THE GSA REPORTER

summer 2011

GSA Executive Director Search

The August 1 deadline is approaching to apply for the position of Executive Director of the Genetics Society of America. The Executive Director position reports to the GSA President/ Board of Directors and is the chief administrative officer of the Society. GSA, located in Bethesda, Maryland, a suburb of Washington, DC, is a not-for-profit membership organization of nearly 5,000 scientists, educators and

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McClintock Legacy Society Launched

GSA announces the newly established McClintock Legacy Society that recognizes individuals who include a gift to GSA in their will or estate plan. The GSA, which celebrates 80 years of service to geneticists this year, recognizes that with the changing needs of our members and the genetics field, additional resources are needed.

This society is named in honor of Barbara McClintock, the first woman President of the Board of Directors of the Genetics Society of America, and the first woman to be awarded a Nobel Prize in Genetics in 1983. Her highly esteemed work continues to be relevant although much of it was completed more than a half century ago, before the advent of the molecular era.

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G3: Genes | Genomes | Genetics Debuts

We are proud to present the inaugural issue of *G3: Genes|Genomes|Genetics*, an open access journal published by the Genetics Society of America (GSA). The journal's team of over 60 associate editors and 4 section editors, all practicing scientists — your peers – have come together to form a new, open access journal with a unique mission and vision. The Editorial Board of *G3* taps the expertise of the community of geneticists in the widest sense, from microbes to humans, from individuals to populations, and from classic "wet lab" experimentation to the most recent innovations in bioinformatics.

Geneticists have never been more prolific, and there exists no shortage of venues for presenting their discoveries. Why do we need yet another scholarly journal? We see two compelling reasons.

First, because new sequencing and other technologies have greatly expanded the experimental reach of geneticists, we are now able to apply genetic analysis to species previously out of our experimental range. Many of these and other studies may not be of wide interest or provide a significant mechanistic insight (yet), and thus are not appropriate for the broad audience of the GSA's long-standing, flagship journal *GENETICS*. We and the GSA Board of Directors saw the need for a journal to serve the genetics community by providing an outlet for dissemination of findings and experimental resources in genetics and genomics – an outlet unrestricted by subjective editorial criteria of perceived significance or predicted breadth of interest. We are interested in publishing papers that describe useful, well-executed and lucidly-interpreted genetic studies of all kinds.

We recognize our responsibility to enable documentation of reagents and resources, description of foundational work in developing areas of genetics, and datasets for meta-analysis, to name a few. We see a need for a journal to provide a unified home for reporting genome sequences, genetic and physical maps of organisms, mutant screens, QTL mapping, and many other important and useful datasets. We also recognize the need to provide fair and rapid peer-review and be a respected source of interesting papers — a place where people want to publish their work. We've launched *G3* to fulfill these needs.

Second, publication of data, ideas and conclusions is the bedrock of science. We believe that practicing scientists must play a central role in that process. While many journals will publish your discoveries, few are sponsored by an organization of peers with a long history of supporting our field. The Genetics Society of America

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Genetics Society of America Executive Director

The Genetics Society of America (GSA) invites applications for the position of Executive Director to begin service as soon as October 1, 2011. The GSA, located in Bethesda, MD is a not-for-profit organization of 5,000 scientists, educators, and students involved in the research and teaching of genetics at all post-secondary levels. The GSA sponsors the major annual meetings of researchers working on the genetics of several model organisms and a general meeting on the role of model organisms in the study of human disease. The GSA is seeking a dynamic individual to provide leadership and vision to assist in fulfilling its mission.

The Executive Director reports directly to the President/Board of Directors and is the chief administrative officer, responsible for implementing financial, advisory, public relations, educational, advocacy, membership and other programs and policies approved by the Board. The responsibilities of the individual in this position include the following:

- Oversees all operations, programs and initiatives of the GSA
- Develops new programs and initiatives in conjunction with the GSA Board
- Serves as the Executive member of the Committees of the Board
- Facilitates the GSA's scientific meetings as Executive Organizer
- Oversees publication of the newsletter, *The GSA Reporter*, and the GSA E-news
- Works with the Editors-in-Chief, the Executive Editor, and the Board to facilitate publication of the GSA's journals, *GENETICS* and *G3: Genes|Genomes|Genetics*
- Administers the GSA website
- Directs membership recruitment and retention
- Represents the GSA in public and private venues
- Directs advocacy, outreach, fundraising, and education programs
- Manages an office that carries out the day-to-day activities of the GSA
- Oversees financial operations of the GSA

Qualified candidates should have a record of achievement and leadership in academic, association and/or other not-for-profit organizations, prior executive/administrative experience, and a demonstrated ability to conceptualize and implement new projects. An advanced degree in science, knowledge of genetics, and familiarity with advocacy activities are preferred. Excellent communication, interpersonal and management skills are required as well as the ability to build liaisons and coalitions with federal, public, private and industry supported organizations.

Please send a letter of application for this position, resume, and three references by August 1, 2011 to Susan Scalco, FASEB/GSA Human Resources, 9650 Rockville Pike, Bethesda, MD 20814 or e-mail materials to resumes@faseb.org.

Please visit our website at http://www.genetics-gsa.org/ for more information about the GSA.

EOE.

invites applications • invites applications • invites applications

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GSA Executive Director Search

students from all over the world, who are involved in genetics research and teaching.

Phil Hieter (Univ of British Columbia), GSA Vice President, who is Chair of the Search Committee, commented that "This is a great job with huge potential to have major impact on the field of genetics at all levels. The staff at GSA is terrific, and the adjacency with the offices of the America Society of Human Genetics (including some shared staff) is a great bonus. The new Executive Director will play a critical role in developing initiatives that enhance genetics research, teaching and outreach, foster collaboration and scientific exchange, and articulate the value of basic science in society. The position has a generous salary and benefits package, long-term stability, and a mutually beneficial and rewarding relationship with the Board of Directors and GSA members at large."

Other members of the Executive Search Committee include GSA President Paul Sternberg (Caltech), GSA Past Presidents Marian Carlson (2002) (Columbia Univ), and Allan Spradling (2008) (Carnegie Inst/ HHMI) and GSA member Kathryn Anderson (Memorial Sloan Kettering) and Elizabeth Marincola (Pres., Society for Science & the Public; Publisher, Science News).

Executive Director Sherry Marts stepped down in February. Phyllis Edelman, Manager of Communication and Public Relations has been serving as Acting Executive Director.

The Search Committee hopes to name a new Executive Director by October 1, 2011. To apply, please see the advertisement on page two.

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G3: Genes | Genomes | Genetics Debuts

has an illustrious record in scientific publishing with its groundbreaking journal *GENETICS*—the first American journal of genetics, established in 1916 by the founders of our field. *G3*, as a sister journal of *GENETICS*, will continue the tradition of science run by scientists, where the editors are all practicing scientists, the author's peers, chosen by their peers in the GSA, setting the standards of our field with their editorial decisions.

G3 will maintain a standard of quality that will make the journal a desirable place to publish and interesting to read. The data will be high-quality, and the conclusions well-supported. The journal is focused on publishing genetic research—research that encompasses a range of experimental analyses in established model systems, and also that which covers less well-trodden genetic territory and includes population and statistical genetics. The focus on genetic research means that the editorial board can remain relatively small and can respond to the needs of the genetics community. A continuous tsunami of research articles is available to anyone who can search the Internet, but few articles have the imprimatur of a well-established scientific society to validate them.

The best journals offer innovative ways to present your work. For example, *G3* (and *GENETICS*) provide links within articles to model organism databases, so with one click, a reader can access a gene name and a wealth of associated information. Plus, we've responded to our community by providing a forum where all data are available — so researchers can drill deeper in their exploration for meaning. Beyond publishing research that meets our standards, *G3* leaves it up to the community to determine its level of significance and utility. Often it's impossible to predict whether a paper will have widespread importance. This exemplifies the serendipity and joy of scientific discovery.

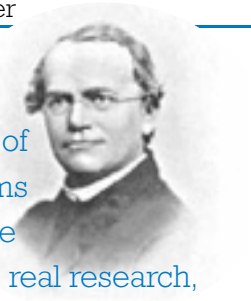
And one of the best aspects of *G3*? After investing your resources in your research, you want a quick decision and prompt publication. *G3* strives to offer a decision within 30 days of submission, and online publication within 45 days. *G3* is fully open access, so that anyone can download, analyze, mine, and re-use the data provided that the authors of the article receive credit; this type of Creative Commons license allows for the freest use of the data. *G3* believes that rapid dissemination of useful data is the necessary foundation for analysis that leads to mechanistic insights. Our vision is that this strategy will enable the most creative use of your research results, and will spawn new discovery. And because the GSA journals have taken a leading role in ensuring full availability of all data related to an article, we pay more than just lip service to the meaning of open access.

Submit your work for publication in the newest journal of the GSA and trust decisions made by your peers. Because your research is important to you, it's important to us.

Brenda Andrews
Founding Editor-in-Chief
G3: Genes | Genomes | Genetics

Paul W. Sternberg
President, Genetics Society of America

Tracey DePellegrin Connelly
Executive Editor
Genetics Society of America Journals



Dear Abbot,

I am in search of online programs that will expose my students to real research, with open-ended investigations that will not break the bank. Any suggestions?

Sincerely,

Panicked PUI* Prof

(* Primarily Undergraduate Institution)

Dear *Panicked*,

There are several programs available right now that may help you out. These methods harness the power of bioinformatics, allowing students to take part in current, vital research and simultaneously learn about the *real* scientific method in an independent manner. Check out the descriptions below:

"Contains 100% CACAO: Functional Annotation with Students" — Brenley McIntosh and James C. Hu, Texas A&M Univ.

In the Community Assessment of Community Annotation with Ontologies (CACAO), teams of students compete to see who can do the best job of mining the scientific literature for assertions about the functions of gene products using the practices established for professional curators by the Gene Ontology (GO) Consortium. GO provides a structure for learning and critical thinking about the nature of gene functions and the logic used to infer them. In our current system, students do alternating rounds of annotation and review of annotations from other teams. Teams get points for correct annotations and can take points from competitors through challenges. This not only provides peer review both within and between teams, the students also enjoy and are motivated by the competition. Students also like knowing that CACAO annotations will ultimately be submitted to the GO consortium and become real contributions to the scientific community. Indeed, the educational goals of CACAO are synergistic with our project goals of increasing community participation in genome databases.

Our pilot program had 16 volunteer life science undergraduates from Texas A&M who were trained and completed the competition in 3.5 weeks. Four teams submitted an astonishing total of 153 annotations focused on *E. coli* gene functions with 117 being accepted after our curators assessed the annotations. We have now expanded the scope of the competition to allow students to annotate any gene product in UniProt.

CACAO annotations are submitted and evaluated through the public GONUTS website (http://gowiki.tamu.edu). Using internet resources allows us to extend CACAO far beyond our own campus. Last fall, our students at Texas A&M competed with teams from University College London, and in the spring of 2011 CACAO expanded to include teams at TAMU, Univ. of N. Texas, Miami Univ. (Ohio), Michigan State, and Penn State. We invite GSA members to join us in future rounds of CACAO, which could even involve students and mentors from different institutions focusing on annotation of specific areas of interest.

"The Genomics Education Partnership" — Sarah Elgin *et. al.*, Washington University

The Genomics Education Partnership (GEP) is a growing group of undergraduate faculty that provide students with the opportunity to participate in research by contributing to sequence improvement, engaging in gene annotations, and performing comparative genomics analyses that lead to research publications. Using a versatile curriculum that the faculty has adapted to many class settings, GEP undergraduates have improved over 2 million bases of draft genomic

sequence from several species of Drosophila and produced hundreds of gene models using evidence-based manual annotation.

The current scientific focus of the GEP is on an evolutionary investigation of the largely heterochromatic Muller F element (dot chromosome). We seek to determine whether heterochromatic and euchromatic domains can be distinguished based on sequence organization and/or gene characteristics. Our comparative studies of *D. melanogaster* and *D. virilis* demonstrated that the dot chromosomes have higher repeat density, larger gene size, lower codon bias, and a higher rate of gene rearrangement compared to reference euchromatic domains. Analysis of orthologs found in a euchromatic environment in one species and on the F element in the other, suggests that genes are responsive to changes in their local structural environment (Leung et al 2010, Genetics 185:1519-34). Analyses of the *D. mojavensis* dot (40% repeats) and the *D. ananassae* dot (80% repeats) are underway.

Students appreciate their ability to make a contribution to ongoing research, reporting increased independence and a more active learning approach following participation in GEP projects. Surveys and knowledge quizzes show that students who have participated also show knowledge gains in analyzing genes and genome organization (Shaffer et al 2010, CBE-Life Sci Edu.9:55-69). A survey of participating faculty indicates professional gains,

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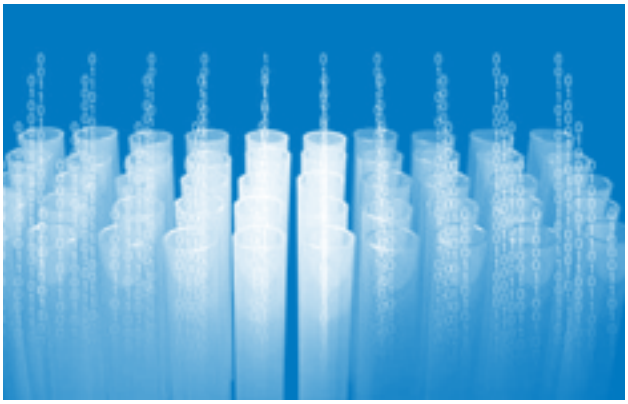
GMOD: The Generic Model Organism Database Project

by Dave Clements, Galaxy Project



GMOD, the Generic Model Organism Database Project, is a suite of open-source interoperable software tools for visualizing, annotating, analyzing and managing biological data. GMOD includes tools for genome visualization and annotation (GBrowse, JBrowse, MAKER, Apollo), comparative genomics visualization (CMap and GBrowse_syn), data integration and analysis (BioMart, InterMine, Galaxy), setting up your own online organism database (Chado, Tripal), and pathway visualization (Pathway Tools). GMOD tools are actively supported by the developers and the rest of the GMOD community. GMOD tools are used in numerous organizations, large and small, public and private, and around the world, to support research across the tree of life.

The GMOD community is an active and diverse group of biologists and software developers addressing common challenges with biological data. GMOD has active mailing lists, a website, semi-annual community meetings, and an annual training course. GMOD also sponsors specialized meetings and discussions on topics such as *tools for evolutionary research, community annotation best practices, and post-reference genome tools.* GMOD also presents introductory workshops at conferences and is working with GSA to have a presence at future GSA meetings.

If your lab is trying to figure out how to better visualize, analyze, organize, and share your data by working with others who are also facing these challenges, then the GMOD project is worth a look. See us at http://gmod.org/.

continued page 1

McClintock Legacy Society Launched

Barbara McClintock

Her contributions helped to lay the foundation for future geneticists and these gifts will help to ensure that the Society has the resources to support the next generation of geneticists.

Charter Member, Hugo Bellen (HHMI, Baylor Col Med) shares why he is making such a gift to GSA: ''My spouse, Catherine Tasnier, and I decided to leave our estate to the GSA to honor young, upcoming Drosophila geneticists. Although a few awards are available to graduate students or senior scientists, almost none are bequeathed to senior postdocs and junior faculty. We therefore decided to recognize Drosophilists of this subgroup who have made significant contributions to the field.''

Charter Members of the McClintock Legacy Society will be recognized in GSA publications and receive special communications from the GSA Executive Director and President. Most importantly, their contributions will help to ensure the GSA's financial future.

For more information on how to become a Charter Member, please contact Phyllis Edelman at 301-634-7302.

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dear **abbot:**

increased access to genomics-related technology, and an overall positive experience using this approach. We find that using a genomics research project as the core of a laboratory course is rewarding for both teachers and students.

• • •

I hope these programs help you lead your students to independent research investigations that strengthen their confidence in doing research and their understanding of scientific analyses.

If other readers have recommendations for programs, please send them to me, at the e-mail address below.

Signed,

The Abbot

(a.k.a. Beth Ruedi, Genetics Society of America, eruedi@genetics-gsa.org)

For more information:

For more information about CACAO, see http://ecoliwiki.net/CACAO. Scientists interested in participating in future rounds of CACAO should contact us at ecoliwiki@gmail.com. CACAO is supported by NIH Resource Grant 1U24 GM088849.

For more information about the GEP, see http://gep.wustl.edu. This effort is centered at Washington University by S.C.R. Elgin, with primary support from HHMI.

Fungal Genetics 2011

With a chill breeze blowing off the Pacific Ocean and the threat of rain in the air, more than 930 participants descended on Asilomar for the 26th Fungal Genetics Conference, March 15-19, 2011. Dampened in spirit due to the powerful Japanese earthquake and tsunami that occurred only a few days earlier, and which prevented twenty colleagues from Japan from attending, registrants were welcomed by a cozy fire in the lodge and friends and colleagues from 33 countries.

Plenary Features

The opening plenary session featured research on genome evolution, including a wide variety of topics spanning from evolution of the transcriptome to differences in clonal lineages of asexually reproducing *Fusarium oxysporum*. David Hibbert (Clark Univ) provided an overview of lessons learned from the Saprotrophic Agaricomycotina Project (SAP), and the evolution of white vs. brown wood rot across the phylogenetic tree. Hibbert also touted the benefits of undergraduate research by describing the excellent bioinformatics work undergraduate students are doing while providing quality gene annotation for the SAP.

Antonis Rokas (Vanderbilt University) described insights learned from CRAP (the cluster reconstruction and phylogeny pipeline), and detailed how examining the DNA record may help elucidate why there are clusters of metabolic genes in fungi, as well as what the evolutionary and functional implications are for clustered genes.

In the second plenary session, between fantastic discussions of smut and mycorrhizae, Duur Aanen (Wageningen Univ) described elegant work examining the evolutionary stability of mutualism by deconstructing the relationship between fungus-growing termites and their crop. As termite colonies are founded, the transmission of symbionts appears to be horizontal (termites must find fungus from the environment), which could lead to a destabilization of the mutualism between the termites and fungus. Aanen and his colleagues hypothesized that in order for a truly mutualistic relationship to be established between a colony and its crop, the relationship between the symbionts must be such that the short-term interests of both the termites and the fungus are being met. To this end, Aanen predicted that within a single termite colony the relatedness between the symbionts would be high and stable, and would serve the short-term interests of the colony. Thus far, experimental evidence supports all three of these predictions.

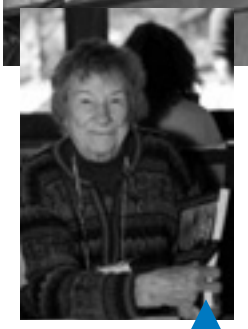
The final plenary session on Saturday morning featured systems genetics research from the lab of Brenda Andrews (Univ of Toronto; GSA's Editor-in-Chief of

Scientific Program Committee co-chairs, Linda Kohn, l, (Univ of Toronto) and Steve Osmani (OSU).

Katherine Borkovich (UC-Riverside), Chair, Fungal Genetics Policy Committee with Prof. Salomon Bartnicki-Garcia (CICESE).

GSA Board Member Jay Dunlap I, (Dartmouth Med Sch) after presenting Peter Bruns (HHMI, retired) with the 2011 GSA Elizabeth W. Jones Award for Excellence in Education.

Marc Orbach, I, (Univ of Arizona) with Sarah Covert (Univ of Georgia) during a poster session.



Career Luncheon participants discussing "Teaching at a Primarily Undergraduate Institution."

Cardy Raper (Univ of Vermont), proudly shows off her new book, *Love, Sex and Mushrooms: Adventures of a Woman in Science*, which was for sale at the Fungal meeting.

Avid listeners during a poster session presentation.

Taking a break in the Lodge are: from l to r: Virginia Hench (UNC-Chapel Hill), Stuart Brody (UCSD), Eric Selker (Univ of Oregon) and Zachary Lewis (Univ of Oregon).

Photo credits: Matthew Sachs

From l to r: Meritxell Riquelme (CICESE), Michael Freitag (Oregon State Univ), Matthew Sachs (Texas A&M) and Stephan Seiler (Univ of Goettingen), waiting to speak.

Participants waiting for the Plenary Session to begin in Merrill Hall.

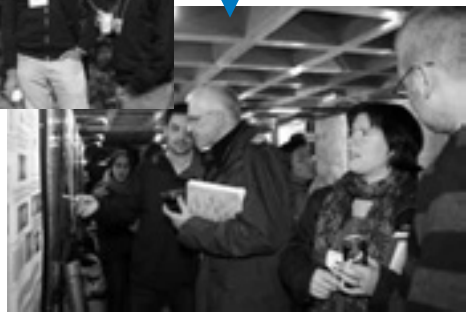
Jason Stajich (UC-Riverside) and Jennifer Wortman (Univ of Maryland, Baltimore) take a break from sessions on the Lodge terrace.

Happy meeting participants during a break.

The overflow crowd from Merrill Hall watches and listens to speakers in the Chapel via remote TV transmission.

All seats are taken at the table discussing "The Job Search" during the Career Luncheon.

Interested poster session presenters and listeners.



Enjoying some fresh air during a coffee break are from l to r: Wilfried Jonkers (USDA-ARS), and from Wageningen Univ, The Netherlands, Ronnie de Jonge , Koste Yadeta and Parthasarathy Santhanam.

G3: Genes|Genomes|Genetics). She provided insight into the genetic networks of budding yeast, achieved by using cutting-edge high-throughput technology. Coupling synthetic genetic arrays with synthetic dosage lethality, Andrews and colleagues are working to elucidate the targets of several histone deactlyaces across the genome, as well as nearly completing a global network map of genetic interactions in budding yeast.

Education Highlighted

There was a broad range of educational activities at the Fungal Genetics Conference including career luncheons, an Education Special Interest Group (SIG) social, an education workshop and the "Undergraduate Experience," where students from local colleges were invited to get a feel for a scientific meeting. (For more details, see article on pp 8-9, "Educational Programming at GSA Conferences.") There were also education posters where participants shared their teaching ideas with colleagues.

Poster and Concurrent Sessions

The three Poster sessions were well attended in the repurposed garage at Asilomar. More than 675 posters were presented on numerous topics from comparative and functional genomics to pathogenic and symbotic interactions. There were also 26 afternoon concurrent sessions participants could choose from, which offered

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Fungal by the Numbers

1	GSA Excellence in Education Award presented
10	GSA Poster Awards presented
14	Financial sponsors
18	Undergraduates for the "Undergraduate Experience"
20	Plenary talks
26	Concurrent sessions
33	Countries represented (including US)
55	Travel grants awarded students
276	Meeting t-shirts sold
523	Gallons of coffee/tea consumed
678	Poster presentations
933	Registrants
2,050	Dollars raised for the Red Cross to help the victims of the Japanese Earthquake and Tsunami

Building and Expanding on Established Practices:

Educational Programming at GSA Conferences

by Beth Ruedi, GSA Director of Education and Professional Development

GSA is actively expanding our educational programming, which will eventually include a web portal for peer-reviewed genetics education resources, career development programs for trainees, workshops, and much more. Part of this education initiative is developing a consistent set of educational programs for all GSA conferences. Each GSA community has a unique and established educational agenda; our goal is to build on that, adopting and expanding the programs available at each conference. Currently, the infrastructure of the programming includes programs for undergraduate researchers; graduate student and postdoctoral trainees; genetics students at local undergraduate institutions; and genetics educators. The types of programming offered at each conference is based on the demographic of the conference attendees, and programming is adapted based on the needs of each community.

Undergraduate Mixer and Plenary Session

At conferences where undergraduate researchers have relatively high attendance, GSA is including special programs for these students, who typically present posters and travel with their advisor. The programming includes an Undergraduate Student Mixer, held on the first night of the conference, to allow undergraduate conference attendees to meet one another and establish a support network for the duration of the meeting.

During the second half of this mixer, principle investigators are encouraged to join students to welcome them to the community and establish communication with potential new graduate students. The inaugural Undergraduate Mixer was held at the 2011 Drosophila conference with 20 undergraduates, who were later joined by 7 faculty members. We hope to build on this foundation by establishing this as a yearly event.

Drosophila 2011 also marked the first Undergraduate Plenary Session, with a plenary talk geared for undergraduates. This year featured Jim Wilhelm (UC San Diego) speaking about "Novel filament forming proteins in yeast and Drosophila: using systems approaches to make unexpected connections in cell biology." The session was met with great success, and GSA intends to expand this idea and host an Undergraduate Plenary Session at any conference with a critical mass of undergraduate researchers. Additionally, we will work closely with the Drosophila community to expand this session in the coming years.

Education workshops are well-established at most GSA conferences, and provide an excellent resource for educators.

Career Luncheons

Career or mentor luncheons for graduate students, postdocs, and undergrads were previously established at several GSA conferences, but we have actively expanded and enhanced this program. Starting in 2010, these luncheons were introduced at all GSA-sponsored conferences and now include "topic tables" for a more focused mentoring session. Topics have included: transition to independence; work-family (or work-life) balance; teaching and research at primarily undergraduate institutions; non-academic careers; the art of networking; the job search; the postdoc search; the tenure process, etc. This is an excellent opportunity for trainees to have informal conversations with career scientists.

Senior scientists at the Fungal Genetics Conference this March provided 20 topic tables over the course of two luncheons. This was a new program for this conference and enthusiastically accepted by both students and mentors.

At Drosophila 2011, ten topics were provided to students, with approximately 75 students attending. To provide trainees with the most useful mentoring advice, GSA revises topics to suit the needs of trainees. Additionally, we will ramp up efforts to advertise and promote this program, polling attendees afterwards in an effort to continually improve the luncheon.

Education Workshops

Education workshops are well-established at most GSA conferences, and provide an excellent resource for educators. Pat Pukkila (UNC) organized the education workshop for Fungal Genetics 2011, as she has for several years. Speakers presented on a wide variety of topics, including pedagogy (Marilee Ramesh - Roanoke Univ; Andrea Gargas - Symbiology), directing an HHMI undergraduate research program (Aaron Mitchell - Carnegie Mellon Univ), and a

postdoc's retrospective on choosing a career centered on genetics education (Claire Burns- Indiana Univ).

The Drosophila Conference hosts a workshop specifically for research and pedagogy at primarily undergraduate institutions (PUIs); the PUI workshop at Drosophila 2011 was organized by Jason Duncan (Willamette Univ), Janet Rollins (College of Mount Saint Vincent, NY), and Thomas Onorato (Laguardia Community College/CUNY). This workshop also offered a venue for several undergraduate researchers to present their work at a professional conference.

GSA would like to establish a workshop specifically focusing on pedagogy at every conference, and provide an array of topics to appeal to all educators, including those based at R1 universities, PUIs, and community colleges.

GSA will also provide a social mixer for educators interested in learning more about the Education Special Interest Group (SIG) at each conference, which has the added benefit of promoting networking among geneticists passionate about education.

Outreach: The Undergraduate Experience

GSA has also developed an education outreach program that targets undergraduate students at schools located near conference sites, who may not otherwise have the chance to experience research or examine communication between scientists. The "Undergraduate Experience" provides students from genetics classes at local institutions with the unique opportunity to observe distinguished career scientists present their current research in a conference setting.

The students, accompanied by their professor, receive a background lecture and participate in an interactive discussion before attending part of a plenary session. This informative and engaging program is meant to give students a glimpse into the real world of genetic research; it is not intended for students who are already involved in scientific research. Rather, it will provide students with the opportunity to learn about current scientific research outside of a textbook, witness the communication of scientific research first-hand, and ideally will foster an interest in furthering their science education. This experience is offered for free and by invitation only to community colleges, colleges and universities near the conference site venues.

This informative and engaging program is meant to give students a glimpse into the real world of genetic research

The "Undergraduate Experience" at Fungal Genetics 2011 provided biology majors at Monterey Peninsula College to hear an entertaining and informative background lecture by Michael Freitag (Oregon State Univ), attend part of the "Growth and Development" plenary session, and finally participate in an energetic discussion about what they had seen with Jack Kennel and graduate student Rasha M. Al-Reedy (St. Louis Univ).

The students at MPC enjoyed the program immensely, said MPC faculty member Andres Durstenfeld: "Naturally they were excited to find that they were able to understand much of what was presented, but the unexpected surprise for them was the realization that science at the cutting-edge requires such commitment and dedication. Most came away with a better sense of how scientists communicate with one another and how science works as a collaborative process. Those are lessons that are less easily conveyed in the classroom."

The Drosophila 2011 "Undergraduate Experience" was a smaller event, with students present from CSU San Marcos, Berkeley, and UC Davis. These students participated in a background discussion led by GSA Past President Scott Hawley (Stowers Inst), and attended a plenary session with talks spanning a wide array of topics, including vesicle movement and chromosomal banding.

Expansion and Recommendations

GSA will continue to expand on established educational programming at conferences, and introduce new programming to suit the needs of each community. Much of the programming is discussed and developed with the help of the volunteer Education Advisor for each conference, and a great deal of thanks is goes to Marilee Ramesh (Roanoke Univ) and Karen Hales (Davidson Coll), the Education Advisors for Fungal Genetics 2011 and Drosophila 2011, respectively.

If you have any recommendations or ideas for educational programming, wish to know more about the Education Special Interest Group, or would like to volunteer to be the Education Advisor at an upcoming conference, please contact Beth Ruedi at eruedi@genetics-gsa.org . Comments, questions, and feedback are always welcome!

The Flies Return to San Diego

With the venue once again at the Town and Country Resort & Hotel in warm and sunny San Diego, the 52nd Annual Drosophila Research Conference boasted 1570 participants attending 14 plenary lectures, 21 concurrent sessions, 11 workshops and 1,052 posters, as well as a plethora of social events. The meeting kicked off with an opening general session that included the Larry Sandler Memorial Lecture.

2011 Drosophila Conference Meeting Organizers, from l to r: Gio Bosco (Univ of Arizona), Leslie Griffith (Brandeis Univ), and Dan Barbarsh (Cornell Univ) at the opening session.

L to R: John Carlson (Yale Univ), accepting the 2011 GSA Medal from Past President Scott Hawley (Stowers Inst).

The Present and the Past

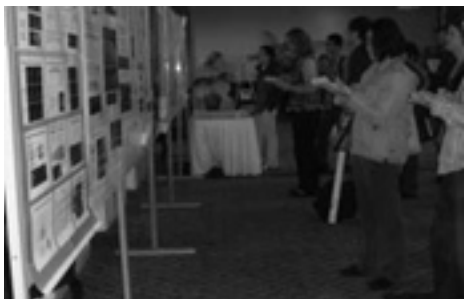
The Sandler lecture highlighted the impressive doctoral research conducted at the Univ of Texas MD Anderson Cancer Center by Daniel Babcock (now at Univ of Wisc), a recent PhD recipient. Babcock's lecture described his elegant dissertation research investigating pain perception in response to tissue damage in *Drosophila melanogaster* larvae. He created transgenic larvae with fluorescent epithermal cells, study organisms that would allow him to link epidermal cell damage to nociception in real-time, and uncover the ''damage signal pathway'' in flies. He assessed tissue damage and larval hypersensitivity to pain in these genetic mutants after exposure to UV radiation, and found that tumor necrosis factor (TNF) signaling was required for lowered pain threshold (allodynia), but not exaggerated response to pain (hyperalgesia).

Coupling this information with an RNAi screen, he also found that Hedgehog signaling is a requirement for hypersensitivity, and identified transient receptor potential channels as possible targets for TNF and Hedgehog signaling in the allodynia and hyperalgesia pathways.

This fascinating lecture was followed by the Historical Lecture, which focused on time (circadian rhythms), love (courtship and sex determination), and memory in Drosophila, and was presented in three parts by Seymour Benzer's academic protégées, Michael Rosbash (Brandeis/HHMI), Stephen Goodwin (Univ of Glasgow), and Scott Waddell (UMass Medical School).

The stroll through the history of Drosophila behavior genetics was riveting, and the audience was reminded of seminal work on ethology, genetics/genomics, and neurobiology. Benzer truly was the pioneer of behavioral neurogenetics, and those who followed in his path have made incredible discoveries about the pathways leading to complex behavioral phenotypes. In addition to this impressive research portfolio, the lecture also featured amusing anecdotes (not all of them planned), and a wonderful display of 1970's hairstyles.

The GSA Historical Session, featuring from l to r: Stephen Goodwin (USDA-ARS/Purdue Univ) at podium, Michael Rosbash (Brandeis Univ/HHMI) and Scott Waddell (UMass Med Sch) seated on couch.



Participants viewing and taking notes on the posters that received the GSA Poster Awardees.

Two participants exchanging ideas during one of the poster sessions.

A plethora of conference events

The first plenary session began with the presentation of the Drosophila Image Award, given to images that ''communicate important findings in Drosophila research.'' This year, awards were presented to Mollie K. Manier for video and J.Y.Yu for his still photo. These are available online at http://www.drosophila-images.org.

Following the image awards, for the next three and a half days participants were treated to plenary, concurrent platform and poster sessions featuring topics that ranged from aging to neurogenetics, evolution and quantitative genetics to epigenetics. Whether participants wanted to gather information about innovative research


Students discuss the postdoc search during the Career Luncheon


Past President Scott Hawley, center, talking with students at the Student Social.


Two participants studying the program book between sessions.


From L to R: Aaron Tarone (Texas A&M), talking with meeting co-organizer, Dan Barbash.


Meeting co-organizer Gio Bosco, l, takes a break to talk with long-time member Mel Green (UC-Davis).


GSA Education Director Beth Ruedi, l, conversing with Jason Duncan (Willamette Univ, OR).


The Career Luncheon discussion table on Non-Academic Careers.


Students at the Undergraduate Social.

in their own field, or broaden their scope to include a diverse variety of fields, the conference topics covered it all.

In addition, there were more than a dozen exhibitors and nearly a dozen workshops which focused on topics from research and pedagogy at primarily undergraduate institutions, to updates on the modEncode project. As is tradition, there were FlyBase and FlyMine demonstrations on several conference days.

A social (insect) conclusion

The closing plenary session featured several talks, including a discussion of the ultimate (evolutionary) causation behind social insect behavior by Anna Dornhaus (Univ of Arizona).

Luke Hoekstra, a graduate student at Indiana University, provided the following review of Dornhaus' research:

Anna Dornhaus motivated her talk with Tinbergen's four questions. She gave a brief philosophy of science lesson, emphasizing the difference between 'why questions' that evolutionary biologists ask and 'how questions' that molecular biologists ask using the rhetorical question, 'Why did you paint your house pink?' Dornhaus said, 'It's not because you bought this particular brush or paint, rather because you wanted your house to be pink (goal-directed).'

She then related some findings that may shed light on several biological enigmas about learning and specialization in social insect colonies. Honeybees that live in quickly changing environments, for instance, don't bother learning which flowers provide the best pollen and instead choose flowers randomly. This may provide some insight into the benefits of learning instead of having a fixed behavioral program.

'Why specialize?' is another fundamental question in social insect colonies, and it is actually not clear what the benefit of specialization is in social insects. Dornhaus said that at any one time, 50-70 percent of the colony is inactive, not working! Could specialization evolve due to the cost of having to switch tasks? She said that this was not a likely explanation, because her group has found that experience (i.e. specialization) actually reduces variation among individuals with no benefit to performance.

Through these research vignettes, Dornhaus provided a nice end to the conference.''

Kudos to the conference organizers, Daniel Barbash (Cornell Univ) and Giovanni Bosco (Univ of Arizona) and Leslie Griffith (Brandeis Univ) for developing a terrific program, enjoyed by all.

Save the dates for next year's meeting: March 7-11, 2012 in Chicago, Illinois at the Sheraton Chicago Hotel & Towers. Organizers Celeste Berg (Univ of Washington), Erika Matunis (Johns Hopkins Univ), Kevin White (Univ of Chicago) and Steve Crews (UNC, Chapel Hill) are already planning for 2012!

Eight Poster Awards Distributed at Drosophila Conference

Congratulations to the Drosophila Poster Award recipients. Up to three awards were presented to undergraduates, graduates and postdoctoral fellows who presented posters at the 52nd Drosophila Research Conference, March 30-April 3 in San Diego, CA. First awards included a prize of $500; second awards were for $300; and third awards were for $200.

The recipients of the awards are listed below.

UNDERGRADUATES

1st Sonia M. Hall (Univ of Kansas), "Macroglobulin complement related (Mcr) is an extracellular component of epithelial septate junctions," Robert Ward, PI.

2nd Cameron Berry (Univ of Chicago), "Investigating the putative function of Merlin in the nucleus," Richard Fehon, PI.

GRADUATE STUDENTS

1st Yoosik Kim (Princeton), "High-throughput analysis of morphogen gradients using a microfluidic device," Stanislav Y. Shvartsman, PI.

2nd Imke Schmidt (Univ of Münster, Germany), "Identification of new glial cell specific gene functions," Christian Klämbt, PI.

3rd Grace Y. Lee, PhD, (UC-Davis), "Population Genomics of Drosophila melanogaster Coding Sequences," Chuck Langley, PI.

POSTDOCTORAL FELLOWS

1st Sean M. Buchanan, PhD, (The Roland Inst, Harvard), "Handedness in Drosophila Locomotor Behavior," Benjamin L. de Bivort, PI.

2nd Valerie Hilgers, PhD, (UC-Berkeley), "Progressive and restricted expression of long 3'UTR extensions during Drosophila embryonic development, Michael Levine, PI.

3rd Inês Ribeiro, PhD, (UC-San Diego), "Phosphoinositide roles in muscle membrane compartmentalization and remodeling," Amy Kiger, advisor.

Thank You to Our Donors

GSA Fund Donors: Dec 2010 – March 2011

The Genetics Society of America acknowledges and thanks the 120 members who have given donations to the Society. The GSA accepts donations to our general fund to support ongoing programs, such as our enhanced education program described in this issue (See page 8), and to specific funds for travel awards to young scientists. These travel award funds are the DeLill Nasser Award for Professional Development in Genetics for graduate students and postdoctoral fellows to attend meetings or courses of their choice and the Victoria Finnerty Memorial Fund for Undergraduate Travel Awards, a new fund for undergraduates who wish to attend the annual GSA Drosophila conference.

DeLill Nasser Fund

The DeLill Nasser Fund is named in honor of long-time GSA member and National Science Foundation Program Director, DeLill Nasser (1929-2000). Nasser, who was at NSF for more than 22 years, was a champion of genetics and friend of many GSA members. Her interest in genetics resulted in the genomic sequencing of Arabidopsis and in Drosophila research. Nasser was particularly supportive of young scientists who were beginning their careers and trying to open up new area of genetic inquiry. The fund was established by GSA in 2001 and for this year, 26 graduate and postdoctoral fellows received $1,000 travel awards.

The Victoria Finnerty Fund for Drosophila Travel

Most recently the Drosophila community established the Victoria Finnerty Fund to honor Vicky Finnerty (1938-2011), who was a long-time member of GSA and whose career in genetics spanned 35 years, many of them at Emory University, where she excelled as a teacher and a geneticist. She was particularly known for her creativity in and dedication to training undergraduates in Drosophila genetics. She constantly sought new ways to engage undergraduates in their genetics courses and in research.

To donate to the GSA please go to https://secure.genetics-gsa.org/gsa_donation/donate.shtml. Or, send a check payable to The Genetics Society of America, 9650 Rockville Pike, Bethesda, MD 20814-3991, Attn: Phyllis Edelman. Please write in the note if this is for the General, DeLill Nasser or Victoria Finnerty Fund.

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Congratulations to the graduate students who received the GSA Poster Awards at the Fungal Genetics Conference:

From l to r: Jonathan Palmer (Univ of Wisconsin-Madison), Srisombat Puttikamonkul (Montana State Univ, Bozeman), Jennifer Jackson (Texas A&M Univ), Pallavi Phatale (Oregon State Univ, Corvallis), Heather Edgerton-Morgan (Univ of Kansas, Lawrence), Rebecka Strandberg (Uppsala Univ, Sweden) Katarina Kopke (Ruhr Univ Bochum, Germany), and Yasin Dagdas (Univ of Exeter). Not included in photograph: Johannes Freitag (Phillips Univ, Marburg, Germany) and Liang Liang (Stowers Inst).

Photo credit: Matthew Sachs

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Fungal Genetics 2011

interesting and thought-provoking topics from Emergent Fungal Diseases (John Taylor, UC-Berkeley and Matthew Fisher, Imperial College, London) to Biobased Products, Biofuels, and Bioenergy (Jonathan Walton, Michigan State Univ and Peter Punt, TNO – Netherlands Organization for Applied Scientific Research, Zeist).

Other Events

Closing up the conference was the Perkins/Metzenberg Lecture given by Prof. Salomon Bartnicki-Garcia and was the highlight of the last session. Given with humor and humility, Prof. Bartnicki-Garcia, (CICESE, Ensenada, Mexico), outlined his personal and professional life – from his birth to his research on the growth of hyphae in fungi and his current position at CICESE.

In addition, numerous awards were presented to students. Ten students received GSA Poster Awards and the American Society of Microbiology presented Eukaryotic Cell Young Investigator Awards. GSA also presented the 2011 Elizabeth W. Jones Award for Excellence in Education to Peter J. Bruns, who was Vice President for Grants and Special Programs at the Howard Hughes Medical Institute and prior to that was a professor of genetics at Cornell University in Ithaca, NY.

The conference closed with a rousing party in Merrill Hall, rocking to the sounds of "The Amplified DNA Band," with Aubrey Jones, Michael Rey, Hal Brunette, Glenn Nedwin and sound engineer, Alfredo Lopez.

The meeting was considered an unqualified success, thanks to the Program Co-chairs, Linda Kohn (Univ of Toronto) and Steve Osmani (The Ohio State Univ). Additional thanks go to Katherine Borkovich, Chair, Fungal Genetics Policy Committee (UC-Riverside), Marc Orbach (Univ of Arizona) for grant coordination, Kevin McCluskey, Fungal Genetics Stock Center (Univ of Missouri – Kansas City), Matt Sachs (Texas A&M Univ) for his photographs of the event and Amritha S. Wickramage (Univ of Arizona) for program and t-shirt design.

12th INTERNATIONAL CONGRESS OF HUMAN GENETICS & 61st ANNUAL MEETING OF THE AMERICAN SOCIETY OF HUMAN GENETICS

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12TH ICHG MONTREAL

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For more information about the 12th ICHG program content, please see the current schedule of events.

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