A New Foundation

When I first came to Emory for graduate school, I was not entirely sure what was expected of me, or how I would learn what I needed to succeed in BCDB. As the year progressed, I felt I was doing well in my first year class IBS555/6, but I was still apprehensive towards the qualifying exam and more importantly my ability to succeed in science. I did not feel my first year class gave me a full perspective of what I needed to know or how I needed to learn. Since then, certain professors have taken notice that the first year core class was not the most ideal setting to learn research, interpret data, and discuss scientific phenomena. To that end, they have begun working to build a new educational foundation.

Professor’s Comments:

Here’s how I would characterize the difference between previous first year courses and the new Foundations of BCDB (501/502) class.

Would you rather see Red Hot Chili Peppers at the Georgia Dome, or at the WOODPEC gym?
Would you rather hear a speech by your senator at Phillips Arena or talk with her in your living room?
Would you rather have breakfast at the DUC or at Flying Biscuit?....
So wouldn’t you like to figure out how cells, genes, and proteins work over coffee with a few of your classmates and 1/3rd of the faculty of your graduate program until you’re satisfied you understand it?

Danny Reines
Foundations co-director

Whether you prefer the IBS555/6 or Foundations course really comes down to whether you believe graduate education should emphasize breadth or depth in training. They each have their place but in my mind it is an easy call. While there is clear value in exposing students to a broad range of topics, I believe one can learn as much or more from the lectures in IBS555/6 from reading a textbook or recent review articles and class time was largely unnecessary. In contrast, I think the Foundations format of being forced to grapple with difficult concepts in a small class where there is no hiding is the heart and soul of what graduate education can and should be. My conversion came after five years of IBS555/6 and the clear sense that there was a huge disconnect between teaching and testing in IBS555/6 and the qualifying exam. If the qualifying exam (Part I, written) is how we determine whether a student has mastered their first year material why not train them to think and respond to the kind of questions or challenges presented in those essay questions? That was a main reason that I started

(Continued on page 3)

BCDB Retreat Hits the Target

The third annual BCDB retreat was held at the Calvin Center in Hampton, GA on August 20th and 21st. The theme this year was “Careers in Teaching” so the organizers invited four BCDB alumni working as teachers to attend. The weekend started with everyone being trafficked to their appropriate organelle (a.k.a table). Each attendee received a clue on their name tag which directed them to their appropriate group. For example, the can of trash on my name tag meant I was destined for the lysosome.

The organizers (Megan Allen, Laura Newman, Marc Schureck and Jadiel Wasson) then welcomed us to the retreat and introduced us to the first years with a fun fact matching game (see page 4). We were next given the abstracts from old journal articles and were told to guess which faculty member was responsible for the research. The game was quite challenging and made us think about everyone’s scientific careers. The scientific games segment concluded with a rousing game of science scategories in which we all learned that there are very few restriction enzymes that begin with F.
The Director’s Corner: Rick Kahn

I understand that this issue of the newsletter will contain an article about the BCDB Retreat, written by one of our student editors of the Leading Edge. While I don’t want to be redundant, I did want to give my own perspective on it. For anyone actively engaged in graduate training there can be few things that rival the enjoyment in seeing our former students “all grown up”; all with jobs, some with kids of their own, all finding their own successes in balancing family, friends, work, and play. And all filled with the passion and enthusiasm that we strove for them to seek and find. These were evident when Pam, Tricia, and Melanie described their excitement in teaching at a small school and in interacting closely with their students. I had not fully appreciated the differences in salary or in promotion standards that they described so found it to be very important information for current students who may consider that career route. The pride and joy were equally evident in Deanna’s descriptions of her corporate climb and recruitment of other former GDBBS students to her company. I ended up sitting around talking with the four alums all afternoon so none of us got the opportunity to partake of the sports opportunities. But we did talk about things old and new that I wanted to pass along to those who couldn’t make it to the retreat or who were busy in the lake or archery practice.

Without question the most important thing I heard at the retreat was that obtaining a PhD was never only about getting that tenure track faculty position at a research intensive university. That will happen to a fraction (about 15% I think) of our alums who are driven and head that direction, but is not our only goal. Rather, it is the instillation of critical thinking, writing, and speaking skills that will form the basis for a broad range of careers. I use the term instillation advisedly, as it means “to introduce by gradual, persistent efforts” and in this case is intended to suggest that it is a slow process that continues well beyond one’s years at Emory. I think this was the clear and overt intent of Deanna’s presentation and the unspoken conclusion from all four of them. The years spent in graduate school are critical to establishing the bases of these skills because it may be the last time you are given specific time and training to acquire them. But to be honest, it is not your work in graduate school that will have the largest impact on your ultimate career. Rather, it is far more likely that it will be what you do when you leave graduate school.

I think everyone was a bit surprised that they thought many of the men in our program looked like George Clooney. After a good laugh the traditional game of trivia began at which Tara stumped us all again with her difficult questions. Who knew that meatspace, chillax and frankenfood are words in the Oxford English Dictionary? The competition was stiff with team “All Rick’s Fault” barely beating team “Temperature Sensitive Mutants” and “The Decaffeinated Green Tea Party” team by correctly ranking the members of The Beatles from oldest to youngest. The day ended with a bonfire and s’mores, hilarious board games and dancing. The next morning everyone shared stories from the previous day over breakfast and then headed back to Atlanta. The retreat was a great success and I am sure if you talk to anyone that attended, they would tell you about the great times that they had. I want to thank all of the organizers again for their hard work and creativity. I can’t wait until next year’s retreat!!

See Pictures on page 8
the Fall "Methods" course, quite different in design, goals, and format from the Spring "Methods" course. Once I had the opportunity to pose “thought questions” and discuss with students the concepts required to answer those questions, there was no going back to a lecture format for me. I look forward to the daily discussion in the Foundations course and each time I come away having learned something new and feel that my time and that of the students has been far better spent than if I had lectured on the same material.

Rick Kahn
BCDB Program Director

In the end, science is not a passive process of absorbing information but rather an active process of ingesting real data, mulling it, and deconstructing it so that one can then posit, and test new ideas at the bench. IBS555/556 was more of the former, whereas Foundations endeavors to be more of the latter by emphasizing careful dissection of the methods and logic of primary research papers.

Ken Moberg
Foundations co-director

Shortly after I was asked to write some comments on the new Foundations in BCDB first year class, I happened to run across a letter in the ASCB newsletter from a graduate student describing frustrations with the lack of guidance and mentoring. “…Grad school has been an entirely different beast. Whereas my mentor in undergrad did very well explaining everything to me so that I could understand, the general consensus here is that I need to "just figure it out" for myself. I need to go find things, learn things, and be things that no one told me how to do, where to find, or how to learn. For me this has been an intense struggle….”

This excerpt seemed to me to point up well what we hope to accomplish in the new approach to the first year. I hope that we are not just throwing a multitude of new facts at overwhelmed students, but rather helping to prepare them to function as successful graduate students and career scientists. Certainly that does involve a great deal of information in diverse areas. However, just as important, it involves learning how to absorb and critique the literature, how to discuss the pros and cons of experiments and their interpretation, and how to design new experiments to build upon current knowledge. These are skills that will serve a scientist throughout his or her career, whatever direction it may take. These are not skills that can be taught readily using a standard lecture format, but they can be developed through reading and discussion. We hope to challenge students to develop these skills, while providing some guidance and also enjoying some great scientific discussions. We hope to challenge students to develop these skills, while providing some guidance and also enjoying some great scientific discussions. I know one of the rewards of last year’s class was seeing how far first year students grew into scientific colleagues over the course of just eight months.

Maureen Powers
Foundations co-director

My enthusiasm for the Foundations of BCDB course stems from my own experience taking a similar graduate course while at the University of California at Santa Cruz. That first year course focused on understanding specific key biological concepts and techniques using primary literature. In short, it was one of the best and most challenging courses I took as a graduate student. It helped lay the foundation of a solid knowledge base and fostered my ability to think critically about my own research and that of others, which has been invaluable over my career to date from graduate student to now, faculty member. When I arrived at Emory in 2008 as an assistant professor, I was surprised to learn that the BCDB program did not have a similar course and I have been a strong proponent of this type of discussion-based learning ever since. Even though IBS555/6 has an important role to play in the GDBBS curriculum, I believe our students need to be trained at a higher level in biochemical, cellular and developmental biological concepts and techniques. This training is important as it allows students to become professional scientists and acquire skill sets required for any future career and I think that Foundations fulfills this role. The success of the course relies on the dedication of the faculty to give their time and expertise and we were fortunate last and this year to fill all the minicourse slots (~ 2 weeks, every day for 2 hours). As we look forward, we envision a yearly rotating minicourse schedule as more faculty participate due to the strong support and enthusiasm received in the student feedback and likewise from faculty, regarding the course.

Christine Dunham
Foundations co-director

Construction-struction
What’s Your Function?

By Katie Williams

Emory Village
The village was renovated this past summer in order to reduce traffic congestion and increase the safety of bikers and pedestrians. The newly installed roundabout addresses these issues and the planting of more than 50 new trees will serve to beautify the space.

Health Sciences Res. Bldg.
The new Health Sciences Research Building will feature wet and dry research labs, vivarium, 150 seat auditorium, cafe and collaboration space. The building will be finished by April 2013 and will mark the completion of the first phase of the future biomedical research complex.

Oxford Science Building
Oxford College is hoping to build a new facility that would provide classrooms and instructional laboratories for the Biology, Chemistry, Geosciences, Computer Science and Astronomy and Physics programs. A feasibility survey was completed in the fall of 2010.

Emory Point
Emory Point is a mixed use, pedestrian-oriented development that will include both residential and retail space. The first of three phases for this project began this past summer. Hopefully the new retail space will provide plenty of new dining options.

Chemistry Center Addition
Plans for expanding the Atwood Chemistry Center are expected to be completed by April 15, 2012. The addition would provide 70,000 square feet of extra instructional and research space for the Chemistry Department.

Other Projects
Utility Reduction and Energy Conservation Plan: Emory is in the process of installing energy conservation devices in many of the buildings around campus. Hamilton Holmes Hall: A new 5-story residential hall is currently being built adjacent to the DUC.
**Meet the First Years**

**Chelsey Candler**  
*University of Georgia BS ’10*  
Fun Fact: I own a collection of over a 100 cookbooks and at one point in college was training to be a cake decorator.

**Julie Fritz**  
*Mesa State College BS ’11*  
Fun Fact: I worked in real estate for 5 years before I went back to get my biology degree.

**Paul Donlin-Asp**  
*University of Illinois Urbana-Champaign BS ’09*  
Fun Fact: My grandfather (a school teacher) built a viking longship after a summer confined to his bed; and my dad, aunt and a couple of uncles sailed that ship from Duluth, Minnesota to Oslo, Norway.

**Eric Hoffer**  
*Kennesaw State University BS ’11*  
Fun Fact: I love to eat food so spicy that the flavor of the food disappears due the pain it causes. For that reason I consider myself a culinary masochist.

**Josh Francis**  
*Kennesaw State University BS ’11*  
Fun Fact: I swam with sharks this summer.

**Josh Lewis**  
*University of Georgia BS’09*  
Fun Fact: I am a politics and news junkie.

**Amanda York**  
*Georgia Tech BS ’11*  
Fun Fact: I’m a runner and my next goal is to run a half marathon.

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**Fabulously Festive Fall Fun around Atlanta**

Unless you haven’t left the basement of Rollins in three weeks (which is possible) you’re noticing the beginning of autumn and realizing that Georgia has nearly perfect weather during September and October. If you’re wondering, “What do I do with all of the free time that I have between writing grants, Foundations class, conferences, getting that last piece of data for your paper, and writing your thesis?” Luckily for you, I have investigated this. So for once, get out of lab for a few hours on a Saturday and try something new!

There are several fun goings on around Atlanta during the fall months. I’m going to start by suggesting my very favorite—the Elijay Apple Festival. Hopefully you have all attended a fair, a festival, or an outdoor gathering of some sort in a southern state by now and have come to realize what kind of wonderful craziness this entails. If you haven’t, just think about all of the best things in the world—beer, fried everything, Greek food, petting zoos, pumpkins—all squeezed together in a field with pickup trucks parked all around it. There’s usually live music and crafts too, but let’s be honest—everyone goes for the funnel cakes. The only way that the Elijay Apple Festival strays from this nice little formula is that there are apples everywhere, fried and so forth, because they are in season. This festival is just under 2 hours north of Atlanta, and a nice drive too!

I suspect that my second suggestion, merely 30 minutes from Atlanta, also follows the general formula of a southern outdoor gathering. However, what excited me most about Corn Dawgs in Loganville was not the clear reference to the Georgia Bulldogs but the availability of adventure. What do I mean by adventure? I mean the largest corn maze in the southeast and pumpkin blasting. No, I don’t know what pumpkin blasting is, but it sounds fun.

Another great idea for a getaway in October is to visit the small north Georgia mountain town of Helen. The town of (Continued on page 6)
The BCDB Executive Committee is the force responsible for both running and advancing your graduate program. They are also responsible for the dreaded Part I qualifying exam re-takes. Here in their own words, they describe their job responsibilities and plans for the future.

Richard Kahn
BCDB Program Director
RKahn@Emory.edu
As the BCDB Program Director (PD), I work with the DGS and Executive Committee (EC) to ensure that courses are staffed, policies are up to date, optimal, clearly described, and fairly and evenly implemented. This involves updates to the Guidelines, chairing meetings of the EC, liaising with the LGS, and stealing chocolates from Susan’s bowl. I also serve as the representative of the program on the GDBBS advisory committee, made up of all nine PDs.

Michael Koval
Director of Graduate Studies
MHKoval@Emory.edu
As Director of Graduate Studies (DGS), I mainly serve as faculty advocate for student interests within the BCDB program. This includes working with students to navigate BCDB rules and regulations and helping students find solutions to problems they encounter in graduate school. I also work with the Program Director and other members of the Executive Committee to improve and monitor the BCDB program.

Christine Dunham
Student Recruiting
CMDunha@Emory.edu
I am a new member of the Executive Committee (EC) and my role is Director of Recruitment. I find this to be one of the most enjoyable and rewarding jobs as an EC member because of the opportunity to recruit the best and brightest graduate students to the BCDB program.

James Zheng
Faculty Compliance
James.Zheng@Emory.edu
I am new to the executive committee and my role concerns faculty membership in the BCDB program. This involves the review and processing of new faculty applications to become BCDB training faculty, as well as the annual evaluation of BCDB training faculty’s contributions to the BCDB program (in terms of teaching, research training, and service).

Graeme Conn
Rotations Advisor
GConn@Emory.edu
As the job title suggests, I coordinate the Year 1 Rotations program which allows our new students to gain their first research experiences in BCDB and, ultimately, find a lab to call ‘home’ for their thesis work. With the help of the Rotations Committee – currently Drs. Guy Benian, David Katz and Eric Ortlund, and fourth year BCDB students Beth Bowman, Matthew Randolph and Rasagnya Viswanadha - we grade rotation reports and provide constructive critiques, to accompany those from rotation mentors, that help our new students hone their research and science writing skills.

Xiaodong Cheng
Committee Meeting Oversight
XCheng@Emory.edu
With the help of Susan Hoffstadter (our Program Coordinator), my duty is to make sure that students have their committee meetings regularly (every six months or every four months in the sixth and subsequent years!) An important Thesis Committee Progress form should be filled out for every meeting by the mentor and committee members to document the student's progress toward the PhD degree.

Shoichiro Ono
Qualifying Exam
SOno@Emory.edu
I am a new member of the BCDB Executive Committee and will be in charge of the Qualifying Exam. My major role is to oversee the entire process of the Part I written qualifying exam from assembly of the exam questions to grading. I will also be a Co-director of BCDB Foundations in the Spring of 2012 with Ken Moberg. So, I will be in a good position to make sure that exam questions are aligned with the BCDB curriculum.

Ken Moberg
Curriculum
KMoberg@Cellbio.Emory.edu
I’d like to see the core Foundations course continue to develop into a rigorous and successful class that immerses students in a culture of group discussion and learning, and also takes advantage of the significant strengths of our faculty in biochemistry, cell biology, molecular biology, and development.

Paul Doetsch
Communications
medPWD@Emory.edu
I am pleased to be able to serve the BCDB Program for another three years moving from Qual Exam Czar to Communications Czar. In my new role I’ll be maintaining the BCDB web pages and adding new information and features to the web site in order to keep students, faculty and other interested persons informed about the essential characteristics and activities of our program. Students and faculty who wish to place program-related information on the web-

(Continued on page 6)
Fall Fun (Continued from page 4)
Helen is modeled after an Alpine village and has an amazing spread of shops, food, and cute expensive tourist stuff. This is not the best part of the German–style town however. What’s the greatest thing that’s come out of Germany? No it’s not Einstein, Gutenberg, or Marx. It’s Oktoberfest! Yes, every weekend from September 22 until the end of October Helen, Georgia hosts one of the more respectable Oktoberfest’s near Atlanta. I don’t think you’ll regret the drive.

I’m going to conclude with a few extra, dare I say classier, ideas for weekend trips this fall. There is the family friendly Stone Mountain pumpkin festival.

Let’s be honest though, you don’t have to be trick-or-treating age to get excited about picking out a pumpkin. A great place to tour beautiful gardens, see leaves changing colors, taste wine, see live music, or perhaps take a weekend cooking class, is Chateau Elan just outside of Atlanta. And what graduate student couldn’t use a day at the Chateau’s spa—yea right, keep dreaming. Finally, on October 31st an excellent choice of activity would be to dress up, not in a ridiculously skimpy costume, but in red and black and go cheer against Florida at any bar in Atlanta.

Scientific Halloween Costume Ideas
By Katie Williams

Biochemists
Show off your latest results as diffraction data made out of chicken wire and styrofoam balls (see below) or act out one of you favorite assays by asking some friends to dress up as the reagents needed for an immunoprecipitation (i.e. protein of interest, antibody, agarose bead, etc.).

1. Cut out a large circle of chicken wire
2. Spray paint gray concentric circles
3. Spray paint styrofoam balls black and attach
4. Add shoulder straps
5. Wear black clothes because your body is the beam stop

Cell Biologists
Be the basic unit of life by constructing a costume out of wire coat hangers and different colors of felt fabric or demonstrate your favorite signaling pathway with some of your friends (see below).

1. Decorate t-shirts with the name of your enzyme
2. Make P groups, GTP, etc. out of styrofoam balls and attach with velcro
3. Demonstrate the Phosphorylation of ROCK by GTP bound RhoA

Developmental Biologists
Show off your favorite model organism (i.e. Drosophila: buy some fly eye glasses and make antennae and wings out of posterboard, C.elegans: sew a loose tube of fabric, decorate with felt or markers and cut holes for your feet and eyes, etc.) or grab some friends and be the germ layers (see below).

Fall Fun (Continued from page 5)
Kevin Van Bortle and Beth Bowman
Student Representatives
KVanBor@Emory.edu (Rollins 1071B)
Beth.Bowman29@gmail.com (Rollins 2086)
As student representatives to the executive committee, our role is to attend EC meetings on behalf of all BCDB students. One of our jobs is to provide student input on common issues regarding BCDB curricula, student guidelines, student rotations, qualifying exams, committee meetings, recruitment, etc. We feel that our most important role is to facilitate communication between the executive committee and the student body. Specifically, we represent students’ questions and concerns in an anonymous and unbiased manner at all committee meetings, as well as relay any significant proposed changes from committee meetings to BCDB students. This year, we have already started to strengthen this bidirectional communication and we want to continue to make changes in the program more transparent to students. As always, we will remind you before any upcoming executive committee meetings, and look forward to your input!
Thinking About Teaching? Look here FIRST!  

Shea Cadwell

After listening to the speakers at the retreat, you may be interested in finding out more about teaching fellowships. There are a number of pre and post-doctoral teaching fellowships, but I would like to highlight FIRST and PRISM, two of the best-known programs to Emory students and alumni.

Fellowship in Research and Student Teaching, or FIRST, is a post-doctoral program supported by the NIH. The program combines research and teaching mentorship. According to the FIRST website, fellows will receive “instruction in pedagogy, classroom technology, mentorship of undergraduates, and course development.” The program provides a laddered teaching experience. The first year fellows begin research with their chosen mentor, while meeting weekly with a teaching mentor to learn how to design and teach a course. Fellows are expected to continue their research endeavors through the second and third years, while they simultaneously develop a course to be taught during the fellowship.

I had the opportunity to speak with former FIRST fellow, now Associate Director of the Center for Science Education, Drew Kohlhorst, and Avanti Gokhale, one of several current fellows and BCDB alum, and both agree that the program is an excellent choice for post-graduate training. The flexibility of the fellowship is one key feature that contributes to the success of the program. Fellows are able to tailor the program to best suit the teaching/research experience needed for their careers. The FIRST program is highly recommended by current and past fellows to anyone who thinks they might be interested in a career that involves teaching.

The FIRST fellowship is designed for post-graduate students. However, if you are a current graduate student looking for teaching experience beyond teaching assistantships, the PRISM program might interest you. PRISM is a National Science Foundation graduate teaching fellowship in K-12 education. Jordan Rose, Project Manager of PRISM, states that the main objective of the program is “to prepare future faculty members with the skills and confidence to teach math and science in engaging, student-centered ways.” Graduate students spend 12 hours per week in the summer, fall and spring gaining experience and instruction in teaching. Approximately 10 hours per week are spent in a K-12 classroom. More information about the program can be found at http://www.cse.emory.edu/prism/app/grad.cfm.

If you are a current graduate student, either at the beginning of your graduate school journey or nearing the end, the experience in teaching you are looking for might be just an application away.

Grasping the Intangibles

During the BCDB retreat, an abundance of advice and practical knowledge was conveyed. But what was the number one lesson that the BCDB Alumni wished to convey? No matter which career path you choose to take, your time in the BCDB program builds the foundation for your future. Through classes, seminars, and day to day interactions, students acquire skills that are applicable to almost any career field. There are countless opportunities for you to gain experience in the field of your choosing and build a great CV, you just have to take advantage of them. The second lesson learned? Decide what you enjoy about science and make a career out of it... JUST GO FOR IT!!

Jadiel Wasson
GDBBS Student Research Symposium

Each year the student representatives of the Division Student Advisory Council sponsor and organize a research symposium to showcase the research done by students in the GDBBS. As your appointed representative (there was no election, I seized power through cunning subterfuge and physical prowess) I am excited to announce this year’s symposium on January 17th, 2012. Historically, BCDB has had a very strong presence at these symposiums and consistently walks away with many awards for outstanding posters and talks ($$) and with your help we can continue this tradition of excellence. Please consider taking this opportunity to present your research to a wider audience of Emory researchers and to practice your presentation skills. We are currently accepting abstracts for both poster and short talk formats. Abstracts are due by November 23rd. This year, we are also asking students to submit scientific images to be used in advertisements for the student symposium. Monetary awards will be given for images used in this manner. Image submissions are due by October 31st. Students of all years are welcome and encouraged to participate in both the symposium and image contest. Please contact me, Mike East, at meast@emory.edu for more information.

Around Town

⇒ Georgia Mountain Fall Festival October 7-15th at Georgia Mountains Fairgrounds, www.GeorgiaMountainFairgrounds.com
⇒ Candler Park Fall Fest, October 15-16th, Candler Park http://fallfest.candlerpark.org/
⇒ L5P Halloween Festival and Parade, October 22nd at Little Five Points
⇒ Chastain Park Arts Festival, November 4-5th, Chastain Park
⇒ Atlanta Day of the Dead, November 6th at Atlanta Station http://www.atlantadayofthedead.com
⇒ Garden Lights, Holiday Nights, November 19th–January 7th, Atlanta Botanical Garden
⇒ Fourth Annual Reindog Parade, December 10th, Atlanta Botanical Garden
⇒ Peach Drop 2010, December 31, Underground Atlanta

Not satisfied yet?? Check out: http://www.atlanta.net/visitors/calendarevents.html

Congrats to BCDB Students With External Funding!

Allen, Megan – BCDB TG
Bowman, Beth – NSF
Cadwell, Shea – BCDB TG
Colucci, Jennifer – AHA
East, Michael – AHA
Fagan, Crys – NDSEG
Hwang, Chris – NRSA
Kuiper, Emily – BCDB TG
Lattier, John – OPTH TG
Nanes, Ben – AHA
Newman, Laura – BCDB TG
Rha, Jen – NRSA/GATES
Randolph, Matthew – NRSA
Ryan, Emily – HG TG
Schureck, Marc – BCDB TG
Viswanadha, Rasagnya – AHA
Wasson, Jadiel – BCDB TG
Williams, Katie – BCDB TG
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Front Page Title Art: Immunofluorescence images of C. elegans embryos depicting the loss of transcriptional elongation in older primordial germ cells (panels 1-3; red=DNA, green=Pol II Ser2-P, blue=germ cell marker) and the erasure of an active transcription histone modification, H3K4me2 in newly born primordial germ cells (panel 4; red=DNA, green=H3K4me2, blue=germ cell marker). Images courtesy of Beth Bowman

Table of Contents: Image shows S. cerevisiae cells expressing a nuclear localization signal-tagged dTomato fluorescent protein, 1000X. Image courtesy of Nick Bauer.