7th Annual Musculoskeletal Repair and Regeneration Symposium

Thursday, October 11, 2018

LeFrak Auditorium (Room 151), Price Center
Albert Einstein College of Medicine
1301 Morris Park Ave. Bronx, NY 10461

SYMPOSIUM MISSION

The Albert Einstein College of Medicine Musculoskeletal Repair and Regeneration Symposium seeks to expand the knowledge base within the field, and to foster creativity, collaboration and networking between researchers throughout the region. This year’s meeting will emphasize recent advances in translational research in four areas:
- Modulating Stem Cell Phenotype for Musculoskeletal Regeneration
- Cartilage and Osteoarthritis
- Tendon development and regeneration
- Vascularization and Cell Sensing in the Regeneration of Bone and Beyond

GOALS AND FEATURES

This program attempts to address current issues in musculoskeletal repair and regeneration, and disease treatment. The presentations and discussions will focus on up-to-date scientific discoveries and the potential impact of these findings on patient treatment and management in the future. This meeting features:
- 16 outstanding speakers from the region and nationwide
- Poster session and Young Investigator Award session

REGISTRATION

Deadline: October 8, 2018

Please register online at:
http://einstein.yu.edu/departments/orthopaedic-surgery/symposium/registration/

Registration includes continental breakfast, lunch, and reception.
Registration is free. Early registration is highly recommended.
CALL FOR ABSTRACTS FOR POSTER SESSION AND YOUNG INVESTIGATOR AWARD

We invite investigators to submit abstracts for the poster session, which is an important component of this conference. Posters will be displayed throughout the day with a dedicated poster session.

Abstracts from graduate students and postdoctoral fellows will be considered for Young Investigator Awards. Three winners will be announced and each will be presented with prize and a plaque during the evening session. Winners will have the opportunity to give a brief highlight of their work (2 minutes) at the end of the award ceremony. To qualify, you must register and submit an abstract to Dr. Mia M. Thi, the chair of the Poster Session and Young Investigator Award committee, by September 17, 2018 via email to: mia.thi@einstein.yu.edu.

The abstract is limited to 1 page. Include in your abstract the study's objective, a brief statement of methods, a summary of the results obtained, conclusions, and significance. Please see abstract template on the website. As the Symposium aims to promote communication within our region, we encourage you to submit your recent work (within 2018) to this Symposium, including work that may have been submitted to other meetings.

PROGRAM DIRECTOR
Hui (Herb) B. Sun, PhD

STEERING COMMITTEE CHAIRS
• Steve Nicoll, PhD
• Di Chen, MD, PhD
• Stavros Thomopoulos, PhD
• Yi-Xian Qin, PhD

PROGRAM OVERSEEERS
• Di Chen, MD, PhD
• Michael Detamore, PhD
• Susannah Fritton, PhD
• Mary Goldring, PhD
• Steven Goldring, MD
• Ed Guo, PhD
• John Hardin, MD
• David Hirsh, MD
• James Iatridis, PhD
• Lionel Ivashkiv, MD
• Thorsten Kirsch, PhD
• Catherine Kuo, PhD
• Chuanju Liu, PhD
• Helen Lu, PhD
• Jeremy Mao, DDS, PhD
• Steven Nicoll, PhD
• Maurizio Pacifici, PhD
• Nicola Patridge, PhD
• Clinton Rubin, PhD
• Yi-Xian Qin, PhD
• Mitchell Schaffler, PhD
• David Spray, PhD
• Stavros Thomopoulos, PhD

POSTER SESSION AND YOUNG INVESTIGATOR AWARD COMMITTEE
• Chair: Mia M. Thi, PhD
• Co-chair: Regina Hanstein, PhD
• Co-chair: David Hirsh, MD
• Co-chair: Bang Hoang, PhD
• Co-chair: Svenja Illien-Junger, PhD
• Co-chair: Robert Majeska, PhD
• Co-chair: Jeremy Mao, DDS, PhD
• Co-chair: Maurizio Pacifici, PhD
• Co-chair: Sylvia Suadicani, PhD
AGENDA

7:15 – 8:00 am  Check-in and continental breakfast

8:00 – 8:10 am  Introduction and acknowledgements
Hui (Herb) B. Sun, PhD
Opening remarks
Neil J. Cobelli, MD

Session 1 – Modulating Stem Cell Phenotype for Musculoskeletal Regeneration
Steering Chair: Steve Nicoll, PhD

8:10 – 8:15 am  Introduction
Steve Nicoll, PhD
The City College of New York

8:15 – 8:35 am  Stem cell-based approaches in bone and cartilage repair
Treena Arinzeh, PhD
New Jersey Institute of Technology

8:35 – 8:55 am  Harnessing the power of induced pluripotent stem cells for bone repair therapies
Giuseppe Maria de Peppo, PhD
The New York Stem Cell Foundation Research Institute

8:55 – 9:15 am  Role of heat shock proteins in thermal regulation of human MSC osteogenesis and chondrogenesis
Sihong Wang, PhD
The City College of New York

9:15 – 9:35 am  Integrating 3D bioprinting and nanotechnology for improving stem cell differentiation and vascularized tissue regeneration
Lijie Grace Zhang, PhD
The George Washington University

9:35 – 9:40 am  Discussion / Conclusions

9:40 – 10:00 am  COFFEE BREAK

Session 2 – Cartilage and Osteoarthritis
Steering Chair: Di Chen, MD, PhD

10:00 – 10:05 am  Introduction
Di Chen, MD, PhD
Rush University
10:05 – 10:25 am  Engineering stem cell microenvironments for cartilage repair  
Jason Burdick, PhD  
University of Pennsylvania

10:25 – 10:45 am  Translational control maintains cartilage homeostasis and regulates osteoarthritis progression  
Victoria Kolupaeva, PhD  /New York University

10:45 – 11:05 am  Joint activity and the tribological rehydration of cartilage: moving towards a better understanding of joint biomechanics and health  
Christopher Price, PhD  
University of Delaware

11:05 – 11:25 am  MicroRNA regulation of osteoarthritis  
Di Chen, MD, PhD  
Rush University

11:25 – 11:30 am  Discussion / Conclusions

11:35 pm – 11:45am: Group photos (Courtyard in front of Lubin Hall)  
11:45 – 12:30 pm: Faculty meeting with lunch (Faculty Club in Lubin Hall)  
11:45 – 2:15 pm: LUNCH AND POSTER SESSION (Lubin Hall)

Session 3 – Tendon development and regeneration  
Steering Chair: Stavros Thomopoulos, PhD

2:20 – 2:25 pm  Introduction  
Stavros Thomopoulos, PhD  
Columbia University

2:25 – 2:45 pm  Differential transcriptional regulation in models of accelerated tendon repair  
Hani Awad, PhD  
University of Rochester

2:45 – 3:05 pm  Role of amniotic tissue derived products on rotator cuff injury & repair  
David Kovacevic, MD  
Columbia University

3:05 – 3:25 pm  Defining the tendon cell lineage using transgenic mouse models  
Nathaniel Dyment, PhD  
The University of Pennsylvania

3:25 – 3:45 pm  Tendon developmental plasticity and regeneration  
Jenna Galloway, PhD  
Harvard University
### Session 4 – Vascularization and Cell Sensing in the Regeneration of Bone and Beyond
 Steering Chair: Yi-Xian Qin, PhD

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<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Institution</th>
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<tr>
<td>4:10 – 4:15 pm</td>
<td><strong>Introduction</strong></td>
<td>Yi-Xian Qin, PhD</td>
<td>Stony Brook University</td>
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<td>4:15 – 4:35 pm</td>
<td><strong>Teriparatide adjuvant therapy for critical bone defects</strong></td>
<td>Edward Schwarz, PhD</td>
<td>University of Rochester</td>
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<td>4:35 – 4:55 pm</td>
<td><strong>Altered gene expression in bone marrow resident cells due to mechanical stimulation</strong></td>
<td>Glen Niebur, PhD</td>
<td>University of Notre Dame</td>
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<td>4:55 – 5:15 pm</td>
<td><strong>Ciliary PTH Signaling Maintains Intervertebral Disc Homeostasis during Aging</strong></td>
<td>Xu Cao, PhD</td>
<td>Johns Hopkins University</td>
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<td>5:15 – 5:20 pm</td>
<td><strong>Discussion / Conclusions</strong></td>
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### Young Investigator Awards / Reception (Lubin Hall)

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<th>Time</th>
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<tr>
<td>5:30 pm</td>
<td>Young Investigator Awards</td>
<td>Mia M. Thi, PhD</td>
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<td>5:40 pm</td>
<td>Closing remarks</td>
<td>Neil J. Cobelli, MD</td>
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<td>5:40 – 6:15 pm</td>
<td>Reception and networking</td>
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Arnold and Madaleine Penner
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Chairs, Co-Chairs, and Speakers

Treena Arinzeh, PhD
Professor of Biomedical Engineering
New Jersey Institute of Technology
Newark, NJ

Hani A. Awad, PhD
Professor of Biomedical Engineering, Center for Musculoskeletal Research, and Department of Orthopaedics
University of Rochester
Rochester, NY

Jason Burdick, PhD
Robert D. Bent Professor of Bioengineering
University of Pennsylvania
Philadelphia, PA

Xu Cao, PhD
Lee Riley Professor of the Department of Orthopaedic Surgery
Johns Hopkins University
Baltimore, MD

Di Chen, MD, PhD
The John W. and Helen Watzek Professor and Chairman of Biochemistry
Rush University
Chicago, IL

Neil J. Cobelli, MD
Professor and University Chairman of Orthopaedic Surgery
Albert Einstein College of Medicine and Montefiore Medical Center
Bronx, NY

Giuseppe Maria de Peppo, PhD
Principal Investigator
The New York Stem Cell Foundation Research Institute
New York, NY

Nathaniel Dyment, PhD
Assistant Professor of Orthopaedic Surgery
Perlman School of Medicine
University of Pennsylvania
Philadelphia, PA

Jenna Galloway, PhD
Assistant Professor of Biology at the Center for Regenerative Medicine and the Department of Orthopaedic Surgery
Massachusetts General Hospital
Harvard Medical School
Boston, MA

Regina Hanstein, PhD
Instructor, Department of Orthopaedic Surgery
Albert Einstein College of Medicine and Montefiore Medical Center
Bronx, NY

David M. Hirsh, MD
Professor of Orthopaedic Surgery and Director, Joint Replacement Service
Albert Einstein College of Medicine and Montefiore Medical Center
Bronx, NY

Bang H. Hoang, MD
Associate Professor of Orthopaedic Surgery
Albert Einstein College of Medicine and Montefiore Medical Center
Bronx, NY

Victoria Kolupaeva, PhD
Assistant Professor of Microbiology
New York University
New York, NY

David Kovacevic, MD
Associate Professor of Orthopaedics and Rehabilitation
Associate Fellowship Director, Shoulder & Elbow Surgery
Yale University School of Medicine
New Haven, CT

Robert J. Majeska, PhD
Professor of Biomedical Engineering
The City College of New York
New York, NY
Jeremy J. Mao, DDS, PhD  
Professor and Edwin S. Robinson Endowed Chair of Dental Medicine and Orthopaedics  
Co-Director, Center for Craniofacial Regeneration  
Columbia University College of Dental Medicine  
New York, NY

Steven B. Nicoll  
Associate Professor of Biomedical Engineering  
The City College of New York  
New York, NY

Glen L Niebur, PhD  
Professor of Aerospace and Mechanical Engineering  
University of Notre Dame  
Notre Dame, IN

Maurizio Paciﬁci, PhD  
Professor of Orthopaedic Surgery  
University of Pennsylvania School of Medicine  
Director of Orthopaedic Research  
Children’s Hospital of Philadelphia  
Philadelphia, PA

Christopher Price, PhD  
Assistant Professor of Biomedical Engineering  
University of Delaware  
Newark, DE

Yi-Xian Qin, PhD  
Professor of Biomedical Engineering, Orthopaedics and Biophysics  
State University of New York at Stony Brook  
Director, Orthopaedic Bioengineering Research Laboratory  
Associate Dean for Academic Affairs and Int’l Programs, College of Engineering and Applied Sciences  
Stony Brook, NY

Edward Schwarz, PhD  
Director, Center for Musculoskeletal Research  
Richard and Margaret Burton Distinguished Professor in Orthopaedics  
University of Rochester  
Rochester, NY

Sylvia O. Suadicani, PhD  
Associate Professor, Department of Urology  
Assistant Professor, Dominick P. Purpura Department of Neuroscience  
Albert Einstein College of Medicine and Montefiore Medical Center  
Bronx, NY

Hui (Herb) B. Sun, PhD  
Professor, Departments of Orthopaedic Surgery and Radiation Oncology  
Director of Orthopaedic Research  
Albert Einstein College of Medicine and Montefiore Medical Center  
Bronx, NY

Mia M. Thi, PhD  
Associate Professor, Department of Orthopaedic Surgery  
Instructor, Dominick P. Purpura Department of Neuroscience  
Albert Einstein College of Medicine  
Montefiore Medical Center  
Bronx, NY

Stavros Thomopoulos, PhD  
Director of Carroll Laboratories for Orthopedic Surgery  
Vice Chair of Basic Research in Orthopedic Surgery  
Robert E. Carroll and Jane Chace Carroll Professor of Biomechanics (in Orthopedic Surgery and Biomedical Engineering)  
Columbia University  
New York, NY

Sihong Wang, PhD  
Associate Professor of Biomedical Engineering  
The City College of New York,  
New York, NY

Lijie Grace Zhang, PhD  
Associate Professor of Mechanical and Aerospace Engineering  
Bioengineering Laboratory for Nanomedicine and Tissue Engineering  
The George Washington University  
Washington, DC
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Chair, Poster Session and Young Investigator Award Committee
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Rhomina Carrasco
Symposium Coordinator
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P: 718-430-2911

SYMPOSIUM LOCATION
Albert Einstein College of Medicine
Michael F. Price Center and Harold and Muriel Block Research Pavilion
1301 Morris Park Avenue, Bronx, NY 10461
Directions: http://www.einstein.yu.edu/visitors/

HOTEL INFORMATION
Residence Inn by Marriott
The Bronx at Metro Center Atrium
1776 Eastchester Road, Bronx, NY 10461
The hotel is a 10-minute walk from the Symposium.
www.marriott.com/nycbx
P: 718-239-3939

PARKING INFORMATION
The Kwik Park Parking Lot
1975 Eastchester Road
Bronx, NY 10461
http://www.einstein.yu.edu/visitors/

- 17 - Price Center
- 9 - Lubin Hall
- Red line - Path from Price Center to Lubin Hall