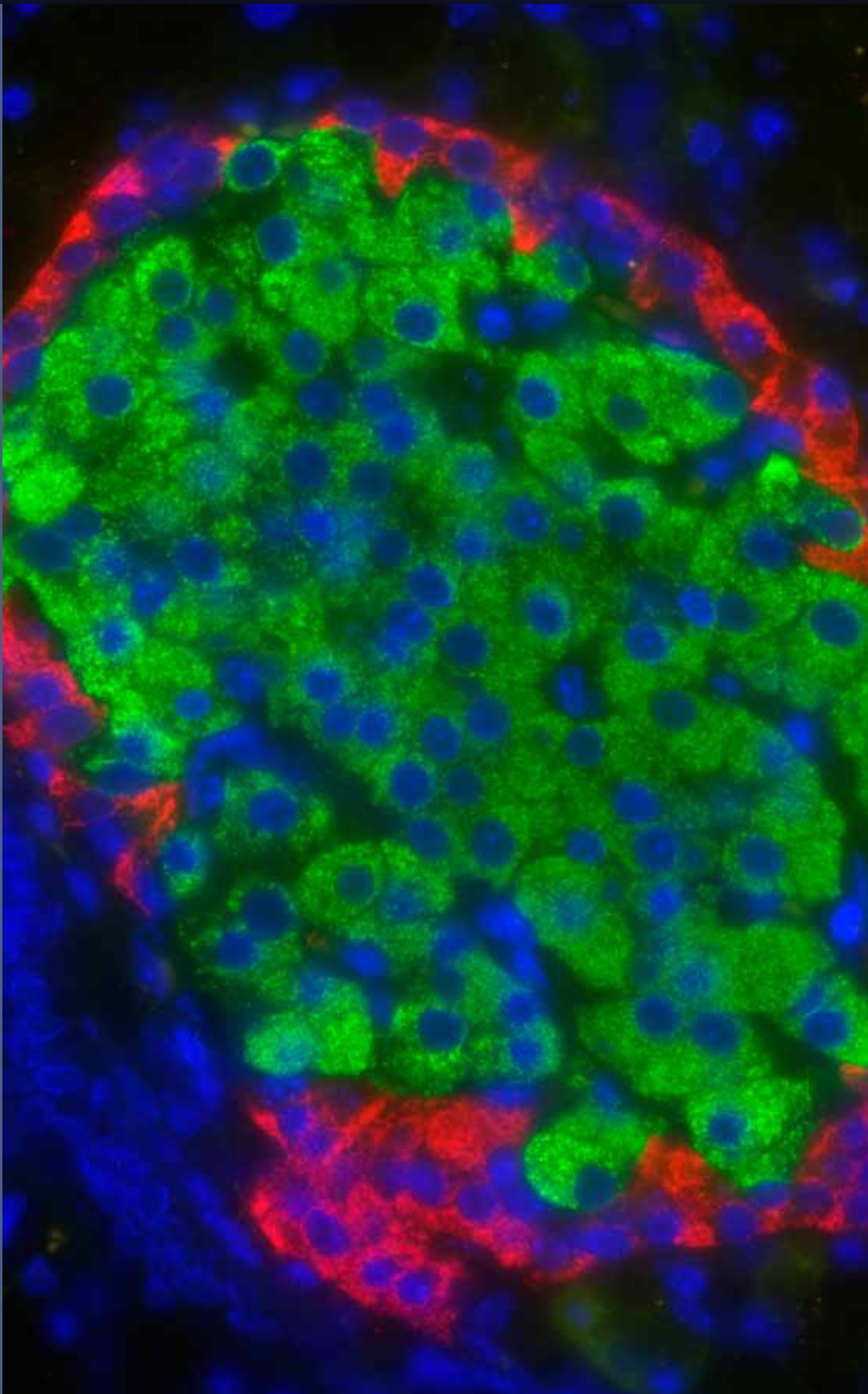




# The Histochemical Society NEWSLETTER

Winter 2013

Vol. 26 No.1



## In this issue...

Letter from  
HCS President • 2

Member Spotlight  
Brian Johnson • 3

FASEB News  
Sequestration • 4 - 5

HCS  
2013 Meeting • 6 - 7

HCS Course  
at MBL • 7 - 8

HCS Tutorial at  
Cell Biology Meeting • 8 -9

Image courtesy of D. Kwon.  
Localization of Insulin (green)  
and Glucagon (red) in rat  
pancreas from the HCS Immu-  
nohistochemistry and Micros-  
copy Course, 2012

## Letter from HCS President.....



Fellow HCS members,

The first month of 2013 has vanished and although postponement of the fiscal cliff has delayed implementation of the across the board reduction by ~10% in discretionary funding, it appears that the will to avoid the sequestration is not strong. I have heard from a number of you regarding the “no money” problem for biological researchers. The rippling effect of this extremely tight money situation is felt by all of us who rely either directly or indirectly on government supported grant funding for research. An additional cut of 10% will be brutal. It is interesting that in contrast, China and Korea are both increasing their investments in science by about 10% a year. We can commiserate but we can also “do something.” Through FASEB membership, the HCS has gained a new voice and a seat at the table. I encourage all to put in the effort to be heard, both at the state and federal level. Each of us has a unique understanding of how the lack of funding is affecting research in the US. Share your stories with our leaders! This issue is of critical importance to the health of basic research and will require our sustained effort.

Indeed these are challenging times for research scientists but there is cause for celebration as well. The HCS mission of excellence in educating young scientists has been validated and formalized in the Immunohistochemistry and Microscopy Course (IHCM). Offered annually for the last five years, in 2010 HCS was fortunate to begin offering the course complete with microscopy and imaging labs by hosting it at the Marine Biological Laboratory in Woods Hole, MA. As of 2013, HCS’s course is officially on the list of prestigious courses offered under the auspices of MBL. This provides for continuity moving forward and exposes the course to a wider audience through MBL. This success arose out of the vision and dedication of Dr. Eduardo Rosa-Molinar (see pg. 7). Gracias!

In 2013 HCS will meet with the American Society for Investigative Pathology as part of Experimental Biology 2013. 2013 is ASIP’s Centennial and HCS is pleased to be able to support our many pathology members and join in the festivities. Our President-Elect, Chuck Frevert, together with the Editor-in-Chief of JHC, John Couchman and the Program Committee have an exciting meeting planned for you this year at Experimental Biology in Boston (see pg. 6). We are looking forward to seeing all of you! Dr. Chuck Frevert will assume the role of President at the meeting in April and already has begun planning the 2014 meeting. Chuck’s dedication to the Society over many years guarantee’s that the HCS will be in excellent hands.

The long success of our Society has been greatly enhanced by the dedication of some very special individuals. My tenure as president is ending in April and I would like to take this opportunity to acknowledge individuals who have made my experience extremely positive and one of learning. Please join me in paying tribute to Dr. William “Bill” Stahl our “stahlwart” Executive Director. Bill’s many hours worrying about the HCS have led to decisions that have yielded a strong Society and one with a hopeful future. Thank you Bill! If Bill is the worrier, Dr. Denis Baskin, is the pragmatist and a critical player as executive Editor of the Journal, whose humor and clear thinking serve as an important balance. The Society has benefited immensely from the dedication and talents of Meg McGough and Tanda Jaipean. As the HCS “face” (and hands and minds), Meg and Tanda rank as everyone’s favorites, giving our group that very important personality and warmth that is the HCS hallmark. The Jour-

*continued on next page...*

## Letter from HCS President *continued*

nal of Histochemistry and Cytochemistry is an integral part of our Society. As Editor-in-Chief, Dr John Couchman has worked tirelessly to make the Journal the best it can be in this extremely competitive age.

I look forward to a growing, stronger Society, bolstered by your much appreciated participation as we work together to achieve the HCS mission.

**Nancy Sawtell**  
President, HCS

## Member in the Spotlight...

### **Brian Johnson:**

Brian Johnson is the Program Manager of the Histology and Imaging Core and Comparative Pathology Program at the University of Washington at South Lake Union.

Brian is a research scientist with extensive experience in histopathology and immunohistochemistry, digital imaging and quantitative image analysis. Brian is board certified by the American College of Clinical Pathology (ASCP) as a Pathologists Assistant and received his initial training in the clinical pathology setting. Brian subsequently gained extensive experience in molecular pathology while working for a for-profit biotechnology company where he performed immunohistochemistry and species cross reactivity studies for pre-clinical studies.

His experience in molecular pathology has most recently been applied in the academic setting at the University of Washington School of Medicine.



**Brian Johnson working with students at MBL**

Along with project management and consultation Brian's work at the Histology and Imaging Core focuses on development of new immunohistochemical protocols, high throughput automated immunohistochemistry, whole slide digital scanning and image analysis.

Brian also serves as Technical Faculty for the MBL Special Topics Course: Immunohistochemistry & Microscopy (IHCM) at the Marine Biological Laboratories in Woods Hole, MA.

## FASEB News...

### The Sequestration Issue Before the Congress

Funding for the National Institutes of Health (NIH), the National Science Foundation (NSF) and other federal research agencies is still threatened! If sequestration goes into effect on March 1st, NIH and NSF face an immediate budget cut of approximately five percent.

FASEB was successful in making voices within the scientific community heard on Capitol Hill last year. We cannot afford to back down now – especially as some members of the new Congress are calling for even bigger cuts to the part of the federal budget that funds research.

Please go to <http://capwiz.com/faseb/issues/alert/?alertid=62385281> to email your Senators and Representative today to urge them to continue – not cut – essential funding for research.

You can use information from FASEB's new *NIH congressional district and state factsheets*, as well as our *NSF factsheets* in your email messages. Sending an email to your elected officials is easy and only takes a few minutes using the link above. Please also forward this alert to your friends and colleagues and urge them to take action as well.

### Graduate Student Video on Sequestration Wins Prize

Bethesda, MD – **The Federation of American Societies for Experimental Biology (FASEB)** is pleased to announce the winner of its inaugural advocacy competition, *Stand Up for Science*. The competition solicited entries to demonstrate how federal research funding improves the health, quality of life, or economy of local communities in the United States.

The winning entry was submitted by '*Stand With Science*,' a group of graduate students from the **Massachusetts Institute of Technology**. Their video, "*What's Next*," underscores the impor-

tance of federal funding to science and technology and highlights the adverse consequences that across the board spending cuts, also known as sequestration, could have on future, innovative research. (This is a YouTube presentation.)

"We are excited to award '**Stand With Science**' the **\$10,000 Prize** and commend them for their outstanding work in science advocacy," stated Judith Bond, PhD, FASEB President. "Our best hope for future progress remains a strong commitment to science and technology."

We encourage you to view the award winning video "*What's Next*"  
At this link: <http://youtu.be/xesajZ5eRLc>

## FASEB News...

### Message from FASEB – Feb. 22, 2013

This morning **NIH** issued a notice announcing the agency's operating plan if sequestration goes into effect on March 1st. The text of the announcement is available (NOT-OD-13-002) at: <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-13-043.html>.

In summary, the notice states:

The previously announced operating plan under the current "continuing resolution" (CR) remains in effect (e.g. all non-competing continuation awards are currently funded at 90% of the previously committed level).

If sequestration occurs, **NIH** likely will reduce the final fiscal year (FY) 2013 funding levels of non-competing continuation grants and expects to make fewer competing awards.

Non-competing continuation awards that have already been made may be restored above the

current level (as under the CR policy) but likely will not reach the full FY 2013 commitment level described in the Notice of Award.

If sequestration occurs, **NIH** Institutes/Centers will announce their respective approaches to meeting the new budget level.

At this point it seems likely that sequestration will go into effect on March 1st. Next week the Senate is expected to consider various alternative sequestration proposals but the House will probably not consider these. As always, FASEB will continue to keep you abreast of new developments on Capitol Hill and will distribute information to you regarding NIH's operating policies should sequestration occur. Staff from the Office of Management and Budget (OMB) FASEB earlier this week that OMB will issue sequestration instructions to the agencies on March 1st unless Congress acts to stop the cuts from going into effect.

**It is not too late to contact your congressional representatives to urge that sequestration does not go into effect.**

**Please use the links below to access sites mentioned in the FASEB articles above.**

**Email Addresses of: *Senators and Representatives***

***NIH State and Congressional District Factsheets***

***NSF Factsheet***

# HCS 2013 Annual Meeting

## Experimental Biology • 2013

Boston

April 20-24, 2013

This year HCS holds its annual meeting as a guest of the American Society for Investigative Pathology at Experimental Biology 2013.

One of the HCS meeting highlights is the substantial number of awards HCS will be presenting to students and research scientists. The ASIP/HCS student awardees will be presenting their work at the ASIP Awards Session on Monday, April 22nd and at a poster session associated with the HCS reception and business meeting on Sunday, April 21st. The Ralph D. Lillie, Vector Laboratories Young Investigator Awards and HCS Travel Awards will be presented at the HCS reception/business meeting.

We hope you will join us at these events to congratulate the awardees, spend time with new and old colleagues and help us encourage the growth of the Society and Journal.

### IMPORTANT

**When you register for the meeting please remember to check your HCS affiliation on the registration form.**

### SCHEDULE

#### **Sunday, April 21, 2013**

#### **6:00 - 8:00 PM HCS Reception, Student Poster Presentations and Business Meeting**

Renaissance Hotel, Atlantic Ballroom 2

HCS members and guests are invited. Refreshments will be served.

#### **Monday, April 22, 2013**

#### **6:00 - 6:30 PM ASIP Awards Reception**

Mezzanine Foyer, Convention Center

This event will include the HCS Sponsored Trainee Travel Awards presentation.

Awardees will also be present for the HCS Business Meeting presentations.

#### **6:30 - 7:30 PM ASIP Centennial Reception**

The Institute of Contemporary Art

*Tickets are required but included if you attend the Centennial Dinner.*

#### **7:30 - 9:30 PM ASIP Centennial Dinner**

The Institute of Contemporary Art

Tickets are required for the dinner and reception and must be purchased by March 1, 2013.

For ticket information: [http://www.asip.org/meetings/2013/centennial\\_events.cfm](http://www.asip.org/meetings/2013/centennial_events.cfm)

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## HCS 2013 Annual Meeting *continued*

Tuesday, April 23, 2013

8:30 - 9:30 AM

**Journal of Histochemistry & Cytochemistry Lecture – Convention Center**

Chair: John R. Couchman, University of Copenhagen

Bjorn R. Olsen, Harvard Medical School

*How vascular endothelial growth factor (VEGF) regulates differentiation of mesenchymal stem cells*

9:30-11:30 AM

**ASIP/HCS Symposium – Convention Center**

*Proteoglycans and Disease; a rapidly evolving branch of glycobiology*

Chairs: Nancy Sawtell, Cincinnati Children's Hospital and

Charles W. Frevert, University of Washington School of Medicine

John R. Couchman, University of Copenhagen

*Syndecans, signaling and proteinases in breast carcinoma*

Joseph Zaia, Boston University Medical School

*Mass spectrometric profiling of glycosaminoglycans on tissue histological sections*

Charles W. Frevert, University of Washington School of Medicine

*Glycosaminoglycans provide fine-tune control of neutrophil migration and activation in lungs*



## HCS Course on Immunohistochemistry and Microscopy (IHCM)

Marine Biological Laboratory (MBL) at Woods Hole, MA

[www.immunohistochem.com](http://www.immunohistochem.com)

This year the IHCM course will be held from Saturday, March 9 to Wednesday, March 13, 2013. This is the sixth year for this course, the fourth that has focused on hands-on laboratory experience in combination with formal lectures and breakout sessions.

HCS developed and began teaching an immunohistochemistry (IHC) course in 2008. The course was initially presented as a one-day workshop at the 2008 and 2009 at Experimental Biology meetings in San Diego and New Orleans, respectively. The lecture course was well received, but students and instructors expressed a need for longer courses that incorporate hands-on laboratory training. Developing an extended laboratory-

based course fit well with the Society's vision for an expanded role in histochemistry education for the scientific community.

In 2010, the first HCS hands-on immunohistochemistry and microscopy (IHCM) course was held at the MBL at Woods Hole, MA. The course was organized, administered, and taught by faculty from HCS and used the extensive resources and facilities of the MBL. The student's laboratory work was integrated with lectures and combined with the use of a range of microscopic techniques to capture and analyze images from their slides. A key element of the course has been an inte-

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## HCS Course on Immunohistochemistry and Microscopy *continued*

grated approach developed by academic, industry, and technical faculty to provide a range of learning opportunities and support for students. The interplay of theory, hands-on experience, and discussion is central to this course that serves advanced undergraduates, graduate students, laboratory technicians, postdoctoral students, and new and established faculty/research clinicians.

In 2011 and 2012 the IHCM course continued at the MBL, and HCS faculty refined the integrative approach as well as increased the breadth of offerings to meet the needs of students. A major change in these years was the inclusion of additional informal break-out sessions, increased emphasis on troubleshooting, and more in-depth training in using the correct microscope modalities for each of the different types of sample preparation and staining.

In 2013, the course will continue in the tradition of courses taught by the HCS faculty in collaboration with Industry faculty and the MBL. For the first time, the 2013 course will become part of the excellent program of special topics courses offered and managed by the MBL Education Department. HCS provides general oversight for the course and provides for selection of students that

are accepted into the course.

HCS continues to provide leadership and faculty for the course. These include six academic faculty, six technical faculty and seven industry faculty. Immediate Past-President Ed Rosa-Molinar is Course Director and President-Elect Chuck Frevert is Deputy Director and they have done an excellent job integrating lectures, labs and microscopy infrastructure that make this course highly successful. Industry has been generous to supply many microscopes, supplies and their unique expertise for the course.

For the 2013 course a broad range of students have applied. Both the HCS Awards (<http://histochemicalsociety.org/Awards/Students---Post-Docs.aspx>) and the FASEB/MARC program, (<http://bit.ly/IHCM2013TravelAward>) to fund underrepresented minorities, provide opportunities for students to obtain support to attend the course

The course has been filled and we encourage applicants to consider the 2014 IHCM course at the MBL. The dates will be available in early Summer 2013.



## From Coverslips to Covers HCS Presentation at ASCB Meeting

HCS member Jerry Sedgewick presented a tutorial sponsored by HCS at the American Society of Cell Biology's 2012 meeting in San Francisco this past December. The tutorial, **"From Coverslips to Covers,"** was presented on December 19th to a standing room audience of 125.

In two hours, Jerry rapidly covered topics including image ethics, acquisition from microscopes, post-processing (with a focus on Photoshop) and the preparation of images for output. The amount of material covered led one attendee to com-

ment, "I learned more in two hours than I've ever learned in that amount of time."

In imaging forensics, four "good imaging practices" were presented using the acronym "RaRa:" Record, Archive, Report and Apply - the same post-processing steps to related images. Jerry presented a means for recording steps in Photoshop using a feature called "History Log." In archiving, he discussed saving images to at least two places, and establishing a workflow in which files are saved in the layered Photoshop format



## From Coverslips to Covers *continued*

for the creation of files in universal formats for outputs. Reporting what has been done in both post-processing and acquisition addressed how to report, and the differences between “enhancing” and “correcting” images. The issue of “applying the same correction to related images” was not presented as a maxim that could be taken at the surface, but one in which the question of what to apply and to what extent must also be taken into consideration.

Not paying close attention to the way images are acquired will result in image details that have been eliminated or varied across the field of the image. Results can include over and under-exposed images, resulting in saturated pixels and no details in the brightest and darkest features in the image. Sedgewick presented other means through which details are obscured or eliminated: when noise is present (overcome in acquisition by frame or image averaging), when insufficient resolution is chosen, and when white balancing is not used for color brightfield images. Jerry also covered uneven illumination across the expanse of the image and its contribution to false readings for densitometry and he addressed the need for flat field correction when acquiring images destined for densitometry.

Discussing image correction in post-processing, Jerry emphasized the kinds of post-processing that may be necessary for a truthful presentation of images. These included the need for sharpening to reveal obscured details, color adjustments to correct for a color camera’s ‘hue shift,’ blurring the color portion of the image (for color bright-

field images) to remove false color at edges of features (known as “color fringing”), and further correction of uneven illumination.



**Jerry Sedgewick**

Jerry concluded with preparing images for output to publication, posters and to word processing/pdf files. He explained that each kind of output device can only reproduce a range of colors and tones, called the gamut. Thus, colors and tones must be adjusted in order to “fit” colors and tones to respective devices, whether these are printing presses, monitors, inkjet

printers or laptop projectors. The session concluded with a Q&A.

Jerry owns Imaging and Analysis, LLC, a company devoted to imaging, post-processing and image analysis. He ran a core microscopy facility at the University of Minnesota for 15 years, and acted as director of the Genomics facility during its first two years. His articles and publications include two books on scientific imaging, several book chapters, and inclusion as a co-author in “Science” and “Circulation” among other scientific journals.

The presentation is now available as a PDF on the Histochemistry site for download.

### **HCS Reception, Student Poster Session and Business Meeting**

Plan to attend this social function on Sunday evening, April 21, 2013 from 6-8 PM in the Atlantic Ballroom 2 of the Renaissance Hotel at Experimental Biology 2013 in Boston. HCS members and guests are invited. Refreshments will be served.

**Please visit the HCS Booth in the Exhibition Hall at the Convention Center.**

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