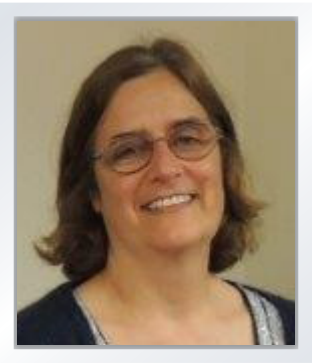
September 2017

The Histochemical Society Newsletter

Vol. 30, No. 2



President's letter

I would like to describe to the membership of HCS a number of developments that have occurred over the last year. First I would like to introduce the new leadership at HCS, which includes me, Margarida Barroso, as the new President and Paul Goodwin as the new President-Elect.

My laboratory at Albany Medical College integrates basic cell biology with methodological advances in imaging technology. Our expertise on Förster Resonance Energy Transfer (FRET) and fluorescence lifetime (FLIM) imaging has resulted on the development of novel in vivo and in vitro imaging approaches to visualize, quantitate and optimize receptor-mediated targeted delivery into solid tumors. Importantly, both Paul and I have been involved with HCS activities for several years as council and committee members. In particular, HCS has been crucial to my own career development.

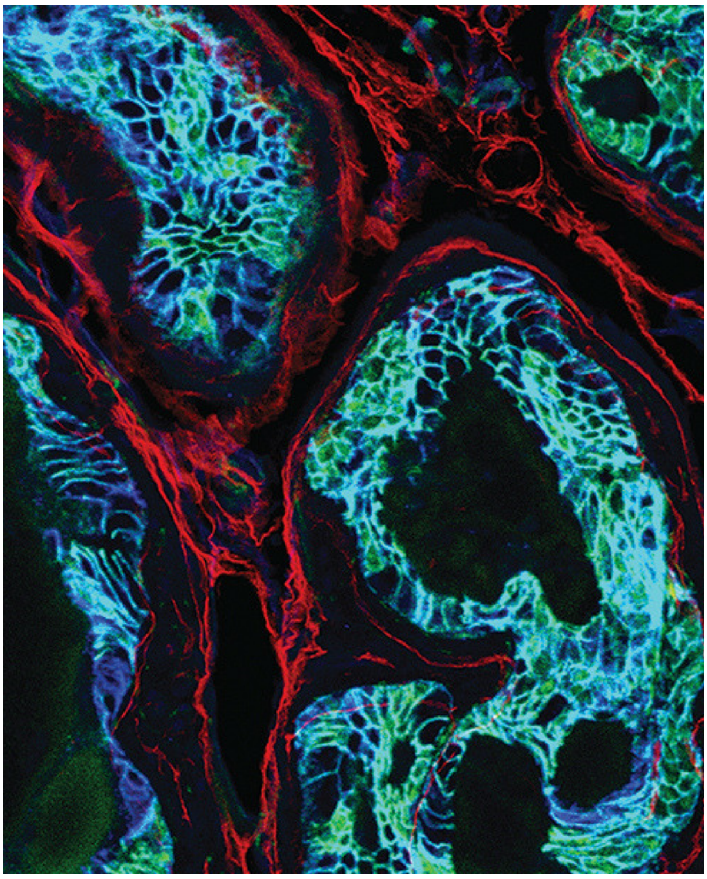
A note to younger HCS members, participating in society activities and interacting with other HCS members who are engaging, and committed to career progression and breakthrough research, will allow your career to move forward in a successful and sustainable way. Second, I would like to commend former HCS executive director Jennifer Holland who worked enthusiastically to maintain the quality of all HCS sponsored events and also to increase the reach and diversity of the society. All of these goals were achieved successfully and now she has passed on the baton to Kendra LaDuca, HCS new executive director. Please join me in welcoming Kendra to the HCS family!

Third I would like to bring to your attention two new important policy developments for the HCS community. One is the development and enlargement of the HCS travel award policy. The explicit goal of this new policy is to identify and recruit new members to the Society. The HCS executive committee is implementing the HCS Travel Awards in Imaging and Histochemistry (HCS TA-IHC) by funding three (3) different levels of Awards as follows: 1) Invited Speaker to deliver a scientific or policy presentation to a recognized scientific meeting or science policy event; 2) Invited Instructor to provide a sponsored lecture at a scientific workshop, course, or workout; 3) Travel Award to attend a Society sanctioned workshop, course, or workout. Whereas 1) and 2) target experienced scientists or subject matter experts, the 3) targets Junior Faculty, Staff Scientist, Post-Doctorate Fellow (or equivalent), graduate student, or advanced undergraduate students. All of the future new awardees will have to become HCS members to have access to these travel awards. In 2017, several imaging workshops have already benefitted from these travel awards, including the FRET workshop at University of Virginia, Charlottesville, VA and the Quantitative imaging workshop at University of Washington, Seattle, WA. If you know of any qualified scientist or technical workshop or scientific meeting that would benefit from such travel awards let Kendra know so we can develop this new set of competitive travel awards that will allow the HCS community to grow and increase in expertise and research specialization.

The second important policy development in the works at HCS is the further development of the Capstone awards to facilitate undergraduate

research in imaging and histochemistry. Again please let us know of interested faculty or students who may be able to compete for the Capstone awards and perform outstanding research at undergraduate level.

There are a number of upcoming events that continue to highlight the role of HCS in educating the scientific community about histochemistry and imaging. The first is the HCS hands-on Immunohistochemistry & Microscopy (IHCM) special topics course that has been held at the Marine Biological Laboratory (MBL) in Woods Hole, MA since 2010. This four day course has been very successful, providing students with hands on laboratory experience integrated with lectures and access to a range of microscopic techniques to capture and analyze images from their slides. If you are interested in finding out more information about the IHCM special topics course you can visit the IHCM Course website. The second event is the Histochemical Society's annual meeting. It will be held in conjunction with Experimental Biology 2018 (EB2018) at the San Diego Convention Center in San Diego, CA where we will again be a guest society of the American Society for Investigative Pathology (ASIP). The Program Committee has done an excellent job in putting together two outstanding symposia. The HCS-ASIP Symposia entitled, "Imaging Biometals in Disease" will be held on Monday morning, April 23rd. The JHC Lecture will follow at 10:30am on Monday. A second HCS Symposia, organized with American Association of Anatomists (AAA), entitled "Specimen Quality Drives Reproducibility" will be held with dates and times to be announced this fall. A more detailed list of events occurring at the HCS Annual meeting can be found in this newsletter and updated regularly on the HCS website.



'Fluorescence of Picrosirius Red Stained Collagen Multiplexed with IHC'
Kyle A. Wegner, et al. JHC Volume 65, Issue 8, August 2017

Finally I look forward to continuing to see you at the Facebook HCS page and in Twitter (@histochemnews; @barrosolab) Active participation in the Facebook/Twitter HCS social media is very important for the continued development of a healthy HCS community in the 21st century. Please send any image and/or text on important events in your research, funding or laboratory life to Kendra for posting in the Facebook HCS webpage. Moreover, in real life, I hope to see you at EB2018 and the HCS Annual Business Meeting and Awards Reception, which will be held at Horton Grand Hotel & Theater in the San Diego Gaslamp District on April 22nd at 6:30 to 8:30 PM.

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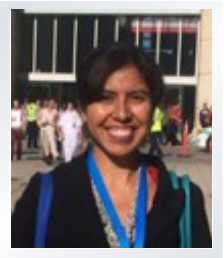
Travel Awardee Experiences



Nadia Moran - Garcia

The Experimental Biology (EB) meeting is an experience that I recommend to all young scientists of every branch of Biology. The EB is an annual meeting of six American Societies and other guest societies between them the American Society for Investigative Pathology (ASIP) and The Histochemical Society (HCS), this year was held in Chicago. It is a congress where you can meet experts of your own area and open your mind to other branches. This meeting also is characterized because has a program for development career focus in young people, in which you can receive tips and advices for your future professional development.

I am a Mexican Ph.D. student and I work with the histopathology of a mouse model of an enteric bacteria infection, so this was a great opportunity for me. In the EB meeting, I had learnt more about the topic and how to apply others knowledge to my project. In fact, I heard about new techniques of histology and image process that I didn´t know. The most important was that I shared my Ph.D. project in a mini symposium and in the posters session where I received suggestions, that otherwise would be difficult to get.

I want to thank the Histochemical Society for encouraging young scientists to continue growing up and giving the opportunity as they gave it to me, to attend to the EB 2017 meeting. The HCS members in the poster session asked me an important question "which is the next step?" of course they were talking about my project, but now a few months later I can answer about my project and my personal career, if I had doubts about continuing in science, going to this kind of events have made me be sure and give me the confidence that I am on the right track. Not only the EB meeting was great, also Chicago is a lovely city to visit that complements the full experience.

MaRyka Smith

EB 2017 was my first large scientific conference. I really enjoyed walking around the trade show and poster displays learning about areas of experimental biology I had never considered before. The sheer size of the event was breathtaking, there was truly something for everyone. During the conference, I attended the informational sessions offered to students that helped me better understand what the career options are and how to apply for them. I also enjoyed meeting the leadership of HCS and networking with other scientists in the field that could help give a second opinion on my project. My favorite part was presenting my poster at the ASIP SIG night; where those who came to visit my poster were truly interested in my topic

and had great feedback for next steps and improvement. I look forward to attending future meetings with HCS!

A MESSAGE FROM THE NEW EXECUTIVE DIRECTOR

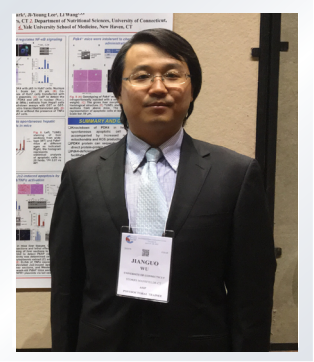
Kendra LaDuca

Greetings HCS members and friends! I am delighted to be your new Executive Director and would like to take a moment to officially introduce myself to you. I have been with FASEB for over five years working as an executive director and meeting manager. In the recent summer months, I have been working with Jen Holland (outgoing HCS Executive Director) to learn about the Histochemical Society and transition to this new role.

My professional background is in non-profit association and meeting management. For many years, I worked within the higher education world employed by individual associations. Moving from higher education to the world of scientific associations, I also shifted to the association management company model and have found the collaborative environment to be a true benefit to societies. My professional skills range from programmatic development and event logistics for meetings and conferences to organizational development, financial management and organizational planning.

I am excited to begin this new chapter with HCS. I look forward to learning more about HCS as an organization and helping you reach the goals and ambitions you share for the society. I encourage you to contact me at any point if you have suggestions, questions or concerns. I look forward to getting to know the HCS membership!

Expand Scientific Perspective and Outline Career Shape



Attending the 2017 EB Meeting in Chicago

by Jianguo Wu

I am a postdoctoral fellow at the Department of Physiology and Neurobiology, University of Connecticut. I am in professor Li Wang's Lab. Wang Lab is a "liver lab". Our research focuses on liver diseases. Currently, my study is to reveal the role of a metabolic gene, pyruvate dehydrogenase kinase 4 (PDK4) in liver pathogenesis. Liver is the largest internal organ in humans, and performs the central function in metabolism, in addition to making bile, storing nutrient, detoxification.... However, liver is the one that is most likely injured because whatever you take every day inevitably goes through it to be "converted". Canonically, PDK4 is regarded as a protein residing in mitochondrion (an organelle that dominantly produces ATP, and also regulates apoptosis, a kind of programmed cell death form) and plays a role in controlling glucose consumption. "What is the novelty of your study? Can you challenge the dogma? That will bring your study to next level" My mentor Dr. Wang educated me. My research has expended PDK4's function from mitochondrial to cytosolic, as well as from metabolism to hepatic apoptosis.

The abstract of my study submitted to ASIP (American Society for Investigative Pathology) has been accepted. I was selected as a recipient of the The ASIP 2017 Histochemical Society-Sponsored Trainee Travel Award. I was also invited to give an oral presentation in "Cell Injury, Autophagy, and DNA damage" session at the 2017 EB meeting. When we got these good news, my mentor Dr. Wang said, "There are many distinguished researchers and experts in each area at the meeting, where they will present their work; go to expend your view, try to learn from other researchers about your area, and you will get more than what you expect". It is really an honor and opportunity to me to build up myself based on the Travel Award, which will be used to defray the meeting expenses.

Indeed, in the Presidential Symposium, Dr. S.P. Monga presented the topic "Coordinated interactions between key signaling molecules lead to liver carcinogenesis", Dr. G.K. Michalopoulos gave an extensive and in-depth understanding on liver regeneration. Dr. X.M. Yin, the ASIP Outstanding Investigator Awardee, gave an excellent lecture about why autophagy is important to liver. They all are experts! "Know the known and unknown" in a specific area is obviously important to raise a good scientific question and open a new research perspective. Have you known the knowns and unknowns? I believe this will lead me in my career development along all of my life.

A sharp tool will make me do a better job. In the HSC symposium "Imaging Signaling In Vivo, From Cell Biology to Animal Models", the speakers presented their work about the imaging of molecular dynamics, and the imaging of membrane remodeling and reproductive and developmental events. Their work were just marvelous. The state-of-the-art experimental instruments, techniques and analysis methods make your study more precise and convincing. Nothing is impossible, only the unexpected. Research has testified this. No matter what the question is, there are always ways to testify it. The researchers just use fantastic tools in their study, but that do make a difference.

I preferentially attended some sessions related to liver diseases, such as Liver pathology symposium, Molecular Basis of Chronic Liver Injury, etc. There are many other excellent and impressive sessions at the EB meeting. There are professors, early career scientists and trainee members. All of them have contributed to this splendid event in Chicago, where I have been benefitted.

I have started to establish myself to be an independent researcher. I would like to be along the current research direction and continue to focus on liver study. From single gene study to multiple gene study, from understanding gene function to unraveling molecular mechanism, from phenotype in animal models to the significance in human liver diseases, from basic research to clinical translation, from independence to collaboration, all of these will drive me to move forward to shape a career in the future.

Finally, I would like to thank Histochemical Society for offering the travel award and look forward to attending the next EB meeting!

Connect with us!

FASEB
Federation of American Societies for Experimental Biology

FASEB Public Affairs: Progress toward Strategic Goals (2nd Quarter 2017)

Promote Optimal Funding for Biological and Biomedical Research

Advocated for research funding increases

- FASEB submitted testimony on FY 2018 NSF funding to House CJS Appropriations Subcommittee *(April 28)*
- FASEB thanked Congress for NIH funding increase in FY 2017 omnibus appropriations bill *(May 1)*
- FASEB submitted testimony on FY 2018 USDA funding to House Ag Appropriations Subcommittee *(May 3)*
- FASEB submitted FY 2018 Senate CJS and Ag appropriations testimony *(May 12)*
- FASEB sent thank you letters to chairs and ranking members of full committee, LHHS, Ag, and Energy Appropriations Subcommittees in the House and Senate for increased funding for science in the FY 2017 Omnibus Appropriations Bill *(May 15)*
- FASEB sent FY 2018 Federal Funding Report, Regenerative Medicine (Breakthroughs article), and 3D Bioprinting (Horizons article) to all congressional offices *(May 18)*
- FASEB urged Congress to reject Trump Administration FY 2018 budget for NIH *(May 23)*
- Ad Hoc Group ad calling for NIH funding increase in FY 2018 (with FASEB logo included) appeared in Wall Street Journal and Politico *(May 23)*
- FASEB submitted testimony on FY 2018 Department of Energy/ Office of Science funding to the Senate Energy Appropriations Subcommittee *(May 26)*
- FASEB submitted testimony on FY2018 funding for NIH to the Senate LHHS Appropriations Subcommittee *(June 2)*
- FASEB signed onto Research!America's letter urging Congress to raise the FY 2018 budget caps *(June 16)*
- FASEB submitted comments to the Senate Agriculture Committee on research provisions in the Farm Bill *(June 20)*

Strengthened liaisons with Congress and federal agencies

- FASEB Public Affairs Committee met with NIH Principal Deputy Director and 14 Institute Directors *(May 4-5)*
- Hud Freeze and Tom Baldwin presented FASEB's 2017 Public Service Award to Francis Collins *(June 21)*
- Yvette Seger participated in the NCI Center for Strategic Scientific Initiatives Science Day *(June 28-29)*

- During the second quarter of 2017, FASEB leadership and staff had 15 meetings with congressional offices

Strengthened strategic partnerships with other organizations

- FASEB joined the Coalition for National Science Funding FY 2018 budget letter *(April 3)*
- FASEB joined a multi-society letter on FY 2017 and 2018 science funding *(April 6)*
- FASEB signed the March for Science Congratulatory Statement *(April 28*
- FASEB signed onto Coalition for Health Funding letter on FY 2018 302b allocation for LHHS *(May 8)*
- Howard Garrison and Libby Barksdale met with project staff from the Next Generation Researchers Initiative of the National Academy of Sciences to discuss training and workforce data availability and limitations *(June 2)*
- OPA staff serve in leadership capacities in major coalitions and partner organizations: Jennifer Zeitzer is on the Steering Committee of the Ad Hoc Group for Medical Research and the Executive Committee for the Friends of VA, Yvette Seger is Vice Chair of the National Postdoctoral Association, and Anne Deschamps is on the Board of Directors of Americans for Medical Progress

Advocated for investigator-initiated research within a balanced portfolio

- Bethany Drehman updated NIH funding slide set with FY 2017 and 2018 budget data *(June 1)*

Improve the Climate for Research

Developed and presented advocacy priorities and perspectives

- FASEB responded to the NIH RFI on Processes for dbGaP Data Submission *(April 5)*
- Anne Deschamps co-organized an Animal Research Regulatory Burden Workshop with AAMC and COGR *(April 17)*
- FASEB's Sustaining Discovery report was cited in the NIH Director's rollout of new grants policy *(May 2)*
- FASEB wrote to NIH Principal Deputy Director about Grant Support Index *(June 6)*
- FASEB responded to the NIH RFI on Inclusion in Clinical Research Across the Lifespan *(June 6)*
- FASEB and member society activities on rigor and reproducibility acknowledged (slide 7) at NIH Advisory Committee to the Director meeting *(June 8)*

Promoted training and sustainable careers

- Libby Barksdale gave a career talk at Children's National Medical Center *(April 13)*

- Jennifer Zeitzer participated in a speed mentoring session at the AFMR Eastern Regional Meeting *(April 18)*
- Yvette Seger participated in a career development and mentoring session for ASPET during EB *(April 25)*
- Libby Barksdale organized a meeting of FASEB member society education officers *(May 31)*

Educated and engaged scientists, the public, and policy makers

- Anne Deschamps and Bethany Drehman updated the FASEB state and district factsheets *(April 4)*
- FASEB BioArt winners featured in the April 13 and May 25 NIH Director's blogs
- Breakthroughs in Bioscience articles on Epigenetics and CRISPR/Cas adopted for graduate course at Wash U *(May 25)*
- Hud Freeze published an article in the Ft. Wayne Journal Gazette opposing budget cuts for science *(June 2)*
- Hud Freeze spoke at the Georgetown University Gap Summit *(June 8)*
- FASEB and NIGMS cosponsored a day-long symposium, "Responsible Communication of Basic Biomedical Research: Enhancing Awareness and Avoiding Hype" *(June 22)*

Expand the Community that FASEB Represents

Educated scientists to become more effective advocates

- Ben Krinsky created a new FASEB advocacy tool kit *(April 13)*
- Society for Nuclear Medicine and Molecular Imaging linked to FASEB NIH factsheets in their e-action alert *(April 24)*
- Hud Freeze spoke to the Society for Investigative Dermatology Council *(April 26)*
- Jennifer Zeitzer gave a presentation on advocacy to Federal Demonstration Partnership Faculty Executive Committee *(May 10)*
- Jennifer Zeitzer and Ben Krinsky presented a webinar, "The Trump Budget: How scientists can fight proposed cuts to NIH" *(May 23)*
- OPA provided copies of CRISPR/Cas Horizon's in Bioscience article for distribution by ASHG *(June 21)*

Provide Value for the FASEB Societies and Their Members

Solicited input from member societies to better understand and address their needs

- Hud Freeze and Tom Baldwin briefed six EB societies (APS, ASBMB, ASPET, ASIP, ASN, and AAA) and three guest societies (SEBM, AFMR, and HCS) on FASEB activities *(April 21-22)*

Improved communication with member society leadership to promote participation

- Libby Barksdale created an interactive spreadsheet highlighting career development opportunities available to postdocs and graduate students of FASEB member societies *(April 5)*
- Deb Speert gave a presentation at the Ad Hoc Group Social Media Workshop *(April 21)*
- Tom Baldwin spoke to the Peptide Society Council *(June 17)*
- Hud Freeze spoke at the Teratology Society annual meeting *(June 28)*

Encouraged participation of individuals in FASEB and member society activities

- Deb Speert gave a presentation on FASEB advocacy at the Massachusetts Society for Biomedical Research *(April 21)*
- Bethany Drehman produced co-branded factsheets for AAI Capitol Hill Day *(April 24)*
- Jennifer Zeitzer prepared slides for Vivek Balasubramaniam's use at SPR Hill Briefing and helped promote the event on Capitol Hill *(April 25)*
- Jennifer Zeitzer spoke to the GSA Board about ways to engage in advocacy *(May 8)*
- Anne Deschamps gave a presentation about FASEB at the ARVO annual meeting *(May 9)*
- Jennifer Zeitzer and Ben Krinsky assisted AAI with its Capitol Hill Day for annual meeting attendees *(May 16)*
- Yvette Seger gave a presentation on advocacy and science policy at the University of Kentucky *(May 19)*
- Hud Freeze sent letters congratulating newly elected members of NAS from FASEB member societies *(June 12)*
- Jennifer Zeitzer assisted APS with its Capitol Hill Day *(June 27)*

Strengthen Effectiveness and Sustainability of the Federation

- Deb Speert created an EB advocacy flier for ASPET, ASN, and AAA *(April 11)*
- Jennifer Zeitzer created an e-Action alert for EB societies use on the day of the March for Science *(April 23)*

The Histochemical Society Newsletter

Vol. 30, No. 2

Short Course on quantitative digital pathology

University of Washington School of Medicine at South Lake Union

October 23 – 27, 2017

The 2017 Short-Course on Quantitative Digital Pathology is an intensive course focused on the principles, and methods used in stereology and image analysis to obtain accurate non-biased data from tissue sections. This is a unique opportunity to interact with experts in the field of stereology and image analysis. Students will be introduced to processes that dramatically improve the efficiency and accuracy of stereology and quantitative image analysis, such as whole slide digital imaging and powerful analysis software. The workshop is five days of lectures, interactive sessions and hands-on experience.

WORKSHOP GOALS

1. Participants will learn the principles behind the use of stereology and receive hands on training in the techniques used to accurately measure specific histologic and/or histopathologic features in an organ or tissue section.
2. Participants will learn when it is appropriate to use image analysis; how to develop protocols using image processing and segmentation; and will be introduced to the use of deep learning to increase the information obtained with image analysis.
3. Participants will learn how to design and conduct studies for stereology and image analysis.
4. Participants will be exposed to whole slide digital imaging on several state-of-the-art platforms including the Hamamatsu NanoZoomer® Digital Pathology System.
5. Participants will work with the faculty to develop protocols for analysis of their own digital images that will be generated during the workshop.

MAJOR TOPICS INCLUDE

STEREOLOGY (Oct. 23 - 25)

- Optical disector/fractionator
- Automated physical disector/fractionator
- Cavalieri's estimator for volume
- Cycloids/(Sine-weighted) test lines for surface
- Counting frames/Global Spatial Sampling for length
- Connectivity, Tensors and Spatial distribution
- Nucleator and Rotators for Local Stereology
- Virtual Slide-based Stereology
- Proportionator sampling
- Tissue deformation
- Ratios vs Totals
- How many Animals/Blocks/fields of view and counts?

IMAGE ANALYSIS (Oct. 26 - 27)

- Image pre-processing: filters, color de-convolution
- Image segmentation: Thresholding, advanced pixel classifiers - Bayesian and K-means, contextual classifiers
- When to use image analysis
- Tissue Micro Array image analysis
- Tissue Sampling
- Image analysis protocols for sampling
- Virtual and Physical Multiplexing with immunohistochemical biomarkers
- Virtual Slide based Image Analysis
- Introduction to deep learning in digital pathology

Travel Awards

HCS is sponsoring 2 travel awards for the workshop at $1000 each. The awardees must be current paid HCS members to apply. Apply by sending a CV and statement of how attending the workshop will enhance your career development, along with one letter of recommendation from a mentor/advisor. Awardees are to be students/postdocs studying in the field. Applications are to be reviewed and evaluated by the HCS Award and Membership Committee for final selection. Award stipends are provided to the awardees after confirmation of attendance is received post workshop and is presented in the form of reimbursement of up to $1000 for travel and registration expenses. Awardees are required to provide an article for the HCS website/newsletter after their experience to summarize the event and the value it provided to their professional development. Award applications are due by **October 2, 2017**. Apply today!

LOCATION

The workshop will be held at University of Washington School of Medicine at South Lake Union 850 Republican Ave. Seattle, WA 98109

The week long course will begin on October 23, 2017. New this year, all registrants new to HCS will receive one complimentary year of HCS membership after they complete the workshop!

REGISTRATION FEES:

Academic registration = $1,200
Industry registration = $1,500

Registration Now Open

HCS Members REGISTER HERE
HCS Non-Members REGISTER HERE
Last day to register: October 9, 2017

Engaging Friends & Family in Advocacy

FASEB has created a new guide with advice on how to engage your friends, family members, and research collaborators in our advocacy campaign, especially in targeted states and congressional districts (the target list is on pgs. 4-8 of the PDF). Please review the list and consider reaching out to your contacts in those states and districts. You can find the other resources I mentioned here:

- **New NSF Factsheet**
- **Slides on the value of biomedical research**
- **State and district NIH funding factsheets**

*****One of the greatest beneifts of HCS membership is that it allows you access to experienced individuals in the field of imaging technologies. Consider learning more about the many benefits of membership and joining today.*****

Sponsored by: The Histochemical Society and Visiopharm®