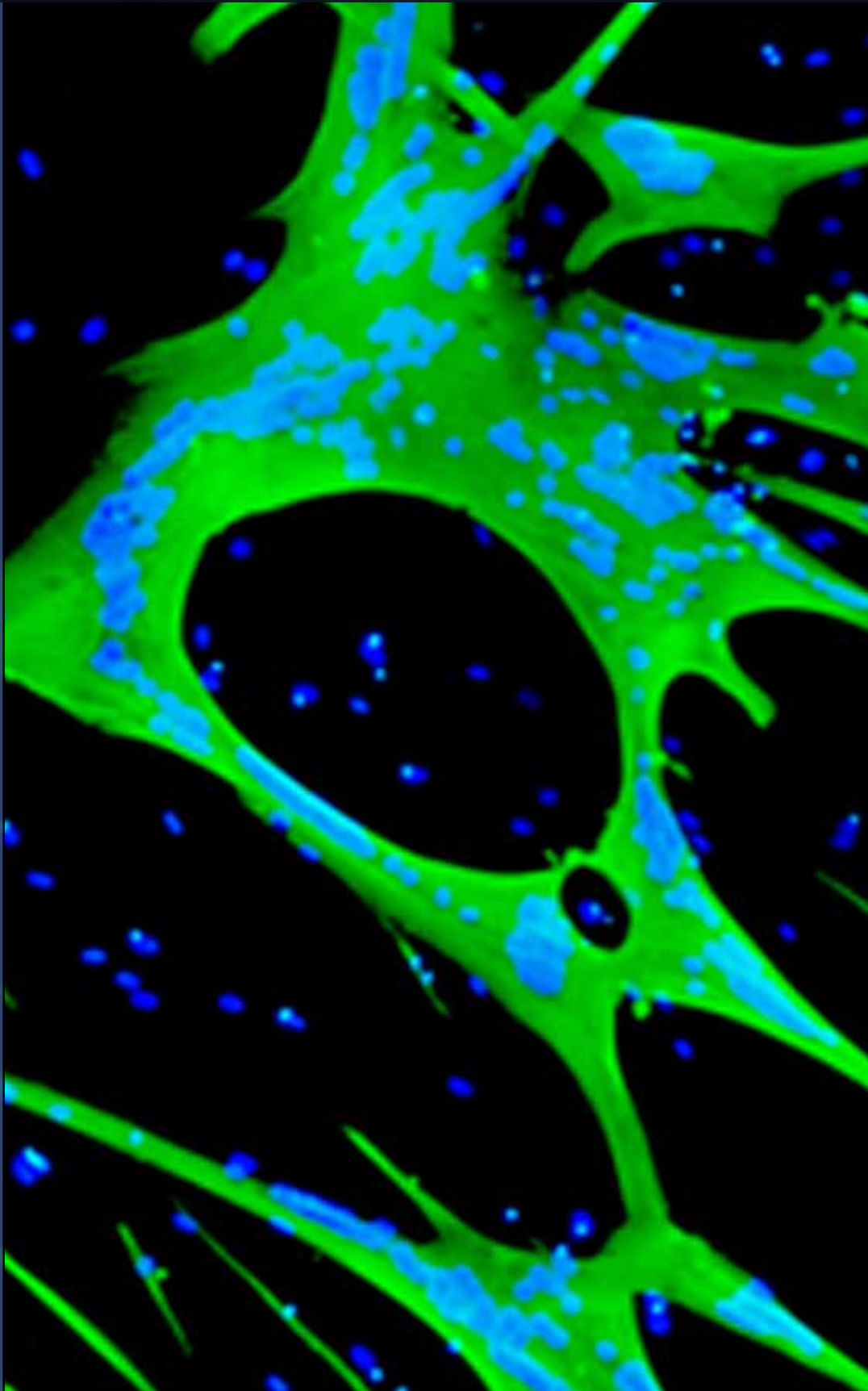




# The Histochemical Society NEWSLETTER

Early Spring 2012

Vol.25 No.1



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Human muscle cells in culture  
Courtesy of Harridge et al.  
JHC 2012, in press

# A Letter to HCS Members....

Dear Members of the Histochemical Society,

The Marine Biological Laboratory (MBL) provides a unique venue for the annual meeting of The Histochemical Society (HCS). It is one of the most storied and recognized sites in all biology. It is the site of pioneering work on the fine structure of cells and the discovery of green fluorescent protein which led to the development of revolutionary techniques for imaging live cells. It is also the home to MBL summer courses and a point of affiliation for more than 50 Nobel Laureates.

Throughout the history of HCS our members have excelled in advancing new techniques that contribute to major advances in the biological sciences; thus it is appropriate that we meet at the MBL to discuss advancements in techniques that will shape future advances in biology. The MBL is a great location for collegial exchange of ideas, and its teaching laboratories provide the opportunity to present a short course consisting of lectures and hands-on experience for participants.

This year we offer a unique and truly multidimensional program for the annual meeting. On day one we move from Qstorm, switchable quantum dots and adaptive optics for super resolution imaging to ImageQuest, a strategy for citizen advancement of biology through calibrated imaging and validated analysis. On day two, we will experience an array of topics that delve into Transforming Shape into Knowledge, from embryonic heart to bat biosonar systems. And to complete this extravaganza, our Past-President Symposium will focus on Correlative Microscopy. Evenings will come alive with the **JHC** Plenary Lecture, the Chroma Technology Lecture, and special Technology Insights and Reviews.

The HCS Annual Short Course of lectures and laboratory practice in Immunohistochemistry and Microscopy will precede the annual meeting and will introduce a group of budding scientists to a technique that continues to contribute to our understanding of cellular function.

We are deeply grateful to our many sponsors for contributing to the scientific presentations and for general financial support of the annual meeting and short course. Please join us in thanking them!

**Nancy M. Sawtell**, President

**Eduardo Rosa-Molinar**, Immediate Past-President

## IMPORTANT LINKS

**The Histochemical Society**  
[www.histochemicalsociety.org](http://www.histochemicalsociety.org)

**Immunohistochemistry & Microscopy Course**  
Dates: March 18-20, 2012  
<http://immunohistochem.com/>

**Annual Meeting**  
[www.histochemistry2012.org](http://www.histochemistry2012.org)

## HCS Annual Meeting Technology Insights and Reviews

An important benefit of attendance at the annual meeting is the opportunity to participate in the cutting edge Technology Insights and Reviews Sessions. During these sessions attendees will be able to interact with industry specialists and may have an opportunity for hands-on participation. Listed below are the highlights of these sessions.

### March 20, 2012. Tuesday evening Technology Insights and Reviews in the Loeb Laboratory Building:

**Michael Campisano**, **Chris Coniglio**, and **Stephen Hurt** from PerkinElmer Inc. will demonstrate Tyramide Signal Amplification that amplifies both chromogenic and fluorescent signals in standard immunohistochemistry protocols. **Jim Hostetter** from PerkinElmer Inc. will view the results using a PerkinElmer spinning disk confocal microscope that offers several advantages over conventional optical microscopy, including wide-field and laser scanning confocal microscopy in order to assess the significant increase in sensitivity, without loss of resolution or increase in background. Jim Hostetter will also demonstrate some of the features that make spinning disk confocal microscopy particularly well suited to high speed 3-D imaging of living systems.

**Matthew Gastinger** from Bitplane will demonstrate Imaris, a core scientific software package that delivers all the necessary functionality for data visualization, analysis, segmentation and interpretation of 3-D and 4-D taken using spinning disk confocal microscopy, conventional wide-field microscopy (i.e. bright-field and fluorescence), and laser scanning confocal microscopy datasets. Many of the images used in the demonstration will be collected during the short course on immunohistochemistry and microscopy. **Jose L. Serrano-Velez**, from the University of Puerto Rico-Rio Piedras will also be on hand to assist in visualizing the course data using Imaris software.

### March 23, 2012. Friday evening Technology Insights and Reviews in the Loeb Laboratory Building:

**Lars Pedersen** from Visiopharm will demonstrate the Visiopharm image analysis (i.e. VisiomorphDP and TissueMorphDP) software as well as their software for stereological quantification (i.e. newCAST). During the demonstration Lars will also discuss Visiopharm's new initiatives, specifically, cloud based image analysis, cloud based stereology, and the new APPCenter. Together with Lars from Visiopharm, **Dan Lucking** from Olympus will be demonstrating the use and operation of the Olympus VS110 system.

**Mark Sanders** from the University of Minnesota will demonstrate new techniques in microwave specimen processing for microscopy. Mark will review principles of microwave fixation of biological tissues, in vivo labeling, and immunohistochemistry using wide-field fluorescence and confocal microscope systems to visualize the results. Together with **Peter Santi** from the University of Minnesota, they will present the use of the microwave system for labeling cochleas as a way to investigate the extracellular matrix using thin-sheet laser imaging microscopy.

## 2012 Meeting Program Now Online

To view the 2012 Meeting Program and Abstracts  
go to:

<http://histochemistry2012.org/pdfDocs/HCS2012ProgramBookFinal217.pdf>

# The Histochemical Society

## 2012 Annual Meeting

### Program

Updated Mar. 4, 2012

**Tuesday, March 20, 2012**

**2-6 PM** Registration, arrival of participants

**6-7 PM** Dinner at Swope Dining Room, MBL

**7:30-9 PM** Dessert and Coffee, Industry Demonstrations, Loeb Lab Building

**Wednesday, March 21st**

**7-8 AM** Breakfast at Swope Dining Room

**8:00-8:15 AM** *Opening Remarks and HCS Welcome*

Eduardo Rosa-Molinar, Univ. of Puerto Rico, Rio Piedras

#### Session I

***QSTORM: Switchable Quantum Dots and Adaptive Optics for Super-Resolution Imaging***

Chair: Douglas Taatjes, Univ. of Vermont, Burlington

**8:15-9:00 AM** Plenary Presentation: Le A. Trinh, Caltech, Pasadena, CA

***Probing the Heterogeneity of Protein Kinetics During Vertebrate Organogenesis***

**9:00-9:20 AM** P. Kner, University of Georgia, Athens, GA

***Super-resolution Microscopy in Thick Samples***

**9:20-9:40 AM** Gang Ruan, The Ohio State University, Columbus, OH

***Light-Controlled Quantum Dots for Super-Resolution Imaging***

**9:40-10:00 AM** Refreshment break

**10:00-10:20 AM** E. Brainerd, Brown University, Providence, RI

***Confocal and Super-Resolution Microscopy of Myofilaments in Zebrafish Muscle***

**10:20-10:40 AM** G. Yang, Carnegie Mellon University, Pittsburgh, PA

***Computational Characterization and Analysis of Spatial Temporal Mitochondrial Dynamics in Drosophila Segmental Nerves***

**10:40-11:00 AM** C. L. Alpert, Museum of Science, Boston, MA

***Shedding Light on Collaborative Research: An Experimental Partnership for Enhancing Interdisciplinary Communication and Education in Biological Imaging***

**11:00-11:30 AM** Discussion of morning session

**11:30 AM-12:30 PM** Lunch at Swope Dining Room

#### Session II

***ImageQuest: Citizens Advancing Biology with Calibrated Imaging and Validated Analysis***

Chairs: Nancy Sawtell, Cincinnati Children's Hospital

Heinz-Ullrich Weier, Lawrence Berkely National Lab

**12:45-1:30 PM** Plenary Presentation Robert Marc, University of Utah, Salt Lake City, UT

***Retinal Remodeling***

**1:30-1:50 PM** R. Pless, Washington University, St. Louis, MO

***Human-in-the-Loop Annotation of Tracks and Boundaries.***

The Histochemical Society  
2012 Annual Meeting *cont.*

Session II continued:

- 1:50-2:10 PM J. O'Neil-Dunne, University of Vermont, Burlington, VT  
*An Object-Based Data Fusion Approach to Urban Forest Mapping*
- 2:10-2:30 PM R. West, University of California San Diego, La Jolla, CA  
*Seeing the Forest Through the Trees: Augmenting Urban Forest Monitors Through Socially Mediated Citizen Science*
- 2:30-2:45 PM Refreshment Break
- 2:45-3:10 PM S. Kobourov, University of Arizona, Tuscon, AZ  
*From Multiple Inaccurate Trajectories to One Accurate Trajectory*
- 3:10-3:30 PM C. Grimm, Washington University, St. Louis, MO  
*A Segmentation Tool for use by Ordinary People*
- 3:30-3:45 PM Discussion of Afternoon Session
- 4:00– 5:30 PM **Poster session I**
- 6:00-7:00 PM Dinner at Swope Dining Room
- 7:30 PM *Journal of Histochemistry & Cytochemistry* Plenary Lecture  
Chair: John Couchman, Univ. of Copenhagen; Editor-in-Chief JHC
- 7:40 PM Richard Hynes, Koch Institute, MIT, Cambridge, MA  
*What is Actually in the Extracellular Matrices that You Stain?*  
Mixer: Swope Center, Meig's Room immediately following

Thursday March 22nd

7-8 AM Breakfast at Swope Dining Room

Session III

*Biological Shape Spaces I: Transforming Shape into Knowledge*

Chair: Douglas Rosene, Boston Univ.

- 9:00-9:45 AM Plenary Presentation: Michael Liebling, University of California, Santa Barbara, CA  
*Biological Shape Spaces 1: Transforming Shape into Knowledge*
- 9:45-10:05 AM W. Mio, Florida State University, Tallahassee, FL  
*On Variation of Biological Shape*
- 10:05-10:25 AM C-R Shyu, University of Missouri, Columbia, MO  
*Visualization and Data Management of Bioshapes Research Activities*
- 10:25-10:45 AM C. Fowlkes, University of California Irvine, Irvine, CA  
*Automatically Discovering Relations between Form and Function*
- 10:45 –11:00 AM Refreshment Break
- 11:00-11:20 AM G. Yang, Carnegie Mellon University, Pittsburgh, PA  
*Nanometer Resolution Characterization of Axonal Cargo Transport in Drosophila Segmental Nerves*
- 11:20-11:40 AM S.W. Punyasena, University of Illinois Urbana-Champaign, Urbana, IL  
*Improving the Taxonomic Resolution, Speed, and Accuracy of Fossil Pollen and Spore Classifications*
- 11:40 AM-12:00 PM Discussion of Morning Session
- 12:00-1:00 PM Lunch at Swope Dining Room



The Histochemical Society  
2012 Annual Meeting *cont.*

Session II continued:

1:00 PM Plenary Lecture: Chroma Technology Lecture

Chair: Eduardo Rosa-Molinar, Univ. of Puerto Rico, Rio Piedras

1:05 PM Bernd Fritzch, Univ. of Iowa, Iowa City

*Combining Tract Tracing, in situ, and Immunohistochemistry with High Resolution Histology to Improve the Yield from Complex Mutant Mice.*

Session IV

*Biological Shape Spaces II: Transforming Shape into Knowledge*

Chair: Stephen Hewitt, National Cancer Institute, Bethesda

2:00-2:45 PM Plenary Presentation: Patrick Carter, Washington State University, Pullman, WA  
*Evolution of Biological Shape: A Function-Valued Approach*

2:45 -3:00 PM Refreshment Break

3:00-3:20 PM R. Mueller, VA Polytechnic Institute and State University, Blacksburg, VA  
*The Role of Shape in the Biosonar System of Bats*

3:20-3:40 PM C. Grimm, Washington University, St. Louis, MO.

*Using Local Shape Descriptors and Strain to Compare Shape*

3:40-4:00 PM S. Rugonyi, Oregon Health and Science University, Portland, OR

*Characterization of Cardiac Motion During Early Heart Development.*

4:00-4:20PM Discussion of Afternoon Session

5:30-6:30 PM Dinner at Swope Dining Room

7:00-9:00 PM Poster Session II and Mixer, Swope Center and Meig's Room

Friday, March 23rd

7-8 AM Breakfast at Swope Dining Room

Session V

*Lillie Award Nominees and Their Presentation*

Co-Chairs: Mark Sanders, Univ. of Minnesota

Jose Serrano-Velez, Univ. of Puerto Rico-Rio Piedras

8:15-9:00 AM Plenary Lecture: Anthony L. DePass, Long Island University, Brooklyn, NY  
*Pursuing Research Excellence through Diversity*

9:00-9:20 AM To be announced

9:20-9:40 AM To be announced

9:40-10:00 AM To be announced

10:00-10:20 AM Refreshment Break

10:00-10:20 AM To be announced

10:20-10:40 AM Discussion of Morning Session

11:30 AM-12:30 PM Lunch at Swope Dining Room

Session VI

*Past-President's Symposium*

Co-Chairs: John Shacka, Univ. of Alabama at Birmingham

Ron Van Noorden, Univ. of Amsterdam

The Histochemical Society  
2012 Annual Meeting *cont.*

Session VI continued:

12:45-1:30 PM Plenary Presentation: George Patterson, NIBIB

*Photoactivatable Fluorescent Proteins in Cell Biology: from Protein, Organelle, and Cell Tracking to Super-resolution Imaging*

1:30-1:50 PM John M. Robinson, Ohio State University, Columbus OH

*Correlative Fluorescence and Electron Microscopy in Tissue*

Session VI cont.

1:50-2:10 PM Moise Bendayan, University of Montreal, Quebec, Canada

*Low Voltage Transmission Electron Microscopy: A Powerful Novel Approach for the Study of Cell Structures*

2:10-2:30 PM Eduardo-Rosa Molinar, University of Puerto Rico-Rio Piedras, San Juan, PR

*New Correlative Tools for Untangling the "Impenetrable and Indefinable Jungle" of Neural Circuits*

3:00-5:00 PM HCS Awards and Business Meeting

6:00-7:00 PM Dinner

7:00 – 9:00 PM Technical Insights

Saturday, March 24t

Departure in AM

## JHC Provides Free Color



*The Journal of Histochemistry & Cytochemistry (JHC)* accepts primary research articles, timely reviews, editorials and perspectives across a broad spectrum of cell biology. Manuscripts emphasizing structure/function relationships in cells and tissues, using state-of-the-art imaging techniques are strongly encouraged.

*JHC* places a premium on image quality and is a venue for authors who desire the highest quality reproduction of their histochemical and cytochemical analyses. *JHC* welcomes ar-

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## 2012 Immunohistochemistry and Microscopy Short Course Schedule

### Saturday, March 17

Noon - 6:00 PM Arrival at MBL  
6:00-7:00 PM Dinner with Faculty at Swope Center  
7:15 PM Introduction and Orientation: William Stahl  
8:00 PM Demonstration (TBA)

### Sunday, March 18

7:00-8:00 AM Breakfast at Swope Center  
8:00 AM **Boot Camp**  
Loeb Lab Building  
1. Microscopy: Brightfield  
2. Microscopy: Fluorescence  
(Experts from the following companies take the lead: Applied Precision, a GE Company, BitPlane, Leica, Olympus, PerkinElmer, and Zeiss)  
9:30 AM Refreshment Break  
9:45 AM Hands on Brightfield, fluorescence, confocal and relevant histological techniques  
Noon-1:00 PM Lunch at Swope Center  
1:00-2:00 PM Lecture: **Introduction to Immunohistochemistry**  
Charles Frevert  
2:00-2:15 PM Lecture: **Workflow**  
Eduardo Rosa-Molinar  
2:15-2:45 PM **Breakout Session:**  
Groups A&B: Chromagen  
Groups C&D: Fluorescence  
2:45 PM Refreshment Break  
3:00 PM Groups A&B begin Chromagen protocol  
Groups C&D begin Fluorescence protocol  
5:30 PM Dinner at Swope Center  
6:30-7:30 PM Lecture: **Controls**  
Denis Baskin  
7:30-8:00 PM **Breakout Sessions**  
Groups A&B: Antigen Retrieval & Controls  
Groups C&D: Fluorescence Acquisition  
8:00 PM Groups A&B: Supervised Open Lab  
Groups C&D: Microscopy for Acquisition

### Monday, March 19

7:00-8:00 AM Breakfast at Swope Center  
8:00-8:15 AM Lecture: **Safety Procedures**  
Jim Marcello, MBL  
8:15 AM **Breakout Sessions**  
Groups A&B: Microscopy for Acquisition  
Groups C&D: Chromagen  
8:45 AM Groups A&B: Microscopy for Acquisition  
Groups C&D: Begin Chromagen Protocol



## 2012 Immunohistochemistry and Microscopy Short Course Schedule *cont.*

### Monday, March 19 *cont.*

- 10:15 AM Refreshment Break  
10:30 AM **Groups A&B: continue Acquisition**  
**Groups C&D: Antigen Retrieval and Controls**  
Noon-1:00PM Lunch at Swope Center  
1:00 PM **Breakout Sessions *cont.***  
**Groups A&B: Fluorescence**  
**Groups C&D: Chromagen *cont.***  
2:00 PM **Groups A&B: begin Fluorescence Module**  
**Groups C&D: Chromagen *cont.***  
2:45 PM Refreshment Break  
3:00 PM **Groups A&B: continue Protocol**  
**Groups C&D: Microscopy and Acquisition**  
5:00 PM Dinner at Swope Center  
6:00-8:00 PM **Concurrent Demonstrations**  
**Groups A&B: Microwave IHC - Mark Sanders**  
**Groups C&D: Automated IHC and Antigen Retrieval**  
8:00-10:00 PM **Groups A&B and C&D switch demonstrations**

### Tuesday, March 20

- 7:00 AM Breakfast at Swope Center  
8:00 AM Lecture: ***Image Management and Ethics: Proper use of Photoshop®***  
Jerry Sedgewick  
8:45 AM **Breakout Sessions**  
**Group A&B: Fluorescence meeting**  
**Group C&D: Acquisition/Image Analysis**  
10:00 AM Refreshment Break  
10:15 AM Visit MBL Gift Shop  
11:00 AM **Image Analysis *cont.***  
Noon Lunch at Swope Center  
1:00 PM **Troubleshooting Cases presented by the Faculty**  
2:45 PM Refreshment Break  
3:00 PM **Troubleshooting Cases - Breakout Session**  
4:45 PM **Final Q&A Faculty and Students**  
6:00 PM Dinner at Swope Center  
7:00 PM **Short Course and HCS Meeting Open House**  
**Loeb Laboratory: Instrument Demonstration**

### Wednesday, March 21

- 7:00-8:00 AM Breakfast at Swope Center  
8:00 AM Departure from MBL

## HCS Committees 2011-2012

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