UC Davis Cardiovascular Symposium 2012
Systems Approach to Understanding
Cardiac Excitation–Contraction Coupling & Arrhythmias
Ca²⁺ Current and SR Ca²⁺ Release

UC Davis Conference Center
550 Alumni Lane – UC Davis Campus
Organizers: Don Bers, Ye Chen-Izu, Nip Chiamvimonvat, Leighton Izu

**March 1 Sessions**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
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<tbody>
<tr>
<td>8:00 – 9:50 AM</td>
<td>Ca²⁺ channel structure-function</td>
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<tr>
<td>10:00-11:50 AM</td>
<td>Ca²⁺ channel modulation</td>
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<tr>
<td>1:00 – 2:50 PM</td>
<td>Ryanodine receptor structure-function</td>
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<td>3:00 – 4:50 PM</td>
<td>Ryanodine receptor modulation</td>
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**March 2 Sessions**

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<th>Time</th>
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<td>8:00 - 9:50 AM</td>
<td>Ca²⁺ homeostasis</td>
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<tr>
<td>10:00 -11:50 AM</td>
<td>Cardiac ECC: from excitation to Ca²⁺ signaling</td>
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<tr>
<td>1:00 -2:50 PM</td>
<td>Cardiac ECC: from Ca²⁺ signaling to excitation</td>
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<tr>
<td>3:00 – 4:50 PM</td>
<td>Ca²⁺ induced cardiac arrhythmias</td>
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**Speakers & Discussion Leaders**

- Donald Bers
- Peter Backx
- Penny Boyden
- Wayne Chen
- Nip Chiamvimonvat
- Henry Colecraft
- Igor Efimov
- Eleonora Grandi
- Sandor Gyorke
- Johannes Hell
- Leighton Izu
- Henk Ter Keurs
- Bjorn Knollmann
- Jon Lederer
- Isaac Pessah
- Brian O’Rourke
- Thomas Shannon
- Karin Sipido
- Nic Smith
- Eric Sobie
- Mike Stern
- Natalia Trayanova
- Xander Wehrens
- David Yue

**Discussion Panelists**

- Wen Chen
- Ye Chen-Izu
- David Christini
- Colleen Clancy
- Laszlo Csernoch
- Marcel Egger
- Ariel Escobar
- Chris George
- Stefan Herzig
- Saleet Jaffri
- Alain Karma
- Tony Lai
- Ken Laurita
- Javier Lopez
- Aman Mahajan
- A. McCulloch
- Ricardo Olcese
- Isaac Pessah
- Jose Puglisi
- Zhilin Qu
- Crystal Ripplinger
- Jon Satin
- Daisuke Sato
- Saul Schaffer
- Todd Scheuer
- Scott Simon
- Greg Smith
- Dimitry Terentyev
- Hector Valdivia
- Andras Varro
- Rui-Ping Xiao
- Lai-Hua Xie
- Ivan Zahradnik
- A. Zahradnikova
- Antonio Zaza
- Alex Zima
UC Davis Cardiovascular Symposium 2012, March 1-2

Systems Approach to Understanding Cardiac Excitation-Contraction Coupling and Arrhythmias
—Ca²⁺ current and SR Ca²⁺ release

Organizing Committee
Donald M Bers, Ph.D. (Chair)
Ye Chen-Izu, Ph.D. (Contact)
Nipavan Chiamvimonvat, M.D.
Leighton T Izu, Ph.D.

Advisory Board
Fred Meyers, M.D.
Reginald Low, M.D.
Scott Simon, Ph.D.
Saul Schaffer, M.D.

Program

March 1 (Thursday)

7:30 AM Coffee and light pastry at Conference Center

7:50-8:00 AM Opening Remarks – Don Bers

8:00 – 9:50 AM Session-I: Ca²⁺ channel Structure-Function ‘Interactome’
8:00 – 8:40 Experimental studies - Henry Colecraft
8:40 – 9:20 Modeling studies – Eleonora Grandi
9:20 – 9:50 Panel discussion: Critical issues & Controversies – Nipavan Chiamvimonvat
Panelists: Colleen Clancy, Ricardo Olcese, Saleet Jaffri, A Mahajan, Ivan Zahradnik

10:00 – 11:50 AM Session-II: Ca²⁺ channel modulation
10:00 – 10:40 Experimental and modeling studies – David T Yue
10:40 – 11:20 Experimental studies – Johannes Hell
11:20 – 11:50 Panel discussion: Critical issues & Controversies – Peter Backx
Panelists: Stefan Herzig, W-X Chen, Antonio Zaza, Todd Scheuer, Scott Simon, Jon Satin

12:00 – 1:00 PM Lunch for registered meeting attendees

1:00 – 2:50 PM Session-III: Ryanodine receptor Structure-Function ‘Interactome’
1:00 – 1:40 Experimental studies – Wayne Chen
1:40 – 2:20 Modeling studies – Eric Sobie
2:20 – 2:50 Panel discussion: Critical issues & Controversies - Isaac Pessah
Panelists: Alex Zima, Laszlo Csernoch, Chris George, Alain Karma, Marcel Egger
3:00 – 4:50 PM  
**Session-IV: Ryanodine receptor modulation**

3:00 – 3:40  
Experimental studies - **Xander Wehrens**

3:40 – 4:20  
Modeling studies – **Mike Stern**

4:20 – 4:50  
Panel discussion: Critical issues & Controversies - **Sandor Gyorke**

Panelists: **Tony Lai, Dimitry Terentyev, R-P Xiao, Alexandra Zahradnikova**

5:30 – 9:30 PM  
**Wine tasting for invited speakers & discussion panelists**

**March 2 (Friday)**

7:30 AM  
**Coffee and light pastry at Conference Center**

8:00 – 9:50 AM  
**Session-V: Ca^{2+} homeostasis – remember the balance**

8:00 – 8:40  
Preamble, experimental studies – **Donald M Bers**

8:40 – 9:20  
Modeling studies – **Nic Smith**

9:20 – 9:50  
Panel discussion: Critical issues & Controversies - **Karin R Sipido**

Panelists: **Hector Valdivia, Greg Smith, Ken Laurita, Jose Puglisi, Javier Lopez, Saul Schaffer**

10:00 – 11:50 AM  
**Session-VI: Cardiac E-C Coupling from electrical excitation to Ca^{2+} signaling**

10:00 – 10:40  
Experimental studies – **W Jon Lederer**

10:40 – 11:20  
Modeling studies – **Thomas Shannon**

11:20 – 11:50  
Panel discussion: Critical issues & Controversies - **Bjorn Knollmann**

Panelists: **Jeff Saucerman, Aldrin Gomes, Ed Moore, Ye Chen-Izu**

12:00 – 1:00 PM  
**Lunch for registered meeting attendees**

1:00–2:50 PM  
**Session-VII: Cardiac E-C Coupling feedback from Ca^{2+} to electrical excitation**

1:00 – 1:40  
Experimental studies - **Henk Ter Keurs**

1:40 – 2:20  
Modeling studies – **Leighton Izu**

2:20 – 2:50  
Panel discussion: Critical issues & Controversies - **Brian O’Rourke**

Panelists: **David Christini, Zhilin Qu, Lai-Hua Xie, Daisuke Sato**

3:00  – 4:50 PM  
**Session-VIII: Ca^{2+}-induced arrhythmias: from cellular level to the whole heart**

3:00 – 3:40  
Experimental studies - **Igor R. Efimov**

3:40 – 4:20  
Modeling studies – **Natalia Trayanova**

4:20 – 4:50  
Panel discussion: Critical issues & Controversies - **Penny Boyden**

Panelists: **Andrew McCulloch, Andras Varro, Crystal Ripplinger, Ariel Escobar**

6:00 – 9:00 PM  
**Dinner for invited speakers & discussion panelists**
Conference Goals
The main goal is to combine perspectives of experimental and mathematical modeling approaches in studying complex heart disease mechanisms. The expert modelers and experimentalists attending are encouraged to exchange information, identify points of consensus and controversy, foster interdisciplinary collaborations, and share information via white-paper publication. We will use the joint experimentalist-modeler format (which was very successful in our previous symposium) to gain in-depth quantitative understanding of the focus area of this symposium: Cardiac Ca$^{2+}$ current and SR Ca$^{2+}$ release.

Format of Sessions
The symposium will have 8 sessions. Each session contains a 30 min experimental presentation (+10 min Q/A), a 30 min modeling presentation (+10 min Q/A), and a 30 min panel discussion on critical issues from both.

**Speakers:** Please summarize points of both consensus and controversy on your topic, being provocative is OK to stimulate discussion. Try not to use a routine seminar on your own research.

**Discussion leaders and panelists:** The panelists are expected to identify critical issues, controversies, and important questions that warrant further investigation. We ask the Discussion Leaders to set the stage and actively stimulate discussions on the topic. This is a major part of the Conference.

White paper
We plan to summarize Conference outcomes in a white paper that we plan to submit to *Circulation*. One or two participants from each of the eight sessions will be asked to help draft parts of the white paper.

Feedback
We ask you to give us feedback on the meeting contents and format. Your post-meeting comments will be critical for helping us to apply for conference grants and plan potential future symposia.