



Genetics Society
of America

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GENETICS

From the President's desk:

2009 Brings Changes and Optimism

As 2009 begins and Barak Obama takes office, several issues at the national level will be closely watched by GSA members and indeed by most scientists. The greatest concern for many of us is government support for research. What will the Obama administration do to address funding levels of NIH, NSF, and other agencies? While no specifics have yet been provided, there is encouraging news, including the appointment of former NIH director Harold Varmus and Eric Lander to serve as co-chairs of the President's Council of Advisors on Science and Technology. Reports that the Obama administration hopes to double the NIH budget over the next four years and that it views investment in research as an economic stimulus add to our optimism, even in the face of the current economic crisis. We await more definitive news on budget plans for research funding and on the appointment of the next NIH director.



Equally important to funding is the expectation of a changed attitude of the federal government toward scientific research. As we celebrate Darwin's 200th birthday this year, it is fitting to have leaders who understand that evolution is a fundamental aspect of learning genetics and that teaching it in the classroom should not be controversial. There is tremendous anticipation that the Obama administration will be a stalwart ally in many areas of science, ranging from climate change to stem cells. In this enlightened environment, we encourage GSA members to become more involved in teaching, to participate in public policy discussions, and to promote research careers to our students.

While changes at the national level bring hope, changes at the GSA have already occurred. As announced in December, Mark Johnston has accepted the position of editor-in-chief of *GENETICS*. Mark served as the acting editor-in-chief for several months after the untimely death of Beth Jones. Beth, editor-in-chief of *GENETICS* for nearly 10 years, brought many important changes to the journal, including web-based submissions, a revamping of the cover, and the initiation of special issues of the journal on particular topics. Beth is greatly missed by all of us. Mark, as the new editor-in-chief, has initiated more changes at *GENETICS*, including a restructuring of the editorial board. In the new organization, eight senior editors have been added, each heading a group of associate editors organized into different editorial sections spanning different areas of genetics.

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Dear Abbot:

I'm supposed to develop an undergraduate course in genetics for non-biology majors. The textbooks have an immense amount of information – where do I start? Do geneticists actually agree on what areas are the most important to be covered? I think it's very important for non-scientists to become literate enough in genetics to make informed decisions in matters of health and public policy. How will I know if I'm getting through to my students and they're actually learning the really important things?

Sincerely,
Overwhelmed

Dear Overwhelmed:

I agree that it's very important to develop a basic literacy in genetics, something that will be increasingly important as genetic technologies have an increased impact on medicine and public policy. We clearly have our work cut out for us in educating the general public on matters concerning genetics.

Perhaps a good place to start in designing your course is to look at the set of key genetics concepts developed by The American Society of Human Genetics for non-science majors. (Look for the publication Hott et al. 2002 "Genetics content in introductory biology courses for non-science majors: theory and practice" *BioScience* 52:1024.) They defined 6 content areas, with a main concept defined for each area. For example, in the content area "gene expression," the main concept is that "gene products, in combination with environmental influence, regulate all life processes." Six to eleven additional related subconcepts were also defined for each content area, giving you a framework of the topics that could be the beginning of your course syllabus.

As to how to assess your student's literacy in genetics, Bowling et al. from the University of Cincinnati developed a multiple-choice test, the "Genetics Literacy Assessment Instrument" or "GLAI," which addresses these genetics core concepts. This set of 31 questions were

developed in consultation with genetics professionals and vetted in student focus groups and by pilot testing. You can read about this in the January 2008 issue of *GENETICS* (Bowling et al. 2008 *GENETICS* 178: 15-22.) Contact the

authors to obtain the GLAI. The test can be administered before and after the course to assess gains in understanding. Incidentally, studies from

the GLAI and a similar test developed for learning physics core concepts, showed that mastery of

core concepts was not related to the amount of time spent on the topic in class; mastery improved when more interactive teaching strategies were used. (You can find these studies in Bowling et al. 2008 *BioScience* 58:654-660; Hake 1998 *American Journal of Physics* 1:64-74). So, try some student-oriented, inquiry-based activities, case-studies, or group discussions to reinforce those key concepts. The undergraduate education pages at the websites for the American Society for Human Genetics (www.ashg.org) and the Genetics Society of America (www.genetics-gsa.org) give some links to web teaching resources that may provide you with some additional ideas.

Best wishes,
The Abbot
(a.k.a. Sue Lovett, Brandeis University, Waltham, MA.)



New GSA Executive Director Named

The Genetics Society of America (GSA) is pleased to announce the appointment of Sherry A. Marts, Ph.D. to the position of Executive Director, effective January 22, 2009. Marts is the third executive director of GSA since the office was established in 1983. Her predecessor, Elaine Strass, retired after serving as executive director for nearly 17 years. (See article below.)

Marts has a wide-ranging background in biomedical research, research administration, nonprofit management, public education and advocacy, and media relations. She comes to GSA from the Society for Women's Health Research (SWHR), where she was vice president for scientific affairs and had developed SWHR's scientific programs to promote and develop the new interdisciplinary field of sex differences research. She produced six annual conferences on Sex and Gene Expression and established three interdisciplinary research networks to foster sex differences research in neuroscience, musculoskeletal biology, and metabolism. The success of these programs led to the launch in 2006 of the Organization for the Study of Sex Differences (OSSD), a scientific membership society. Marts served as the first executive director of OSSD.

Prior to her work at SWHR, she worked in research administration and advocacy in biomedical services at the American Red Cross, and directed biomedical research grant programs in Alzheimer's disease, glaucoma, and cardiovascular disease at the American Health Assistance Foundation. She received her B.Sc. (Hons.) in Applied Biology from the University of Hertfordshire, United Kingdom and her Ph.D. in Physiology from Duke University, Durham, NC.

"I am thrilled and honored to be joining GSA and humbled by the opportunity to work with world renowned geneticists. Research in genetics is key to our understanding of biological systems, and it will be exciting to be part of this continually evolving field." Marts said.



Sherry A. Marts

Elaine Strass Retires from GSA after 17 Years

GSA staff, Board members and members of the Federation of American Societies of Experimental Biology (FASEB), bid a fond farewell to Elaine Strass who served as GSA Executive Director for nearly 17 years, at a reception in her honor on January 27, 2009. Succeeding Gerry Gurvitch early in 1992, Strass assumed leadership for both the GSA and the American Society of Human Genetics (ASHG) as their executive director. Strass retired from ASHG in August, 2008. She led both the societies from offices in Bethesda, MD, in the FASEB building. Under her guidance both societies flourished, adding activities, meetings and new members.

Among her many challenges over the years were keeping up with constantly changing office technology and the advent of the Internet, annual changes in two boards of directors, working with two presidents each year and maintaining two separate systems that easily worked together smoothly and efficiently. Strass has been planning her retirement for two years and is looking forward to pursuing hobbies such as singing, knitting, quilting and other crafts and community activities.

In 2001 ASHG appointed Dr. Joann A. Boughman as Executive Vice President and she has succeeded Elaine as the head of ASHG. GSA has appointed Dr. Sherry Marts as Executive Director who will lead the society independently of ASHG (see article above). The offices will continue to work together as before.





2009 DeLill Nasser Award Recipients Announced

The GSA has selected six recipients for the 2009 DeLill Nasser Travel Awards to help young geneticists attend national and international meetings and enroll in laboratory courses. The six awardees, their institutions and the conferences they will be attending with their funding are:

- **Arantza Barrios**, Ph.D, Albert Einstein College of Medicine, Bronx, NY, 17th International *C. elegans* Meeting, June 24-28, 2009, UCLA. Barrios is a postdoc working with Scott W. Emmons on genetics of behavior using the *C. elegans* male as a model system.
- **Eleni Mimitou**, Columbia University, New York, NY, FASEB Summer Research Conference on Genetic Recombination and Genome Rearrangement, August 2-7, 2009, Snowmass Village, CO. Mimitou is a graduate student working with Lorraine S. Symington on the mechanism of homologous recombination in *S. cerevisiae*.
- **Maria Margarita Womack**, Princeton University, NJ, 50th Annual Drosophila Research Conference, March 4-8, 2009, Chicago, IL. Womack is a graduate student working with David Stern on how morphological diversity is generated in eye size/shape and abdominal pigmentation between closely related species pairs in Drosophila.
- **Timothy B. Sackton**, Ph.D., Harvard University, Cambridge, MA, 50th Annual Drosophila Research Conference, March 4-8, 2009, Chicago, IL. Sackton, a postdoc is working with Daniel Hartl on the mechanisms and evolutionary forces that lead to gene expression divergence between species and on the patterns of genetic diversity and the forces shaping diversity in Drosophila.
- **Wei Shen**, University of Wisconsin-Madison, Axonal Connections: Molecular Cues for Development and Regeneration, Keystone Resort, February 17-22, 2009, Keystone, CO. Shen is working with Barry Ganetzky on a doctoral research project seeking to understand the role of autophagy as a key positive regulator in the development of the larval neuromuscular junction (NMJ).
- **Michelle M. Tangredi**, Tufts University School of Medicine, Boston, MA, 50th Annual Drosophila Research Conference, March 4-8, 2009, Chicago, IL. Tangredi is working with E. Rob Jackson on identifying protein kinases that regulate clock proteins to help understand how animal behavior becomes synchronized to a new or altered environment.

These awards, established in 2001, were named for long-time GSA member and National Science Foundation Program Director in Eukaryotic Genetics, DeLill Nasser. Nasser was especially supportive of young scientists who were beginning their careers and those trying to open new areas of genetic inquiry. For information about donating to the fund, visit the GSA website at <http://www.genetics-gsa.org/pages/delill.shtml>.



Arantza Barrios, Ph.D



Eleni Mimitou



Maria Margarita Womack



Timothy B. Sackton, Ph.D.



Wei Shen



Michelle M. Tangredi



New Editors at *GENETICS* Journal

GENETICS has a new editor-in-chief and a new editor of its Perspectives column. Mark Johnston (University of Colorado –Denver Health Sciences Center), a member of the *GENETICS* Journal Board of Senior Editors, and a past president of GSA (2004) was named Editor-in-Chief by the journal and Adam Wilkins, a long-time GSA member who was editor of *BioEssays* for 24 years will be the new Perspectives editor.

Johnston has been serving since June as the journal's acting Editor-in-Chief after the untimely death of his predecessor, Elizabeth W. Jones (Carnegie University, Pittsburgh, PA). Johnston assumes the role of the 16th editor-in-chief since the 1916 inception of the peer-reviewed publication. He leads a team of 82 associate editors and eight senior editors, as well as editors for reviews, perspectives, and education sections. "I am flattered by my colleagues' confidence in my ability to fill Beth's shoes," said Johnston. "It's a great honor to be chosen to lead the original American journal of genetics, established by the founders of our field. I intend to be a good steward," he added.

After more than 25 years as a Professor of Genetics at Washington University School of Medicine in St. Louis, Johnston recently moved to the University of Colorado-Denver Health Sciences Center, where he is Professor and Chairman of the Department of Biochemistry and Molecular Genetics.



Mark Johnston



Adam Wilkins

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2009 GSA Elected Officers Now on Board



**R. Scott Hawley,
Vice President**



Jay C. Dunlap



**Douglas E.
Koshland**



Susan R. Wessler

The results of the 2008 elections to the Board of Directors are in: R. Scott Hawley (Stowers Institute for Medical Research, Kansas City, MO), was elected vice president for 2009, to become president in 2010. New directors elected to the Board for three year terms are: Jay C. Dunlap (Dartmouth Medical School, Hanover, NH), Douglas E. Koshland (Carnegie Institution of Washington, Baltimore, MD and HHMI), and Susan R. Wessler (University of Georgia, Athens).

Hawley, an American Cancer Society research professor, has long been active in GSA and the *Drosophila* community, having served on the GSA Board from 1996-99 for the past 16 years as an Associate Editor of *GENETICS*, and now a Senior Editor of the journal. Hawley has attended most of the GSA *Drosophila* meetings, and helped organize several of them, and has served as chair of the Larry Sandler Memorial Lecture Selection Committee. Hawley's lab works on fruit flies and chromosome behavior during meiosis.

Dunlap, a driving force within the *Neurospora* community, has worked extensively with this model organism and identified many of the genes encoding its circadian rhythms. He is a co-organizer of this year's 25th Fungal Genetics Meeting and has been a co-organizer of this meeting in the past.

Koshland, who has worked with yeast as a model organism, is known for his work in chromosome cohesion and condensation, and he is also interested in chromosome integrity, genome evolution and cell cycle regulation.

Wessler, a plant molecular geneticist, studies plant transposable elements and how they contribute to gene and genome evolution.

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Something for Everyone at the 25th Fungal Genetics Conference

25th

*by Jay C. Dunlap, Co-chair, Scientific Program, 25th Fungal Genetics Conference and
Dartmouth Medical School, Hanover, NH*

This year marks the Silver Anniversary of the biennial Fungal Genetics Conference, once again held at the Asilomar Conference grounds in Pacific Grove, California, March 17–22, 2009. This is arguably the “go-to” meeting in the world of pan-fungal biology. What began in the 1950s as the Neurospora Information Conference grew by accretion as other fungal models were added in the early 1980s and then mushroomed (literally) in the late 1980s as research on plant pathogens and medical mycology took off driven by new technologies, as well as by a diaspora of researchers moving from the classical models to newly tractable systems.

The Fungal Genetics Meeting is a celebration of fungi as a whole. Although the filamentous fungal model systems such as Neurospora and Aspergillus still constitute one of the several constituent cores of the meeting along with the plant and animal pathogens, the nearly 1000 attendees study in the aggregate over 130 different species of non-yeast fungi and fungi look-alikes. Indeed, the strength of the meeting derives from its diversity – a biological rainbow of cellular and molecular problems and approaches, of hosts and

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Upcoming Fly Meeting Looks Golden

by Lynn Cooley, 2009 Dros Meeting co-organizer, Yale University, New Haven, CT

This year marks a special milestone for the Drosophila community – the 50th Annual Drosophila Research Conference, March 4-8, 2009 in Chicago, IL. Ever since its inception, the fly meeting has been a core component of the fly community, providing a venue to share data openly and freely, form collaborations, and exchange ideas. To provide a perspective of the history of these meetings, on the opening night we will present a lively discussion among luminaries of the community who were either there from the very early days of these meetings (Mel Green, Dan Lindsley, Tony Mahowald) or who have seen the meetings evolve over the last 30 years (Thom Kaufman, Ruth Lehmann, Eric Wieschaus). Scott Hawley, Vice President of the GSA and eminent Drosophila geneticist, will apply his master of ceremony skills to hosting this discussion.

In addition to telling stories and hearing some history, our goal is to celebrate how the spirit of sharing and collaboration established at these meetings 50 years ago continues to propel groundbreaking science today. The opening night festivities will also include the Larry Sandler Award Presentation and Lecture.



Scott Hawley

Scott Hawley moderates an interactive discussion on 50 years of the Fly Meeting with Mel Green, Dan Lindsley, Tony Mahowald, Thom Kaufman, Ruth Lehmann and Eric Wieschaus.

50th

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Mel Green



Dan Lindsley



Tony Mahowald



Thom Kaufman



Ruth Lehmann



Eric Wieschaus



2009 Award Winners Selected

The Genetics Society of America is pleased to announce its 2009 award recipients. The Society presents five awards annually to recognize outstanding contributions of researchers in the field of genetics. The five awards and their recipients are:



John Roth

- The **Thomas Hunt Morgan Medal** for lifetime contributions to the field of genetics given to **John Roth** (University of California, Davis). Roth is one of the preeminent bacterial geneticists of our time, whose work has helped to elucidate regulation by attenuation, the mechanism of chromosome duplications, the use of transposable elements as genetic tools, context effects of translation, and much more.



Marian Carlson

- The **Genetics Society of America Medal** for outstanding contributions to the field of genetics for the past 15 years to **Marian Carlson** (Columbia University, New York, NY and HHMI) in recognition of her research in understanding metabolic and growth regulation by protein kinases and critical aspects of eukaryotic gene expression.



Jay C. Dunlap

- The **George W. Beadle Award** for outstanding contributions to the community of genetics researchers to **Jay C. Dunlap** (Dartmouth Medical School, Hanover, NH) for his work on the circadian clock in *Neurospora*, which has guided research on clocks in other organisms including flies, mice and humans.



Sarah C. R. Elgin

- The **Elizabeth W. Jones Award for Excellence in Education** in recognition of significant and sustained impact on genetics education to **Sarah C. R. Elgin** (Washington University in St. Louis and HHMI). Elgin's research focuses on the role of chromatin structure in gene regulation in fruit flies. In addition to her research she has been instrumental in setting up programs that develop curricula and multimedia materials in genetics for undergraduate students and high school science teachers.



Rodney J. Rothstein

- The **Edward Novitski Prize**, which is designed to recognize an extraordinary level of creativity and intellectual ingenuity in solving significant problems in genetics research to **Rodney J. Rothstein** (Columbia University, New York, NY) and **Kent Golic** (University of Utah, Salt Lake City).



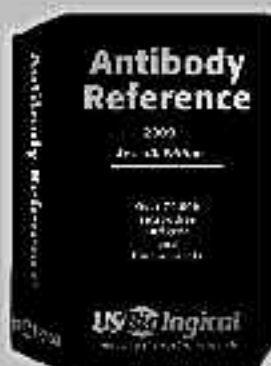
Kent Golic

Rothstein and Golic are recognized for their pioneering work in gene targeting and replacement; Rothstein for his work with yeast and Golic for his work with *Drosophila*. The prize, funded by the Novitski family, is named in honor of *Drosophila* geneticist Edward Novitski (1918-2006).



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From the January Issue of *GENETICS*

by R. Scott Hawley, Stowers Institute of Medical Research, Kansas City, MO and Andrew G. Clark, Cornell University, Ithaca, NY

Molecular population genetics and evolution of *Drosophila* meiosis genes, pp. 177–185

Authors: Jennifer A. Anderson, William D. Gilliland and Charles H. Langley

Even though meiosis is virtually universal in eukaryotes, a significant fraction of genes involved in the process are lineage-specific. These investigators survey polymorphism and divergence of 33 meiosis-related genes in *Drosophila melanogaster* and *Drosophila simulans*. A number of intriguing differences in patterns of polymorphism and divergence between the two species are evident, affording an opportunity to investigate phenotypic effects associated with polymorphisms and recently fixed sibling–species differences.

Pds1p is required for meiotic recombination and prophase I progression in *Saccharomyces cerevisiae*, pp. 65–79

Authors: Katrina F. Cooper, Michael J. Mallory, Vincent Guacci, Katherine Lowe and Randy Strich

The metaphase–anaphase transition of mitosis is triggered by the destruction of Pds1, which leads to the removal of the cohesion that holds replicated sister chromatids together. Cells without Pds1 survive, but they are sick and often aneuploid. These authors find, to their surprise, that Pds1 is required for meiosis, where its role is to protect Mcd1p from degradation.

LINE-like retrotransposition in *Saccharomyces cerevisiae*, pp. 301–311

Authors: Chun Dong, Russell T. Poulter and Jeffrey S. Han

How was a third of the human genome made? Much of the DNA in our genome is the result of LINE element retrotransposition. This process is poorly understood, in part due to the difficulty studying these highly repetitive DNA elements. These authors reengineer a LINE element and introduce it into the LINE-free model organism *Saccharomyces cerevisiae*, where it appears to faithfully transpose. The vast experimental resources provided by budding yeast are sure to advance our understanding of LINE retrotransposition.

***Drosophila* and vertebrate casein kinase I δ exhibits evolutionary conservation of circadian function**, pp. 139–152

Authors: Jin-Yuan Fan, Fabian Preuss, Michael J. Muskus, Edward S. Bjes and Jeffrey L. Price

Casein kinase I δ plays many roles in many different cellular processes in many organisms. It is essential for circadian rhythms such as the sleep/wake cycle. This article reports that the properties of the fly and vertebrate casein kinases I δ are similar. Remarkably, alterations in mammalian CKIs that lead to shortening of the circadian period have the same effect when expressed in flies. This is due to an alteration of the frequency of cycling of phosphorylation of its substrate protein, PER, a central regulator of circadian rhythms. Thus, the mechanism of the sleep/wake cycle is remarkably similar in flies and mammals.

Population genetic inference from resequencing data, pp. 187–197

Authors: Rong Jiang, Simon Tavaré and Paul Marjoram

Ultralow-cost sequencing technologies are increasingly available. They generate a large number of quite short sequence reads that often incompletely cover the genomic region of interest. These authors modeled data produced by these technologies and describe the degree of genome coverage required for successful population genetic inference from such data.

***Drosophila* PCH2 is required for a pachytene checkpoint that monitors double-strand-break-independent events leading to meiotic crossover formation**, pp. 39–51

Authors: Eric F. Joyce and Kim S. McKim

The proper repair of DNA double-strand breaks during meiotic prophase generates crossovers that ensure proper meiotic segregation. This is controlled at two checkpoints: one monitors repair of the double-strand breaks, the other — the PCH2-dependent pathway — has been thought to respond to a defect in synaptonemal complex (SC) formation. These investigators find that the PCH2-dependent checkpoint in *Drosophila* is activated in the absence of defects in SC formation. They propose that there is a “crossover checkpoint” that detects problems in the process of forming crossovers.



From EXPLOSIVES to CELL AGING: The Evolution of Dan Gottschling



It is hard to imagine mild mannered, soft spoken Dan Gottschling (Fred Hutchinson Cancer Research Center, Seattle, WA) as the kind of kid who would make explosives. But, when *GENETics* sat down and spoke to him, he confessed that as a kid he blew out the windows of his bedroom as he tested a new chemistry kit.

Besides telling us a little about his childhood, Dan opened up to *GENETics* about his career path; his lab's research; the value of belonging to GSA; and his advice to graduate students and postdocs.

GENETics: What kind of work are you doing in your lab?

DG: In our lab we're using eukaryotic yeast cells to understand how cells age. We're trying to understand whether or not chromosomes change as a function of age. An American Cancer Society pamphlet says, "Age is the greatest carcinogen." And the reason is because if you live to the age of 40, unless you have a genetic predisposition, there's virtually a zero chance that you're going to get a tumor. As you get older, the probability increases exponentially. From age 55 to the end of your life, you have a 50% chance of getting a tumor as a man and about a 33% chance as a woman.

GENETics: So how do you design an experiment to understand how cells age?

DG: There are literally many hypotheses to try. One of the hallmarks of cancer in humans is that the chromosomes get all rearranged – genomic instability we call it. So we set up a system to look at yeast cells in which we looked for genomic instability as a function of age – where age is the number of times a cell divides. It's called replicative lifespan.

Yeast cells in the strain we were working with normally replicate about 35-40 times. A student of mine, Michael McMurray, set up an experimental system where cells that had genetic changes would change color – from brown or red to blue or green.

GENETics: How long does it take for cells to replicate 35-40 times?

DG: They divide about every 90 minutes. Michael sat at a microscope for a couple of days – taking naps once in awhile – separating mother cell from daughter cell and then putting the daughter cell in a special Petri dish. After the mother cell died, he'd look at the colonies of each of the daughters to see if it had changed color. He saw that early on there was essentially no genetic instability – the chromosomes were fine – but around division 25 (out of 35 or 40) the daughters had a very high level of genetic instability and continued to have this instability in all subsequent ones until the mother died. We think something fundamental happens in these cells so now we're trying to study and dissect that and figure out what was going on. We're excited about studying this right now.

GENETics: How did you get interested in science, especially genetics? Were you one of those kids who liked to blow up things?

DG: Yeah, I started like that; I started to make explosives, much to my parents' chagrin. We lived in Gary, Indiana and one time I was testing some new chemistry set and ended up blowing out the windows of my bedroom. It was summer and my mother only discovered it a few days afterwards, before I could replace the window. That was sort of the beginning of my interest in science. With the exception of the family doctor, there were no role models for me, so I figured I wanted to be a doctor. But after going to college a quarter, I realized I didn't want to be a physician and with the help of some older friends and students, I decided to study chemistry.



GENETICS: Where did you go to college?

DG: I went to a small college in the Midwest, Augustana College in Rock Island, IL. There were about 2,000 students and I was able to do all the things I liked – including music and theatre.

GENETICS: How did you get from chemistry to genetics?

DG: I applied to several graduate schools in the Midwest, but I also applied to the University of Colorado at Boulder on a whim. My college professor, who taught quantum chemistry, had applied for a sabbatical there plus one of the authors of the chemistry book I was using in class and whom I had met was there. So, with a friend I drove 12 or so hours, got there at 2:00 a.m. and slept in the car before an interview the next morning. We wake up; see the mountains and I said, “I want to come here if they’ll accept me.”

GENETICS: So were you accepted?

DG: I was accepted to study quantum chemistry. After one semester, it became clear to me that I needed to do something else; I wanted to get into biochemistry. I went to all the faculty to see if they would accept me as a grad student and all of them said, “No.” But the last person I spoke with said, “we have a new faculty member coming in January and you should talk to him as he’s doing physical biochemistry.”

Actually, two new faculty members came – Carol and Tom Cech. Tom said, “Sure, I’ll take a student.” It was a pretty exciting time – a lot of cool discoveries were done in the lab while I was there and Tom ended up winning the Nobel Prize (1989) for a lot of that stuff.

But in the middle of my graduate career I had an opportunity to take time off and I started teaching physical chemistry and general chemistry at a small college, Western State College. That’s when it became clear to me I missed research a lot and I went back to Tom’s lab. At that time Tom’s lab discovered RNA splicing -- that RNAs could be catalysts. Everyone was working on it, so I didn’t want to do it. Little did I realize everyone was doing it at Colorado, but no one else in the world was doing this.

In looking for other projects, I got interested in oscillated protozoa with David Prescott, and that’s when I became interested in telomeres and telomere biology. When I looked for a postdoc, I wanted to learn genetics as I already knew chemistry as a result of my training.

GENETICS: So where did you go?

DG: I went to the Hutchinson Center and worked with Ginger Zakian. I was in her lab barely a year when I did my first genetics experiment, which appeared to be a failure, but in reality we discovered a new phenomena; it was called telomere position effect.

The last six months I was in my postdoc mentor’s lab, I realized something cool was happening with my experiment. I was looking for a job as a biochemist, working on ciliated protozoa and telomeres, but when I showed up for my job at Hutchinson, I switched to working on yeast genetics.

GENETICS: During this time, were you a member of GSA?

DG: I think my first GSA meeting – yeast – was late in my postdoc. I guess I’ve been a member about 18 years.

GENETICS: What is the value to you of being a GSA member?

DG: The biggest thing is just about the people; it’s the community. It’s not just that they’re nice folks, but we share a common way of being excited about biology. What I really like about genetics is the abstract thinking. It brings me back to my quantum physical chemistry because it can be abstract, but it can also be very creative. I like being able to go from phenomena to hypothesis and then testing the hypothesis. Genetics provides an elegant way to do that.

When I come to meetings like this (MOHB), the people I talk to share that excitement and curiosity. As a postdoc, I was surrounded by geneticists and I realized that I didn’t look at a problem in the same way because of my chemistry background. I have discovered that I don’t think like those who have been classically trained as geneticists and yet I appreciate the way they think and they appreciate my way of thinking. That’s one of the benefits of GSA. You can talk intellectually, or as a friend of mine says, “Play high among the monkey bars right away,” and that’s fun and exciting.

GENETICS: Do you have any grad students or postdocs in your lab now?

DG: Right now I have three grad students and two postdocs.

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25th Fungal Genetics Conference

Continued from page 6

consequences, of niches and adaptations, of screens and phenotypes, and of every flavor of genetics from population to classical to molecular.

Over 600 posters will complement the research presented in four plenary sessions, 27 concurrent sessions, and about a dozen workshops. The closing night banquet will feature Poster Awards (free GENETICS journal subscriptions from the GSA and the American Society of Microbiology), announcement of the Perkins Award for best contribution by a student working on *Neurospora*, the Beadle and Tatum Junior Faculty Award, the Metzenberg Award for outstanding contributions to *Neurospora* research, and the George W. Beadle Medal from the GSA for service to the genetics community, all to be followed by a historical perspective from the never-dull Claudio Scazzocchio. As always, the evening and meeting closes with the best party in six states.

25th

Upcoming Fly Meeting Looks Golden



Continued from page 6

This honor goes to the best Ph.D. thesis in *Drosophila* research completed during the previous year.



The meeting will also feature outstanding plenary talks from leaders in *Drosophila* research, and platform talks from over 150 labs. An important focal point for the fly meeting is always the poster sessions. Almost 1000 posters will be displayed for the entire meeting with plenty of time in the meeting schedule for viewing great science and talking to the presenters. The Genetics Society of America will provide prizes for the best posters given by graduate students and postdocs.

Happy Golden Anniversary to the Fly Meeting; we look forward to seeing you in Chicago and helping us celebrate!



A Slice of GSA History:

From the “some things haven’t changed much” department:
More than 50 years ago at the 27th Annual GSA Meeting in Montreal, Canada, August 20-27, 1958, held in conjunction with the Tenth International Congress of Genetics, the following item was found in the archives:

“The need for quality science textbooks was discussed at the Division of Biology and Agriculture of the National Research Council and reported to us by our representative. It was suggested that individual scientists aid in updating science education and public understanding in their neighborhoods.”

*From “An Abridged History of the Genetics Society of America”
(www.genetics-gsa.org/pdf/GSAhistoryscrapbook.pdf) compiled from the
Records of the Genetics Society of America and the GENETICS Journal, 1931-2008 by
GSA staff member Karen Goodman, Spring 2008.*



Get Involved in K-12 Outreach in 2009

by Michael J. Dougherty, Ph.D., Director of Education, American Society of Human Genetics

Two thousand nine should be a banner year for genetics education. It is the Year of Science, a national celebration that is being coordinated by the Coalition on the Public Understanding of Science (COPUS, <http://www.copusproject.org/>). Many educational events are being planned around the country, with different scientific themes each month. February's theme is evolution, reflecting both the 150th anniversary of Charles Darwin's *On the Origin of Species by Means of Natural Selection* and the bicentennial of Darwin's birth on February 12th (and Abe Lincoln's for the historians among us).

With the explosion of research in evo-devo and many great examples of how genetics links physical traits to evolutionary change, programs for K-12 students and the general public could both benefit from greater involvement by professional geneticists of all stripes.

DNA Day, April 25

April 25th is National DNA Day, when we celebrate the publication of Watson and Crick's seminal paper on the structure of DNA. The 4th Annual DNA Day Essay Contest, sponsored by GSA's sister organization, The American Society of Human Genetics (ASHG), would welcome GSA members' involvement in judging this popular event. In 2007 more than 1,000 middle and high school students submitted essays, and winners of cash awards were selected by ASHG and GSA judges. In addition, teachers of winning students were awarded \$2,000 equipment grants for the purchase of genetics-related lab supplies.

This year the focus will be on high school students, and two questions are now posted on the newly revised ASHG Education Web page (<http://www.ashg.org/education/dnaday2009.shtml>). Submissions are being accepted now through March 16th. Essays are analyzed for clarity of expression and accuracy, but they also serve as a rich source of information regarding student misconceptions about genetics. There are two levels of essay review. For the first level, reviewers skim through about 30 essays, determining which are worth judging. The second level requires reading 10-15 essays and attaching a score to each essay based on a rubric. GSA members may volunteer to assist at either one or both review levels. Those interested in judging essays this year should send an email to Angie Wong (awong@ashg.org).

Outreach Network

Another opportunity for improving the teaching of genetics and evolution is through the Genetics Education and Outreach Network (GEON). This network, also sponsored by ASHG, puts roughly 1,000 geneticists and advocates in contact with K-12 teachers, who can request their service as volunteers for guest lectures, assistance with genetics labs, curriculum development, and guidance about careers in genetics. A new function of GEON is to serve as a direct conduit for mentoring students online, i.e., a student seeking advice on how to design a genetics experiment could ask for this help online. GEON, like the DNA Essay Contest, welcomes GSA members to become a part of this network. Please sign up at http://www.ashg.org/education/k12_geon.shtml.



2009 Congressional Biomedical Research Caucus Briefings



February 26
Dr. Stephen Strittmatter
 Director, National Center for Human Genome Research
 Children's Aging Beliefs: Your Time: Can Programs Help? Dr. Strittmatter Briefing



March 11
Dr. Susan Powell
 Director, National Institute of Mental Health
 Mental, Good Willness: Genetical, 100 Years Briefing



March 26
Dr. David Edwards
 Director, National Institute of Health
 How the Genome and the Computer Have Reshaped the World of Genomics: 2009 Program Briefing



April 9
Dr. Mark Skolnik
 Director, National Institute of Standards and Technology
 Molecular to Systems Biology: 2009 Program Briefing



April 22
Dr. Andrew McArdle
 Director, National Institute of Diabetes and Digestive and Kidney Diseases
 2009 Program Briefing



May 13
Dr. Lisa Sussman
 Director, National Institute of Environmental Health Sciences
 New Approaches to Preventing, Diagnosing, Treating the World's Worst Diseases: 2009 Program Briefing



May 27
Dr. Robert Mullins
 Director, National Institute of Biomedical Imaging and Bioinformatics
 2009 Program Briefing



June 3
Dr. Robert Mullins
 Director, National Institute of Biomedical Imaging and Bioinformatics
 2009 Program Briefing



June 17
Dr. David A. Clark
 Director, National Institute of Standards and Technology
 Improving the Quality and Efficiency of Health Care for Older Americans: 2009 Program Briefing



July 15
Dr. Richard Lippman
 Director, National Institute of Environmental Health Sciences
 How Can We Do Science? The Translational Genetically Engineered Mouse Consortium: 2009 Program Briefing



July 22
Dr. Robert Mullins
 Director, National Institute of Biomedical Imaging and Bioinformatics
 Improving the Peer-Review Process at the National Institutes of Health: 2009 Program Briefing



September 16
Dr. Charles Chao
 Director, National Institute of Aging
 2009 Program Briefing



September 23
Dr. Michael J. Commons
 Director, National Institute of Environmental Health Sciences
 Can We Use the Genome to Reverse Aging? 2009 Program Briefing

September 23
Dr. Michael J. Commons
 Director, National Institute of Environmental Health Sciences
 Can We Use the Genome to Reverse Aging? 2009 Program Briefing

October 13
Dr. Robert Mullins
 Director, National Institute of Biomedical Imaging and Bioinformatics
 2009 Program Briefing

The Coalition for the Life Sciences (CLS) works with the Congressional Biomedical Research Caucus to provide Members of Congress with the timely and critical information needed to make knowledgeable policy decisions in the rapidly evolving areas of biomedical research. The CLS is a coalition of the American Society for Biochemistry and Molecular Biology, the American Society for Cell Biology, the American Society for Clinical Investigation, the Genetics Society of America, the Howard Hughes Medical Institute, the Society for Neuroscience, and the Society for Science & the Public. Briefings are

open to the public and are a great

opportunity to interact informally with Congressional staff. If you are in Washington, DC on any of these dates, please consider attending. Please note that caucuses are subject to change. To RSVP, contact clc@jscpp.org and smarts@genetics-gsa.org and be sure to include which briefing you would like to attend.



GSA Provides Poster Awards at SACNAS and Mouse Meetings

To encourage young people to pursue their education and interests in the field of genetics, the GSA sponsored awards at the 2008 Society for the Advancement of Chicanos and Native Americans (SACNAS) and International Mouse Genome Society (IMGS) meetings.

SACNAS Awardees

Oral Presentation:

- **Claudia P. Marquez** (University of Texas at Arlington), “Junk” Lends a Hand: Transposable elements contributing to genetic variation in *Trichomonas vaginalis*. Marquez is a graduate student working with Ellen J. Pritham in her lab.



Claudia P. Marquez



DeAndre L. Bluit



Christel Chehoud

Poster Presentations:

- **DeAndre L. Bluit** (University of North Texas, Denton), Understanding the Relationship between Natural Selection and Type I Diabetes on Chromosome 12 Genes. Bluit is an undergraduate student working with Fuli Yu in the Human Genome Sequencing Center at Baylor College of Medicine.
- **Christel Chehoud** (Princeton University, NJ), Computational Analysis of the Taxonomical Classification of Short 16S rRNA Sequences. Chehoud is a sophomore at Princeton University studying computational biology. Her mentor was Brian Haas; the principal investigator was Bruce Birren and her research was conducted under the Genome Sequencing and Analysis program at the Broad Institute.

IMGS Awardees

- **Janet Chang** (Stony Brook University, NY), Role of MESD in WNT Signaling and Lipoprotein. Chang is a graduate student at SUNY Stony Brook and her PI is Bernadette C. Holdener.
- **Mary Madabhushi** (Sloan-Kettering Institute, New York City), BMP2 in the Visceral Endoderm during Mouse Gastrulation.
- **Kristen McKnight** (British Columbia Cancer Research Centre, Vancouver, BC), Formation and Patterning of the Mouse Definitive Endoderm. McKnight was a PhD student at the time she received the award, but she is moving on to Stanford University as a postdoc. Her PI was Pamela A Hoodless.
- **Lucy Williams** (University of North Carolina Medical School, Chapel Hill), Reactivation of the Inactive X-chromosome in the Mouse Inner Ear. Williams is a graduate student in Terry Magnuson's laboratory.



Janet Chang



Kristen McKnight



Lucy Williams



New Editors at *GENETICS* Journal

Continued from page 5

Wilkins will carry on in the tradition of Jim Crow and Bill Dove (affectionately called “the birds”), who founded and have been editing the Perspectives column since 1987. In 1998 an anthology, *Perspectives on Genetics* was published, providing an historical perspective on genetics research and its continuing evolution. Prior to joining BioEssays in 1984, Wilkins was on the faculty of Massey University in Palmerston, New Zealand. He has authored several books including *The Evolution of Developmental Pathways* (Sinauer Associates, 2002), and *Genetic Analysis of Animal Development* (John Wiley & Sons, 1993, 1986).



In addition, Tracey DePellegrin Connelly, who for the past six years served as Managing Editor of the journal under Beth Jones, was recently promoted to Executive Editor. Among the responsibilities of her new position, Tracey will be expanding the journal’s visibility and reach, creating and implementing strategic and marketing plans, and collaborating with the editor-in-chief and the senior editors in developing policies and guidelines for the journal.

Johnston and DePellegrin-Connelly encourage members to submit their best research findings to the journal, and urge everyone to visit the journal’s website at <http://www.genetics.org/current.dtl>.

2009 GSA Elected Officers Now on Board

Continued from page 5

Fred Winston (Harvard Medical School), who served as Vice President in 2008, is now President of GSA; Trudi M. Schüpbach is now our Past President. Summing up her year as president, Schüpbach said, “This past year has seen major changes at the GSA. We have found a very engaged and energetic new editor-in-chief for the journal who is pushing *GENETICS* vigorously forward. We formed new Board committees to deal more effectively with newly arising concerns in our field. And we engaged in an executive director search, resulting in hiring a new executive director who brings to the GSA academic research and administrative experience.” As past president, Schüpbach looks forward to “another challenging but engaging new year of work on the GSA Board.”

In addition, three Board members, Kathryn M. Barton (Carnegie Institution of Washington, Stanford, CA), Michael P. Snyder (Yale University, New Haven, CT) and Mariana F. Wolfner (Cornell University, Ithaca, NY) complete their three-year term.

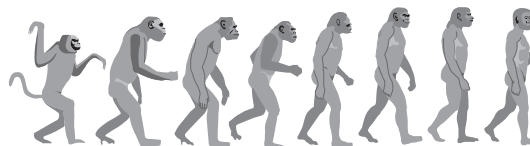
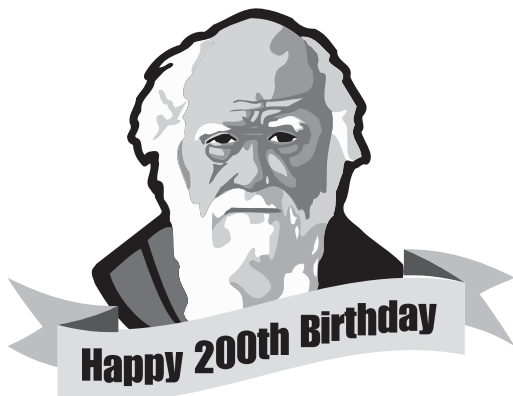
***Perspectives on Genetics* Anecdotal, Historical, and Critical Commentaries, 1987-1998**

Edited by James F. Crow and William F. Dove



*The development of genetics in
the twentieth century*

Available at <http://www.genetics-gsa.org>.



**Charles Darwin
born: February 12, 1808**



The Evolution of Dan Gottschling

Continued from page 11

GENETics: Do you have any advice to offer them?

DG: My advice is to try to do something that is hard to do; that no one else is doing. I recommend this for two different reasons:

First, there is nothing more fun than discovering something that no one else has ever seen. I've been lucky in this regard as a student and postdoc and at times as a PI.

It is so exciting to either develop a new technique or do something that is hard to do. I encourage my students to develop new technology to see something that no one has seen before. It's like putting on a new pair of sunglasses that allow you to see a different part of the spectrum. It has been a hallmark of me and my students to try to develop something in a new way to or to figure out a problem.

Second, is that by doing this, it gives you your own niche and intellectual space, which is also fun. It's fun to work on problems at a pace where you aren't harried or challenged by competing people – at least not initially. But to be honest, when there are a lot of people competing to solve the same problem, that's when I usually retreat. I'm then freed up to work on something new.

GENETics: You don't do science 24/7, do you? You mentioned in college that you dabbled in music and theatre.

DG: Not theatre any more. I still dabble in music, playing guitar and singing in community choirs. I do a lot more climbing, hiking and skiing – back country skiing – and up until recently I played competitive soccer, but then those cells started to age.

GENETics: And we've come full circle, talking about cells aging. It was a pleasure talking with you. Thank you for your time.

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Still Accepting 2009 Dues

It isn't too late to renew your membership for 2009. Maintaining member status online is very easy. Go to the GSA home page at <http://www.genetics-gsa.org>, look under the first menu item, "Directory & Membership" and scroll down to "Join or Renew Membership," click on that and then follow the instructions to renew your membership.

Remember: If you are planning to attend a GSA-sponsored meeting in 2009, such as the Drosophila, Fungal Genetics or *C. elegans* conference, you receive a registration discount if you are a member.

There are also substantial savings for regular membership if you select the multi-year dues payment.

So sign up now and get all the benefits of membership, including this newsletter, by keeping your dues up-to-date.



What *GENetics* Readers Want

by Phyllis Edelman, *GENetics* Managing Editor

Thank you to GSA members who answered the *GENetics* readership survey. After nearly five years of publication *GENetics* is firmly established as one of the membership benefits. It was time to learn what information is useful to readers and what you want to see in your newsletter.

Although the response rate was smaller than we would have liked (6% of all regular members), respondents were clear on their preferences. Based on our respondents, 78% read or skim every issue of the newsletter, which is published three times per year. Slightly less than half would like the newsletter to be between 12 to 20 pages – the latter being the maximum they are interested in reading. The newsletter is currently 20 pages in length.

Print or Online?

Although most readers (63%) now either read only the print version or usually read the print version, 43% said they would prefer to receive only an online version and another 41% for now would like to receive a print and online version. Only 16% of respondents said they would prefer to receive only a print version. Many of our readers it seems may be attuned to accepting only an online version of the newsletter, which may be a consideration by the Board in the future.

Content Recommendations

Seventy percent or more of the respondents consider all our regular news features including the President's letter, profiles of members, GSA meeting announcements and recaps, Journal highlights and GSA award recipient announcements to be most or somewhat informative. The items currently published that readers find most or somewhat informative are the GSA meeting announcements (90% of respondents), the President's letter (89%), model organism database updates (85%) and GSA meeting announcements (84%).

Additional articles readers would like to see are career advice for postdocs and grad students (65%) and book reviews (63%). Readers would also like *GENetics* to "lighten up" with crosswords or other word-related games and genetics-related cartoons. Several readers made comments that they would like to see more education-related articles including features that focus on "pedagogical tips/techniques for teaching genetics," and "educational outreach initiatives" including "community outreach programs for the general public."

Interactive Issues

Most respondents indicated they are happy with the newsletter; however several commented they had issues with the interactive online version, particularly with the zoom feature. We will work on making it easier for online readers to use this feature or we will consider alternatives.

Submissions

If you have a cartoon, puzzle or educational issue you would like to publish in the newsletter, please send a query to the editor, Phyllis Edelman at pedelman@genetics-gsa.org. We will consider publication based on appropriateness of item and on space constraints.





Public Policy Update:

Continued from page 20

In other Capitol Hill news, the Senate has begun its series of nomination hearings for Cabinet posts in the new Obama administration. The Senate Health, Education, Labor and Pensions (HELP) Committee held hearings for former Senate Majority Leader Thomas A. Daschle to be Secretary of Health and Human Services, but Daschle withdrew his name from consideration after questions regarding \$146,000 in unpaid taxes. At press time, there was no indication of who President Obama would next recommend for the post. The National Institutes of Health is an agency within the Department of Health and Human Services. The new Secretary will name the successor for the new NIH director. Until then, Raynard Kington will stay on as acting-Director of the NIH.

CLS Chair Named Obama Science Advisor

On December 20, 2008, then President-elect Obama announced his choices for science advisors. Dr. Harold Varmus, Nobel Laureate, former NIH Director, President and CEO of Memorial Sloan-Kettering Cancer Center, and Chair of the Coalition for the Life Sciences (CLS) was asked to be a co-chair of the President's Council of Advisors on Science and Technology (PCAST). Due to his new role in the administration, Dr. Varmus has stepped down as CLS chair and as an at-large member.

Dr. Varmus's contributions to the CLS are innumerable. During his tenure, the CLS membership grew from three to seven scientific societies. He directed the name change of the organization from the Joint Steering Committee for Public Policy to the Coalition for Life Sciences, a name that better reflects our mission and our goals. Also, due in large part to Varmus's political acumen, the CLS increased its visibility as an organization with political leaders on both sides of the aisle.

The CLS is grateful to Dr. Varmus's service and commitment. We wish him well in his new role, knowing he will be in a better position to serve the scientific community.

From the President's desk:

Continued from page 1

The goal of the new organization is to ensure uniform high standards across the wide range of genetics articles published, as well as to facilitate fair, rapid, and rigorous peer review. Mark, along with *GENETICS* Executive Editor Tracey DePellegrin Connelly, has done an impressive job of rapidly implementing these changes. More changes at *GENETICS* in 2009 are forthcoming, so watch for announcements in the journal and at the GSA web site. We encourage all GSA members to submit your best work to *GENETICS*.

The most recent change at the GSA concerns our executive director. Elaine Strass, who served as the GSA executive director since 1992, has recently retired. Elaine's organizational talents and great energy kept the GSA on course for many years, as she oversaw all aspects of the GSA office, GSA-sponsored meetings, GSA awards, and much more. Elaine has been an invaluable part of the GSA and we wish her the best in what will undoubtedly be an active retirement. You can read more about Elaine in the last issue of this newsletter (<http://www.genetics-gsa.org/pages/newsletter.shtml>) and in a recent interview (PLoS Genet 4(2): e1000002).

Our new executive director, Sherry Marts, comes to the GSA after serving most recently as the executive director of the Organization for Study of Sex Differences and as the vice president for scientific affairs of the Society for Women's Health Research. Sherry, who has a Ph.D. in Physiology from Duke, brings an extensive background in research administration, research communications, and policy initiatives to her new position at the GSA. We greatly look forward to working with Sherry as the GSA plans new initiatives in education and public policy, and expands the information content of our web site.

All in all, 2009 holds promise. Change brings the opportunity to rethink our priorities and to gain the momentum to pursue new initiatives. We seek your input on issues you think are important. Please send your suggestions to winston@genetics.med.harvard.edu.

Best regards,

Fred Winston
President
society@genetics-gsa.org



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Public Policy Update

by Lynn Marquis, Director, Coalition for Life Sciences

Washington in Brief

During the Presidential campaign, candidate Obama pledged to advance science, research and development, and technology, and allow decisions to be made on facts and science rather than political ideologies. Based on recent announcements, Obama appears to be delivering on his commitment.

On December 20, 2008, then President-elect Obama announced his scientific all-star team who will aid and advise him as complex scientific issues are raised in the national dialogue. Obama appointed Dr. John Holdren as Assistant to the President for Science and Technology, Director of the White House Office of Science and Technology Policy, and Co-Chair of the President's Council of Advisors on Science and Technology (PCAST). Dr. Harold Varmus and Dr. Eric Lander (a GSA member) will join Holdren as the other co-chairs of PCAST. Dr. Jane Lubchenco is Obama's choice to lead the National Oceanic and Atmospheric Administration.

In the first weeks of his presidency, President Obama is expected to issue an Executive Order lifting the Bush policy on embryonic stem cell research, and replace it with a policy that restores federal funding to cell lines derived from excess IVF embryos. Consistent with his campaign promises, the Executive Order would ensure all research on stem cells is conducted "ethically and with rigorous oversight."

Congress in Brief

The 111th Congress started on Tuesday, January 6 and this newly elected Congress was hard at work with a legislative agenda that was in reaction to then President-elect Obama's directives. Obama asked Congress to pass his proposed two-year, \$800 billion economic stimulus package before the end of January. The economic stimulus package is expected to include R&D spending, science and math education funding, and physical infrastructure spending, as well as tax breaks.

Continued on page 19