

Arnold and Madaleine Penner

# First Annual Musculoskeletal Repair and Regeneration Symposium



**Thursday, October 4, 2012**

Scientific Director: Hui B. Sun, PhD

Presented by:

Musculoskeletal and Orthopaedic Research at  
Einstein-Montefiore and Orthopaedic Research Laboratories

Albert Einstein College of Medicine  
Price Center – LeFrak Auditorium

1301 Morris Park Avenue, Bronx, NY 10461

Arnold and Madaleine Penner

# First Annual Musculoskeletal Repair and Regeneration Symposium

Thursday, October 4, 2012



The **mission** of the Arnold and Madaleine Penner First Annual Musculoskeletal Repair and Regeneration Symposium is to promote and enhance collaboration for researchers in the New York City area and beyond.

The meeting will primarily focus on five research areas:

- The joint organ: Osteoarthritis biology and biomechanics
- Metabolism regulation in health and diseased bone and joint tissue
- Bone remodeling and mechanotransduction
- Tendon and interface tissue: injury response, repair and imaging
- Stem cell and skeletal tissue repair and regeneration

## Statement of Need

Damage to skeletal tissues is a significant cause of morbidity and increased mortality. It 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, and extensive bone defects. In addition, current treatments for injured skeletal tissue repair are insufficient 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.

## Goals

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

## Learning Objectives

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

## Intended Audience

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

## 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 **8.5 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## Special Needs

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

We invite faculties, graduate students and postdoctoral fellows to submit abstracts for the poster session. As an important component of this symposium, posters will be displayed throughout the day, with two dedicated poster sessions. Posters from graduate students and postdoctoral fellows will be considered for Young Investigator Awards. Winners will be selected by a committee co-chaired by Drs. David Hirsh, Robert Majeska, and Mia Thi, and will be presented a prize and a plaque. To be considered for the poster session, please submit a one page abstract by August 20, 2012, and email it to:

[mia.thi@einstein.yu.edu](mailto:mia.thi@einstein.yu.edu).

Notification of abstract acceptance will be sent by **September 15, 2012**.

## Hotel Accommodations

You must identify yourself as Albert Einstein Symposium group to receive the negotiated rates. A limited number of rooms will be held at a special discount rate at the following hotels:

### RENAISSANCE NEW YORK HOTEL

Two Times Square, 714 Seventh Avenue  
(West 48th Street), New York, NY 10036  
Negotiated Rate: Single/Double occupancy  
**\$385.00** per night (plus tax)  
To make your reservation call  
1-800-468-3571

**Cut-off date for this room block is  
September 7, 2012**

### THE ROOSEVELT HOTEL

45 East 45th Street, New York, NY  
Negotiated Rate: Single/Double occupancy  
**\$309.00** per night (plus tax)  
To reserve your lodging call 1-888-833-3969

**Cut-off date for this room block is  
September 3, 2012.**

# AGENDA

- 8:00 – 8:45<sup>am</sup> Registration and Continental Breakfast  
8:45 – 9:00 Opening/Welcoming Remarks, **Neil J. Cobelli, MD**

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

- 9:00 – 9:20 Osteoarthritis: A Disease of the Joint as an Organ, **Mary B. Goldring, PhD**  
9:20 – 9:40 Micro and Nano Mechanobiology in Osteoarthritis, **Peter A. Torzilli, PhD**  
9:40 – 10:00 Molecular Mechanisms Affecting Cartilage Destruction During Osteoarthritis, **Thorsten Kirsch, PhD**  
10:00 – 10:20 Maintaining Cartilage Integrity in Osteoarthritis by Mechanical Intervention, **Hui B. Sun, PhD**

— 10:20 – 10:40 COFFEE BREAK —

## SECTION 2: Metabolism Regulation in Healthy and Diseased Bone and Skeletal Tissues Moderator: Neil J. Cobelli, MD

- 10:40 – 11:00 Parathyroid Hormone Signaling in Bone, **Nicola C. Partridge, PhD**  
11:00 – 11:20 IGF-1 and Bone: New Discoveries from Mouse Models, **Shoshana Yakar, PhD**  
11:20 – 11:40 Mediators of the Inflammatory Response to Joint Replacement Devices  
**Laura Santambrogio, MD, PhD** and **Neil J. Cobelli, MD**  
11:40 – 12:00<sup>pm</sup> Utilizing Development to Formulate Structure and Symptom-Modifying Therapies for Discogenic Back Pain, **Devina Purmessur, PhD** and **James C. Iatridis, PhD**

— 12:00 – 1:00 LUNCH/POSTER SESSION (Lubin Hall) —

## SECTION 3: Bone Remodeling and Mechanotransduction Moderator: Sheldon Weinbaum, PhD

- 1:00 – 1:20 Osteocyte Integrity and Bone Remodeling, **Mitchell B. Schaffler, PhD**  
1:20 – 1:40 Sugar and Bone: Diabetic Glucose Levels Impair Bone Mechanosignaling, **Mia M. Thi, PhD**,  
**Sylvia O. Suadecani, PhD** and **David C. Spray, PhD**  
1:40 – 2:00 Alterations in the Osteocyte Microenvironment Due to Estrogen Deficiency: Potential Role in Mechanotransduction, **Susannah P. Fritton, PhD**  
2:00 – 2:20 Mechanotransduction in Osteocyte Networks, **X. Edward Guo, PhD**

— 2:20 – 2:40 COFFEE BREAK —

## SECTION 4: Tendon and Interface Tissue: Injury Response, Repair and Imaging Moderator: Evan Flatow, MD

- 2:40 – 3:00 Tendon Response to Fatigue Damage, **Evan Flatow, MD**  
3:00 – 3:20 Soft Tissue-to-Bone Integration and Interface Tissue Engineering, **Helen H. Lu, PhD**  
3:20 – 3:40 An Adult Model of Tendon Regeneration, **Nelly Andarawis-Puri, PhD**  
3:40 – 4:00 New Progress on Joint Soft Tissue Imaging, **Luis Cardoso, PhD**

— 4:00 – 4:20 COFFEE BREAK —

## SECTION 5: Stem Cell and Skeletal Tissue Repair and Regeneration Moderator: Jeremy J. Mao, DDS, PhD

- 4:20 – 4:40 Musculoskeletal Tissue Engineering by Endogenous Stem/Progenitor Cells, **Jeremy J. Mao, DDS, PhD**  
4:40 – 5:00 Synovium-Derived Stem Cells for Cartilage Tissue Engineering, **Sonal Sampat, MS** and  
**Clark Hung, PhD**  
5:00 – 5:20 Human Dermal Fibroblasts and Their Osteogenic Differentiation Potential, **Steven B. Nicoll, PhD**  
5:20 – 5:40 Heat Shock and MSC Differentiation, **Sihong Wang, PhD**

— 5:40 – 6:30 WINE AND CHEESE/POSTER SESSION (Lubin Hall) —

- 6:30 – 8:00 Dinner (Lubin Hall)  
Finding My Voice as a Scientist: A Personal Odyssey, **Sheldon Weinbaum, PhD**  
Outstanding Poster Awards  
8:00 Closing Remarks, **Edward R. Burns, MD, Neil J. Cobelli, MD**

## SCIENTIFIC DIRECTOR

### Hui (Herb) B. Sun, PhD

Associate Professor, Orthopaedic Surgery and  
Radiation Oncology  
Albert Einstein College of Medicine  
Director of Orthopaedic Research  
Montefiore Medical Center  
Bronx, NY

## GUEST FACULTY

### Nelly Andarawis-Puri, PhD

Assistant Professor, Department of Orthopaedics  
Mount Sinai School of Medicine  
New York, NY

### Edward R. Burns, MD

Executive Dean  
Albert Einstein College of Medicine of Yeshiva University  
Bronx, NY

### Luis Cardoso, PhD

Associate Professor of Biomedical Engineering  
City College of the City University of New York  
New York, NY

### Neil J. Cobelli, MD

Professor and University Chairman  
Department of Orthopaedic Surgery  
Albert Einstein College of Medicine and  
Montefiore Medical Center  
Bronx, NY

### Evan Flatow, MD

Professor and Chairman of Orthopaedic Surgery  
Mount Sinai School of Medicine  
Chair of Shoulder Surgery  
Mount Sinai Medical Center  
New York, NY

### Susannah P. Fritton, PhD

Associate Professor, Biomedical Engineering  
City College of the City University of New York  
New York, NY

### Mary B. Goldring, PhD

Professor of Cell & Development, Biology  
Joan & Sanford I. Weill Medical College of Cornell  
University  
Senior Scientist & Director, Laboratory of Cartilage Biology  
Hospital for Special Surgery  
New York, NY

### X. Edward Guo, PhD

Professor of Biomedical Engineering  
Columbia University College of Physicians and Surgeons  
New York, NY

### John A. Hardin, MD

Professor, Department of Medicine, Microbiology and  
Immunology, Orthopaedic Surgery  
Albert Einstein College of Medicine  
Bronx, NY  
Vice President, Arthritis Foundation  
Atlanta, GA

### David M. Hirsch, MD

Associate Professor  
Albert Einstein College of Medicine  
Director, Joint Replacement Service  
Department of Orthopaedic Surgery  
Montefiore Medical Center  
Bronx, NY

### Clark T. Hung, PhD

Professor of Biomedical Engineering  
Columbia University College of Physicians and Surgeons  
New York, NY

### James C. Iatridis, PhD

Professor Leni & Peter W. May, Department of Orthopaedics  
Mount Sinai School of Medicine  
New York, NY

### Thorsten Kirsch, PhD

Professor, Department of Orthopaedic Surgery and Cell Biology  
Vice Chair for Research  
New York University School of Medicine  
Director, Musculoskeletal Research Center  
Hospital for Joint Diseases  
NYU Langone Medical Center  
New York, NY

### Helen H. Lu, PhD

Associate Professor of Biomedical Engineering  
Associate Professor of of Dental and Craniofacial Bioengineering  
Columbia University College of Physicians and Surgeons  
The Fu Foundation School of Engineering and Applied Science  
New York, NY

### Robert J. Majeska, PhD

Adjunct Professor, Department of Biomedical Engineering  
Grove School of Engineering  
City College of the City University of New York  
New York, NY

### Jeremy J. Mao, DDS, PhD

Professor, Dental Medicine and Biomedical Engineering  
Edward V. Zegarelli Chair  
Senior Associate Dean for Research  
Co-Director, Center for Craniofacial Regeneration  
Columbia University College of Dental Medicine  
New York, NY

### Steven B. Nicoll, PhD

Associate Professor, Department of Biomedical Engineering  
City College of the City University of New York  
New York, NY

### Nicola C. Partridge, PhD

Professor & Chair, Department of Basic Science and  
Craniofacial Biology  
New York University College of Dentistry  
Founding Director, Center for Skeletal and Craniofacial Biology  
New York, NY

### Devina Purmessur, PhD

Instructor in the Iatridis Spine Research Laboratory  
Leni & Peter W. May Department of Orthopaedics  
Mount Sinai School of Medicine  
New York, NY

### Sonal Sampat, MS

Doctoral Student, Department of Biomedical Engineering  
Columbia University College of Physicians and Surgeons  
New York, NY

### Laura Santambrogio, MD, PhD

Associate Professor  
Department of Pathology and Microbiology and Immunology  
Albert Einstein College of Medicine  
Bronx, NY

### Mitchell B. Schaffler, PhD

CUNY Wallace H. Coulter Distinguished Professor of Biomedical  
Engineering  
Director, New York Center for Biomedical Engineering  
City College of the City University of New York  
New York, NY

## FACULTY (con't.)

### David C. Spray, PhD

Professor, Dominick P. Purpura Department of Neuroscience and Department of Medicine (Cardiology)

Albert Einstein College of Medicine  
Bronx, NY

### Sylvia O. Suadicani, PhD

Assistant Professor, Department of Urology and Dominick P. Purpura Department of Neuroscience

Albert Einstein College of Medicine  
Bronx, NY

### Mia M. Thi, PhD

Assistant Professor, Orthopaedic Surgery Instructor, Dominick P. Purpura Department of Neuroscience

Albert Einstein College of Medicine  
New York, NY

### Peter A. Torzilli, PhD

Senior Scientist and Professor, Department of Orthopaedics

Hospital for Special Surgery  
Weill Cornell Medical College

New York, NY

### Sihong Wang, PhD

Assistant Professor of Biomedical Engineering  
City College of the City University of New York

New York, NY

### Sheldon Weinbaum, PhD

CUNY Distinguished Professor of Biomedical and Mechanical Engineering, Emeritus

City College of the City University of New York  
New York, NY

### Shoshana Yakar, PhD

Associate Professor  
New York University College of Dentistry  
New York, NY

## 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 CME 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.

## Arnold and Madaleine Penner **First Annual Musculoskeletal Repair and Regeneration Symposium**

### REGISTRATION FORM Thursday, October 4, 2012

(Please print)

Name \_\_\_\_\_  
First MI Last

Degree \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Country \_\_\_\_\_

Daytime Phone ( \_\_\_\_ ) \_\_\_\_\_

Fax ( \_\_\_\_ ) \_\_\_\_\_

E-mail \_\_\_\_\_

Specialty \_\_\_\_\_

Please make check payable to: **MONTEFIORE MEDICAL CENTER** or charge my

VISA  MasterCard  AMEX

Card # \_\_\_\_\_

Exp. Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Signature \_\_\_\_\_

### Registration Fees

Before Sept. 1st **\$15.00**

After Sept. 1st **\$25.00**

### Dinner Reception

I will attend  I will not attend

### Cancellation Policy

Request for refunds **MUST** be received in writing by September 21, 2012.

**NO REFUNDS WILL BE PROCESSED AFTER THIS DATE.**


### Five Easy Ways to Register

 ON LINE: [www.mecme.org](http://www.mecme.org)

 EMAIL: [npiacent@montefiore.org](mailto:npiacent@montefiore.org)

 PHONE: 718-920-6674

 FAX: to 718-798-2336

 MAIL: Completed registration form with your payment to:  
Center for Continuing Medical Education  
3301 Bainbridge Avenue,  
Bronx, NY 10467

### For Further Information Contact:

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