



Society for Physical Regulation
in Biology and Medicine

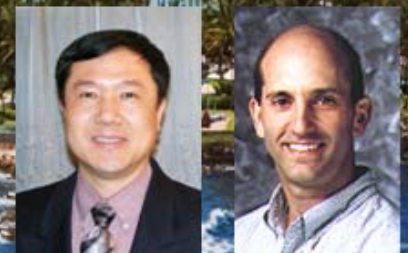
**2nd BMES-SPRBM Inaugural Conference on
Cellular and Molecular Bioengineering
(30th Scientific Conference of SPRBM)**

<http://www.sprbm.org>

Cell Motility, Matrix, Mechanobiology and Regeneration

January 3-7, 2012

Hilton Caribe Hotel and Resort
San Juan, Puerto Rico



Program Chairs: Yi-Xian Qin (SPRBM)
Dan Hammer (BMES)

<http://www.caribehilton.com/>

<http://www.emarketing360.com/Hilton/PR/CARH/>

**2nd BMES-SPRBM Conference on *Cellular and Molecular Bioengineering* (CMBE)
(30th SPRBM Scientific Conference)
Cell Motility, Matrix, Mechanobiology and Regeneration
JANUARY 3-7, 2012
Hilton Caribe Resort Hotel, San Juan, Puerto Rico**

The rise of engineering in the twentieth century led to profound change for humankind. Cellular and tissue engineering became possible to culture and engineer cells outside the body, and provides intrinsic insights for their role in regeneration. The elucidation of the cellular and molecular basis of life became one of the great achievements of the twentieth century, culminating in the complete sequencing of the human genome. So, today we stand in the midst of an amazing convergence, which has created a nexus for bioengineers. The 2nd inaugural joint Biomedical Engineering Society (BMES) and the Society for Physical Regulation in Biology and Medicine (SPRBM) Conference on **Cellular and Molecular Bioengineering** (CMBE) will be held at the beautiful Caribe San Juan beach in Puerto Rico, January 3-7, 2012.

Conference Co-Chair

Yi-Xian Qin, Ph.D. (SPRBM), Stony Brook University

Email: yi-xian.qin@sunysb.edu

Daniel Hammer, Ph.D. (BMES), University of Pennsylvania

Email: hammer@seas.upenn.edu

Program Committee

Yi-Xian Qin, Dan Hammer, X. Edward Guo, Michael Detamore, Yingxiao (Peter) Wang, and Christopher Jacobs.

Local Committee

Isabel Leong (Chair), Genevieve Brown, Minyi Hu, Fred Serra-Hsu, Eric Yu, Will Gu.

Topics

The 2011 BMES-SPRBM conference will aim to establish a long-term flagship conference on CMBE, and facilitate and shape the future of CMBE. Therefore, the strategy of this CMBE conference is to adopt a Gordon/Keystone conference style, with a single-track of podium sessions all by invited talks from the leaders in the CMBE fields. The exciting theme of the inaugural BMES-SPRBM Conference on CMBE is Molecular Imaging and Mechanotransduction.

Topics include:

- Molecular Probes
- Molecular Imaging
- Molecular Mechanics
- Cellular Mechanics
- Mechanotransduction
- Mechanical Regulation of Tissue Regeneration

Topics presented in previous conferences can be seen in the programs in the past conferences section. In general, topics traditionally presented at the conference include:

- Tissue engineering

- Stem cell biology and mechanobiology
- Biomaterials
- Tissue wound healing
- Cell mechanics
- Tissue biomechanics
- Cell mechanobiology
- Cell-matrix interactions
- Cellular and/or tissue regulation by physical stimuli (e.g., mechanical, electrical, magnetic, etc.)

Keynote Speakers



Lynda Bonewald, Ph.D., Curator Professor of University of Missouri Kansas City, pioneer in bone cell regulation and cell function Topic: Role of the Osteocyte Perilacunar Matrix in Mechanosensation

Topic: Role of the Osteocyte Perilacunar Matrix in Mechanosensation



Roger D. Kamm, Ph.D., Germeshausen Professor of Mechanical and Biological Engineering, MIT, Past Chair, US National Committee on Biomechanics, Chair, World Council on Biomechanics, Chair, International Academy of Medical and Biological Engineering, a world leader in molecular biomechanics, developed novel molecular modeling and experimental approaches

Topic: Molecular Modeling and Cell Mechanics



Farshid Guilak, Ph.D., Laszlo Ormandy Professor of Orthopaedic Surgery, Duke University, a leading bioengineer and scientist on soft tissue regeneration. Topic: Ion channel regulation in mechanical signal transduction - The molecular basis of mechanical signal transduction in cartilage

Topic: The molecular basis of mechanical signal transduction in cartilage



Daniel Hammer, Ennis Professor of Bioengineering and Professor of Chemical and Biomolecular Engineering, University of Pennsylvania, an internationally recognized leader in cell motility and matrix, force sensation and generation in cell. Topic: Dendritic cells distinguish individual chemokine signals through CCR7 and CXCR4

Topic: Cell Motility and Matrix and Mechanotransduction



Robert Guldberg, Ph.D., Professor and Director, Institute for Bioengineering and Biosciences, Georgia Institute of Technology, a leading scientist in musculoskeletal tissue engineering and regeneration, and mechanotransduction. Topic: Mechanobiology in vasculature formation and physical regulation

Topic: effects of in vivo mechanical loading on vascularization and tissue regeneration

Abstracts

Authors may submit a short abstract (**total of 150 words**) for consideration of poster presentation or for talks. Student/Fellow and Young Investigator Talks require an additional extended abstract for internal review. Note that the 150 word abstract is required for all submission types! These short abstracts will be published in a supplemental issue of BMES Cellular and Molecular Bioengineering journal.

To submit an abstract:

- Download the abstract submission form ([PDF](http://www.sprbm.org/assets/abstractform_2012.pdf): http://www.sprbm.org/assets/abstractform_2012.pdf) ([DOC](http://www.sprbm.org/assets/abstractform_2012.pdf): http://www.sprbm.org/assets/abstractform_2012.pdf)
- Download the abstract guidelines/instructions ([PDF](http://www.sprbm.org/assets/abstract_guidelines_2012.pdf): http://www.sprbm.org/assets/abstract_guidelines_2012.pdf)
- E-mail the completed Abstract Submission Form and Abstract in PDF or MS Word format to sprbm2012abstracts@gmail.com.

To be considered for Student/Fellow Short Talks, please submit an **ADDITIONAL** extended abstract:

- Download the extended abstract guidelines/instructions ([PDF](http://www.sprbm.org/assets/abstractext_guidelines_2012.pdf): http://www.sprbm.org/assets/abstractext_guidelines_2012.pdf)
- E-mail the completed Abstract Submission Form, Short Abstract and Extended Abstract in either PDF or MS Word format to sprbm2012abstracts@gmail.com.

To be considered for Young Investigator Talks, junior researchers (with rank no higher than Associate Professor or equivalent) are encouraged to submit an extended abstract and NIH style CV:

- Download the extended abstract guidelines/instructions ([PDF](http://www.sprbm.org/assets/abstractext_guidelines_2012.pdf): http://www.sprbm.org/assets/abstractext_guidelines_2012.pdf)
- E-mail the completed Abstract Submission Form, Short Abstract, Extended Abstract, and CV in either PDF or MS Word format to sprbm2012abstracts@gmail.com.

The Program Committee will review these applications and make selections.

All Abstract Submissions are due **November 4th, 2011 before 11:59pm.**

Hotel Booking Information

The greatly discounted room rate for the SPRBM attendees is \$120 + tax and rooms are available for booking through December 3rd, 2011. To reserve a room you can call Hilton Reservations directly at [\(800\)468-8585](tel:8004688585) and be sure to provide **Group Code SPRA12**. You may also make your reservations online through our Hilton Group Website:

http://www.hilton.com/en/hi/groups/personalized/S/SJNHIIHH-SPRA12-20111231/index.jhtml?WT.mc_id=POG

Tour Information: You may also take a tour of the hotel: www.caribehilton.com for Hotel Highlights.

Registration

To **register for the 2012 conference**, please go to conference website at <http://www.sprbm.org>.

Early Birds registration (December 19, 2011)

SPRBM member: \$600

non-member: \$700

student member: \$400

non-member student: \$500

Adding \$100 after early registration.

Note: BMES members are considered "Members" for this joint BMES-SPRBM conference!

Become a [SPRBM member](#) and save money! By becoming a member, you will qualify for a conference registration fee discount and a personal subscription to Cell and Molecular Bioengineering (excluding associate memberships).

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Program Plan

TUESDAY, JANUARY 3, 2012

7:00 PM SPRBM Council Meeting

WEDNESDAY, JANUARY 4, 2012

7:00 AM Continental Breakfast

7:45 AM **Welcome/Introduction**

8:00-10:00 AM SESSION I - MOLECULAR BASE OF EXTRACELLULAR MATRIX

8:00-8:40 Keynote Lynda Bonewald
8:40-9:00 Molly Shoichet
9:00-9:20 Catherine Kuo
9:20-9:40 Michael Detamore
9:40-10:00 Moledy Schawartz

10:00-10:20 AM Coffee Break

10:20-1:00 PM SESSION II – ION CHANNEL AND MECHANOTRANSDUCTION

10:20-11:00 Keynote Farshid Guilak
11:00-11:20 X. Edward Guo
11:20-11:40 Jean Jiang
11:40-12:00 *TBD*
12:00-12:20 Deborah Leckband

12:20-2:30 PM Afternoon Break

**2:30-4:15 PM Workshop 1 NIH/NSF
Dennis Carter, Ph.D., Director, NSF BMMB
Program**

**Jean Sipe, Ph.D., CSR, NIH Center for
Scientific Review
Farshid Guilak, Ph.D., Duke University
NSF BME Program Director, To be confirmed
NIH Program Director, To be confirmed
Panel Discussion**

4:15-4:30PM Coffee Break

4:30-5:30 PM Workshop 2 Industrial Sponsors

6:00 PM WELCOME RECEPTION

SPECIAL INVITED SPEAKER *Richard Waugh*

THURSDAY, JANUARY 5, 2012

7:15 AM Continental Breakfast

8:00-10:00 AM SESSION III – CELL MOTILITY AND MOLECULAR MECHANICS

8:00-8:40 Keynote Roger Kamm
8:40-9:00 Cheng Zhu
9:00-9:20 Daniel J. Muller
9:20-9:40 Yingxiao Wang
9:40-10:00 Jianping Jin

10:00-10:20 AM Coffee Break

10:20-1:00 PM SESSION IV – MOTILITY, CELLULAR AND MOLECULAR FORCE

10:20-11:00 Keynote Daniel Hammer
11:00-11:20 Shinji Deguchi
11:20-11:40 *TBD*
11:40-12:00 William Guilford
12:00-12:20 Cheng Dong

12:20-5:00 PM Afternoon Break

5:00-9:30 PM GALA DINNER

SPECIAL INVITED SPEAKER *Clinton Rubin*

FRIDAY, JANUARY 6, 2012

7:15 AM Continental Breakfast

8:00-10:00 AM SESSION V – CELL MATRIX AND MECHANOTRANSDUCTION

8:00-8:40 Keynote Donald Ingber
8:40-9:00 Chris Jacobs
9:00-9:20 Christopher Chen
9:20-9:40 Andres Garcia
9:40-10:00 Paul A. Janmey

10:00-10:20 AM Coffee Break

10:20-1:00 PM SESSION VI – STEM CELL MECHANICAL MODULATION AND TISSUE REGENERATION

10:20-11:00 Keynote Robert Guldberg
11:00-11:20 Yi-Xian Qin
11:20-11:40 Michael Sacks
11:40-12:00 Anshu Mathur
12:00-12:20 Peter Murray

12:20-2:30 PM Afternoon Break

2:30-4:00 PM SESSION VII – Short Talks from Students/Fellows Posters

2:30-2:40 Short Talk 1
2:40-2:50 Short Talk 2
2:50-3:00 Short Talk 3
3:00-3:10 Short Talk 4
3:10-3:20 Short Talk 5
3:20-3:30 Short Talk 6
3:30-3:40 Short Talk 7
3:40-3:50 Short Talk 8
3:50-4:00 Short Talk 9

**4:00-6:00 PM POSTER SESSION
(Wine/Cheese)**

7:00 PM BMES/CMBE Editorial Board Meeting

SATURDAY, JANUARY 7, 2012

7:15 AM Continental Breakfast

8:00-10:00 AM SESSION VII – Rising Stars

8:00-8:20 Rising Star Talk 1
8:20-8:40 Rising Star Talk 2
8:40-9:00 Rising Star Talk 3
9:00-9:20 Rising Star Talk 4
9:20-9:40 Rising Star Talk 5
9:40-10:00 Rising Star Talk 6

10:00 AM **Annual SPRBM Business Meeting and SPRBM/BMES Awards Ceremony**
