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Welcome New Students!

A new year means a whole new class of students for us to get to know. This year we have 19 incoming first years from all over the world. We should be very excited to get to know the new additions to our BCDB family!

Important Dates:

- Sept 4: GDBBS Symposium abstract due
- Sept 5: Grad Senate Party at Sutra
- Sept 10: Minority Grad Student Reception
- Sept 11: International Grad Student Reception
- Sept 25: Grads with Families Dinner
- Oct 2: GDBBS Symposium
- Nov 7: NSF Grad Fellowship Deadline
- Nov 14: Ford Fellowship Deadline
- Dec 8: NRSA individual fellowship Deadline
- Jan 15: American Heart Association Deadline

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Welcome New Faculty!

Besides our 19 new students, there are also several new faculty additions to BCDB: Graeme Conn, Christine Dunham, Lian Li, and Junmin Peng.

Christine Dunham’s research focuses on the roles RNA molecules and the roles RNA-protein interactions play in gene expression and regulation.

Graeme Conn studies RNA-protein interactions in bacterial antibiotic resistance and mammalian anti-viral response. He also studies sweet taste proteins and sweet taste receptors.

Lian Li is in the Pharmacology Department and studies the molecular and cellular mechanisms of vesicular trafficking, signal transduction, and neurodegeneration.

We’ve seen Junmin Peng around Emory for a while now, and he finally joined our program! Junmin uses mass spec to study the pathogenesis of human neurodegenerative diseases.

The Director’s Corner

By Anita Corbett

As the summer draws to a close, we say goodbye to the relatively relaxed pace and welcome the new academic year. Obviously the highlight of the new academic year is the arrival of the new class of students. Of course this new class of “first year” students means that everyone else moves up a year, and some may feel a twinge of angst at this change in status. However, it is always great to have new students, and as everyone knows this year brings a virtual wealth of new faces (introduced on page one). Given the large number of new students, we certainly hope that everyone will make an extra effort to make this class of students feel welcome.

This year, the coming of the fall also brings the external review of the GDBBS. The external review panel has already been provided with extensive documentation about each program in the GDBBS. The actual site visit by the external review panel is scheduled for September 10th, 12th. Some of you (both faculty and students) will be called upon to meet with and answer questions posed by these external reviewers. Much more information will be forthcoming as the date for the site visit approaches.

On August 11th, the BCDB faculty met for a brief update on the status of the program. Several changes that impact the program were reported. One of these changes is Susan Hofstadder’s move from her office in the Biology Department to the GDBBS office in the Dental School as part of an effort to consolidate the support staff for the GDBBS and the individual programs. Another notable change of particular importance to second year students is the decision to change the topic of the grants course to the student’s own research project. This change removes the angst of selecting an appropriate research question from the existing literature and allows the student and faculty mentor to focus on developing the student’s own research question.

Finally, a brief update on the positive changes that have been implemented in response to the 2007 report from the BCDB Internal Review Committee, fondly known as the BIRC report. Although many of the findings of the report were positive and emphasized the significant strengths of the program, two areas needing some improvement were identified: 1) communication among program faculty and students and 2) faculty and student involvement. These issues clearly are interrelated such that enhanced involvement would necessarily lead to enhanced communication. Efforts to enhance communication include the establishment of the Communications position on the BCDB Executive Committee, a position to which Iain Shepherd was recently reelected for a three year term.

One obvious result from the BIRC is the ongoing publication of the Leading Edge with many other plans in the works. With regard to participation, the BIRC report recommended the creation of committees centered on the responsibilities of the BCDB Executive Committee. These committees, composed of faculty and (where appropriate) students, have now been established and the initial meetings and framing of their responsibilities are underway.

I look forward to an exciting and productive academic year. I close by urging all students to participate in the fall GDBBS symposium. This symposium is a great opportunity to gain experience presenting your research to a broad scientific audience. I’ll see you all there!
The New International Student Perspective

By Roc Hu

As a student in the life sciences field, there were times when I couldn’t spell “deoxyribonucleic acid” or “enzyme” and I looked bizarre on the bench; the idea of an American PhD experience was more or less a flashing idea, like electrons rushing about their orbital.

During the graduate school and visa application, there were endless questions asking why I wanted to come to the US and Emory, and there could almost be standard answers for these questions from applicants all over the world. For each international student in BCDB and GDBBS, coming all the way down to 1462 Clifton Road from all corners of the Earth may be as winding as it is exciting. As we witness a growth in the number of foreign students, I begin to feel lucky and honored to be comprehensively involved in the advances and practices in this interesting program and impressive university.

Emory’s image across the ocean is becoming comparable with its image in the US. Metropolitan Atlanta, the CDC, and the numerous research, education, and alumni resources that are available, are far more catching than numbers in university rankings. The Emory website has good historic introductions with great coverage, and there is no repetition; specifically, the impressions for GDBBS have grown from fragments of reviews from previous students into a clearer picture of the programs, the people, and research here.

Coming for graduate study in the United States is a total shift from my previous course of life and culture, therefore being alien can mean frustrations in one fashion or another, among which communication is one of the first headaches. And if you would go into details, the Ac’cent Newsletter from the International Student and Scholars Program (ISSP) has an intensive, textbook-like coverage of these cultural transition problems, which, of course, I hope I and other international students can successfully get through. While situations vary for each individual, what I’ve learned from other students and myself is that an open mind could be the prescription for knowing that which seems different from us, as understanding and mutual respect are what every culture and people cherishes. An elegance in scientific research and education is that, although still sort of a social event with all the defects of human nature, it is already more impartial and open-minded than many other activities or careers. Studying as an international student is not a time to give up, but to confront the challenges that lie beyond.

I remember what Dr. Bill Kelly told me when I was asking about BCDB admission information 10 months ago - “While there are obviously some disadvantages (compared to domestic students), these can be overcome by application quality.” In my eyes, this is de facto what each international student shall be grateful for. The opportunity that Emory, GDBBS, and BCDB offers is by no means their liability, but they will be responsible for each applicant’s future as far as they can.

If a more senior international student were to write about their thoughts and experience, there would be more details about how international students feel about Emory and BCDB. As a new-comer, I will try thank the program, for now, for all the effort they’ve devoted to bringing us together. Obviously, there is the executive committee of BCDB, its current students, the staff and faculty of GDBBS in the graduate school, as well as ISSP, all of which served us with patience and professionalism along the way. As the Emory motto states- “the wise heart seeks knowledge, it’s my hope for all of us that it will be a wise choice to seek Emory.”

New Faculty Close-up: Christine Dunham

By Seth Kelly

Plastic wrap and cardboard boxes are precariously positioned atop the trashcan in Dr. Christine Dunham’s new laboratory space in the Biochemistry connector. Nothing more than a thermocycler and a few boxes of pipette tips occupy one bench. “The table is back-ordered,” Dr. Dunham mentions as she gestures towards the empty chairs that will eventually surround the missing table in the common area outside her office. As I talk to her, however, I have the feeling that this new lab space won’t be empty for long.

In fact, as she shows me around her lab, Dr. Dunham points out the boxes that are already accumulating, one of which contains a new AKTA protein purification system. She also shows me the space where some lucky graduate student will get to use several crystallization robots to help set up their crystallization experiments.

“With these robots,” Dr. Dunham explains, “we can set up 96 different sample crystallization conditions in about two minutes. The ro-
bots will allow us to set up multiple trays at multiple temperatures using just a small amount of protein. It’s just really cool.”

Dr. Dunham is the most recent addition to Emory’s Biochemistry Department and also a new member of the BCDB program. Originally from upstate New York, Dr. Dunham completed her doctoral work with Dr. Bill Scott at the University of California at Santa Cruz studying hammerhead ribozyme catalysis. She then moved “across the pond” to a post-doc position in the lab of Venki Ramakrishnan at the Laboratory of Molecular Biology in Cambridge as an American Cancer Society fellow.

Her research interests, drawn from her previous work in the Ramakrishnan lab, are multifaceted. One focus of her research is on understanding the molecular mechanisms dictating ribosome translocation along a strand of mRNA. Although one might think that there’s not much one might think that there’s not much little structural data is actually available about how regulatory factors (especially GTPases) interact with the ribosome. According to Dunham, even though there are several solved crystal structures of the ribosome bound to tRNAs, only one of those is in a complex with a regulatory factor. A problem Dunham hopes to overcome here at Emory.

Dunham is also investigating the mechanisms by which the ribosome reads a non-canonical three base codon on the messenger RNA. In some cases this is a translational error but it can also be a mechanism for varying gene expression. Viruses exploit these errors to maximize their limited genome. One particularly good example of this is in the Gag-Pol genes of the HIV-1 retrovirus. In order to make the Gag-Pol polypeptide, an essential part of the retrovirus, a frameshifting event on the ribosome must occur.

“Lots of viruses contain interesting and complex secondary structures in their mRNAs,” says Dr. Dunham. In order to prevent this frameshift, we first have to understand the mechanism by which it occurs. It is known that by disrupting the frameshift this “prevents the HIV virus from hijacking the cellular translation machinery.” This could be a potentially novel therapeutic approach to treat this deadly disease.

Additionally, Dunham wants to form a concise model of mRNA transport and localized translation. This entails understanding the molecular details of how proteins recognize the 3’ UTR of different mRNAs that can either repress or activate translation; enzymes that process mRNAs by poly- or deadenylation that confer translational competency; and ultimately the three dimensional structures of distinct complexes along the pathway.

Even though Dr. Dunham has plenty of her own ideas, she’s also interested in building collaborations with other researchers here at Emory. “Having all these great biologists who are interested in collaborating was a big part of my decision to come to Emory,” says Dunham.

Not surprisingly, she’s excited about the prospect of having some BCDB graduate students in her lab. Incoming students in the Dunham lab can expect to get their hands dirty right away learning the ins and outs of crystallography – how to solve and interpret three-dimensional structures – as well as biochemistry and RNA- and ribosome-based assays. Overall though, “I’m pretty flexible,” she says when describing what students should expect when thinking about joining her lab. “I’m always open to new ideas to approach important biological problems.” A strong combination of approaches, original ideas, and flexibility is a good recipe for success.

From Dunham et al 2007, RNA. Showing the interaction of mRNA (orange) with the stem loop of tRNA (green) and rRNA (grey).
Dana Tucker: Representing on the EC

By Dana Tucker

Another academic year has begun, evidenced by the influx of new students. Whether you’re a newbie or veteran, it is important to know about the governing body of the BCDB program. There are a few changes from last year, so please read below and be in the know!

The governing body of the BCDB Program consists of the program Director, the Director of Graduate Studies (DGS), eight additional Executive Committee (EC) members, and a student representative. The EC writes and updates the BCDB guidelines and oversees the running of the program according to these guidelines. The committee reviews student progress and curriculum, administers the qualifying exam, approves mentor choices, assesses faculty membership, and organizes recruitment.

This year, Anita Corbett begins her third term as Director. Her job is to oversee the EC and act as a liaison between the program and the Graduate Division of Biological and Biomedical Sciences (GDBBS).

Andy Kowalczyk begins his second term as Director of Graduate Studies (DGS). The DGS is the contact for all student-related issues. The DGS monitors student progress in courses and intervenes to provide help/guidance if required. The DGS is involved in virtually all program decisions in consultation with the Director.

New to the EC committee are Paul Doetsch and Iain Shepard. Paul Doetsch is replacing Victor Faundez and will oversee part one of the qualifying exam. Iain Shepard will be the first to hold the new Communications position within the EC. Iain is in charge of Communications, both within and outside of the BCDB program.

The remaining members of the EC are: Scott Devine---reviews student progress and committee meetings, Bill Kelly---organizes and oversees student recruiting, Russ Price---reviews faculty membership, Yue Feng---oversees student laboratory rotations, Mike Koval—responsible for student curriculum and last but not least is the new student representative who serves as the liaison and voice of the student body---Dana Tucker (me:).

Hopefully, this explanation was informative and will also let you know who to consult if a problem arises. For more details you can contact me or access the BCDB website (under within the current students link—BCDB Executive Committee).

Know Your EC: Faculty Membership Chair, Russ Price

By Russ Price

Greetings from the Faculty Membership Committee. Ever heard of us? We (Russ Price, Grace Pavlatth, Rick Kahn and Maureen Powers) are a new committee that was created in response to a recommendation by the BCDB Internal Review Committee (BIRC).

The Faculty Membership Committee oversees the application process for faculty who wish to join BCDB. We are also charged with annually reviewing the level of program participation of each faculty member and reporting to the Executive Committee.

BCDB guidelines stipulate that each faculty member provide evidence of adequate participation in two of the following areas: teaching, research training and administrative. The mechanism for this review is the annual participation survey. Fortunately, the majority of BCDB faculty members are actively engaged in many different aspects of the program.

For faculty members wishing to increase their level of participation, there are a number of ways to become more involved. Administrative committees with rotating memberships have been established around Executive Committee functions involving recruitment, qualifying exams, faculty oversight, student rotations, curriculum, and communications. If a faculty member is interested in serving on a particular committee, they can send a message to either me, Anita or the Executive Committee member in charge of the committee.

Other opportunities for faculty involvement include hosting a student lab rotation, serving on a thesis committee, regularly attending ethics sessions, lecturing in BCDB-specific courses, and a variety of recruitment activities such as having dinner with the recruits.

Faculty participation in the Wednesday student seminars and Friday journal clubs are a major area of deficiency, as reported by the BIRC. Attendance at these sessions is an easy way for faculty to become more engaged in the program and support our students.

Everyone in the program, students and faculty included, should strive to participate. Who knows, you might learn something new!
Life Away from the Bench...
By Rebekah Kushner

BCDB Bowling
This May, a group of BCDB students and faculty came together for night of food and fun at Midtown Bowl, just off of Cheshire Bridge Road in Midtown.

The competition was fierce for highest score—a triumph rewarded with a bowling pin, purchased by Win Sale, and signed by the BCDB students and faculty members present at the event. With a score of 163, Dana Tucker secured this most honored status.

And let’s give a big BCDB Thank You to our former BCDB student representative, Christy Larkins, for the initiative and coordination that made this night a huge success. We hope to have more events like this in the future.

Summer Meetings

- **Jackelyn Arico** presented a poster entitled *Transcriptional Effects on Epigenetic Imprinting in C. elegans* at the 2008 *C. elegans* Development and Evolution Meeting at the University of Wisconsin at Madison. Perfect weather and blue skies + a beer garden overlooking the lake + talks about worms = good science and good times.

- **Rebekah Kushner and Rebecca Sanders** attended the Parents of Galactosemic Children (PGC) meeting in Chicago, Illinois. Rebecca Sanders displayed a poster entitled *Markers of Ovarian Function in Classic Galactosemia*. Both BCDB students actively enrolled patients with classic galactosemia in their lab’s ongoing study: *Modifiers of Outcome in Galactosemia*. 60 new participants were enrolled at the conference, bringing the number of participants in the study to over 150.

- **Seth Kelly** attended the International RNA meeting in Berlin, Germany. The title of his poster was *Biochemical and Genetic Dissection of a Novel Polyadenosine RNA Recognition Domain*.

- **Jocelyn Lee** spoke at the FASEB Summer Research Conference on Protein Phosphatases. Jocelyn was recognized at the meeting for the excellence of her talk. The week long meeting focused on both serine/threonine and tyrosine phosphatases and took place in Snowmass, Colorado.

- **Karen Newell Litwa** traveled to Athens, Greece to present a poster at the FEBS-IUBMB Conference, a meeting focusing on the Biochemistry of Cell Regulation.

- **Ebony Washington** presented a poster entitled *The Role of LOX/LOXL Family Members in the Stabilization of AAA* at both the Annual Cardiology Research Symposium and the MSP Frontiers Symposium in Pharmacology.

Congratulations BCDB students on your hardwork and accomplishments this summer!
More Life Away from the Bench...
By Christy Larkins

Meeting the First Years, Seeing Old Friends

BCDB kicks off every school year with a reception in the Rollins fourth floor lobby. There is always food, beer, and a delicious BCDB cake. The event is a great opportunity for the whole program to get together, meet the new students, and catch up with people we lost touch with during the summer because we were all working so hard in lab (right?).

This year’s reception, held Thursday August 28th, was very well attended, or at least the lobby was full, possibly a side effect of having so many first years.

Besides students, there were also many faculty members eating, drinking, and schmoozing. Its sometimes nice to mingle with faculty, some of which may be your committee members, in a relaxed setting.

But the real purpose of the reception is to welcome all the new students and make them feel comfortable in their new life as a BCDB grad student. From being at the reception, I would say the first years looked like they were right at home.

It can be fun getting together as a program, especially when free food and beer is involved.

Chris Griffin, Tiffany Roberts, and Shana Kerr, entering year 5

Brian Robinson, a second year, posing for a pic with first years Mariana Mandler, Robert Randolf, and Cris Lee

The Rollins fourth floor lobby filled with BCDBers on Thursday afternoon

Congrats to the Recent Grads!

Leslie Cunningham— Kahn Lab
Gary Ratner— Powers Lab
Katie Jansen Spade— Pavlath Lab
Francisca Reyes Turcu— Wilkinson Lab
Karen Ventii— Wilkinson Lab
Dina Greene— Benian Lab
Allison Lange— Corbett Lab

www.phdcomics.com
We hope you enjoyed the third edition of the BCDB newsletter, *The Leading Edge*. Our goal is to keep BCDB students connected and informed of events in our program.

If you have an idea of an interesting story, questions, or comments, please contact our editor, Christy Larkins (clarkin@emory.edu). We would love to hear from you. Thanks for reading!

*Leading Edge Committee*

**Around Town**

*By Rebekah Kushner*

Take a break from research and explore all that Atlanta has to offer! Here are a few exciting upcoming events:

**Atlanta Arts Festival**—9/12-9/14, Piedmont Park

**Pumpkin Festival**—10/3-10/26, Stone Mountain Park

**Taste of Atlanta**—10/11-10/12, Atlantic Station

**The Great Decatur Beer Tasting Festival**—10/18, Decatur Square

**Little 5 Points Halloween Festival**—10/24-10/26, L5P

**Macy’s Great Tree Lighting**—11/27, Lenox Square

**Peach Bowl Parade**—12/31, Downtown

**New Year’s Eve Peach Drop**—12/31, Underground Atlanta

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**TRIVIA!!**

Join fellow BCDBers for trivia at local bars. Stay tuned for emails organizing an event, or if you want to organize, send an email to BCDSTUDENTS-L@listserv.cc.emory.edu.

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**SUDOKU**

TRIVIA!!

Join fellow BCDBers for trivia at local bars. Stay tuned for emails organizing an event, or if you want to organize, send an email to BCDSTUDENTS-L@listserv.cc.emory.edu.

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**SEMINAR BINGO**

To play, simply print out this bingo sheet and attend a departmental seminar.

Mark over each square that occurs throughout the course of the lecture.

The first one to form a straight line (or all four corners) must yell out "BINGO!"

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**Editor:** Christy Larkins

**Contributing Writers:** Anita Corbett, Rebekah Kushner, Christy Larkins, and Iain Shepherd