Cellulose-Based Materials to Direct Stem Cell Chondrogenesis
Steven B. Nicoll, PhD
- 4:25 – 4:35 Migration Potential of Mesenchymal Stem Cells and Their Response to Exogenous Factors
Andrea R. Tan, MSE and Clark T. Hung, PhD
- 4:35 – 4:45 Effect of Pulsed Electromagnetic Field on Osteoblasts and Osteoclasts
Nicola C. Partridge, PhD

4:45 – 5:30 WINE AND CHEESE / POSTER SESSION (Lubin Hall)

5:30 – 7:10 EVENING SESSION (Lubin Hall)

- 5:30 Dinner Reception
- 6:00 – 6:05 Recognition of First Annual Plenary Speaker: Sheldon Weinbaum, PhD
- 6:05 – 6:30 Plenary Speech: Steven R. Goldring, MD
Introduction by Mitchell B. Schaffler, PhD
Title: Mechanisms of De-regulated Bone Remodeling in Joint Diseases
- 6:30 – 7:00 Young Investigator Award Presentations
Co-chaired by Young Investigator Award Committee
- 7:00 – 7:10 Closing Remarks
Neil J Cobelli, MD, University Chairman, Department of Orthopaedic Surgery

FACULTY

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Site Map — **18** Price Center **9** Lubin Hall **P** Parking