



BBS Bulletin

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A BBS Student's Path After Graduation: Creation of a Central Plasmid Repository

Sharon Ou Young (Recent Grad)

Sometime in your graduate career, chances are you'll do a project that requires obtaining plasmids from another lab. As you may be aware, this is not always a simple task. If you're lucky, you will contact a PI and get the plasmid you want right away. But often, scientists can wait months for a plasmid, or never receive a response. Melina Fan, during her BBS graduate career, realized that there had to be a better system for plasmid transfers between academic laboratories. As part of her thesis work in Bruce

Spiegelman's lab, Melina carried out a screen for proteins that interact with PGC-1 alpha, a transcriptional co-activator. She ended up with 20 interacting proteins, and wrote to scientists to ask for plasmids containing these genes. In response, she received only 10 plasmids, and many of these took months to arrive. Spurred by this negative experience, Melina decided that she had to do something to facilitate plasmid transfers.

see 'Plasmid' on page 6

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Money Money Money!: Investment Ideas for Graduate Students-Part 1

Sandra Chow (G3)

So you have been subsisting on Ramen and vitamins for the last few years and now you finally have some money saved up. On top of that, our \$83/month raise means you can eat at McDonald's every night and still have money leftover! You might be wondering, what should I do with my meager savings? While this article cannot be your money manager, it may give you some investment ideas to get you started on the road to Warren Buffet-dom.

I have more money than Bill Gates. What should I invest in?

Well, you probably should not be getting your investment advice from a BBS Bulletin article. This article is geared towards graduate students with our low but steady income. As graduate students, we are in the interesting financial position of being in a low tax bracket now, but potentially in a very high one once we graduate and find real jobs.

So how much money should I have before I start investing?

The general rule of thumb is that you should have enough cash to cover six months worth of expenses readily available for emergencies like sudden illness, injury, or lab mouse rebellion. Grad students do have a very stable income and could get away with less, but I would not recommend it.

What if I still have student loans from undergrad? Shouldn't I worry about paying those off first?

I suggest that you look at the interest rate. If your loans are deferred or the rates are very low, you

might as well keep that money around. You could earn a higher interest rate than what you would have to pay. For example, if you consolidated your loans before June, the government had a great offer where you would only have to pay a 2.5% interest rate. With money market rates already paying around 3 – 3.7% interest rates, it makes more sense to keep that money around in a conservative investment and earn the extra difference.

If your interest rates are high, however, or if you have credit card debt, you should definitely concentrate on paying those off first. Paying off a \$10,000 loan with a 15% interest rate does the same for your net worth as investing \$10,000 at a 15% interest rate. (In general, I do not believe in keeping credit card debt. You are just throwing your money away on interest.)

I do not want to risk losing my money in the stock market, but I want to earn more than at a bank. What should I invest in?

The easiest way to earn a higher return on your money would be to put it in a money market account. They are just like a savings account in that your money is liquid, and you can take your money in and out as you please. Also, most bank money market accounts are FDIC insured which means that if the institution goes bankrupt, the government will refund you up to \$100,000 (which is also why you should not have more than \$100,000 at any institution). Money market accounts offer a higher interest rate than standard

see 'Money' on page 7

Professor of Genetics: Leonard I. Zon

Xiuning Le (G3)

Research Interests

Using the zebrafish (*Danio rerio*) as a model system to understand genetic pathways important for vertebrate hematopoiesis and tumorigenesis.

Background

- Grew up near Philadelphia in Broomall, PA.
- *Undergraduate*: B.S. in chemistry and natural sciences from Muhlenberg College.
- *Medical*: Jefferson Medical College.
- *Residency and fellowship*: Internal medicine residency at New England Deaconess Hospital; Fellowship in medical oncology at Dana-Farber Cancer Institute.
- *Post-doc*: Lab of Stuart Orkin.

Inspirations

Len always knew he wanted to practice medicine, but he also loved chemistry and thought about becoming a chemical engineer. He had a small chemistry set in his basement and would occasionally blow things up, much to the concern of his parents.

There were a number of people who inspired Len to do science, including Alan Erslev, the discoverer of erythropoietin. Len went to one of his lectures in medical school and could not believe that a hormone controlled red cell production. This had a major impact on his career in studying blood cell development.

Worst Job

Len worked at a car wash during summers in high school. He made his way from back window washer up to white wall washer. A real success story!

Hobby

Len's biggest hobby is playing the trumpet and has been performing in the Longwood Symphony for 22 years. He has two trumpets plated in 24-karat gold that were custom made for him by the same maker of Wynton Marsalis's instruments. Len also collects trumpets, and has amongst his collection a piccolo trumpet, a pocket trumpet, and a flugel horn.

see 'Zon' on page 4

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Associate Professor of BCMP: George Daley

Ray Shao (G6)

Research Interest

Using embryonic stem cells to study blood development.

Background in a Nutshell

- Grew up in Catskill, NY, a small town of 5,000 that has produced two BBS faculty members, himself and Scott Snapper.
- *Undergraduate*: Harvard College. Developed an interest in research during his freshman year summer while working with Ed Koenig at SUNY, Buffalo. Upon returning to campus, he quickly quit his dish washing job to become a "lab rat" in the labs of Dan Branton and Lans Taylor.
- *Graduate*: M.D./Ph.D. from Harvard-MIT HST program. Worked with David Baltimore investigating Abl and chronic myeloid leukemia (CML), after being inspired as a second-year medical student by a hematology lecture, during which he was struck that 95% of the chronic myeloid leukemia (CML) patients have the Philadelphia Chromosome.
- *Post residency*: ran lab at MIT as a Whitehead fellow.
- Joined the faculty at the medical school to be engaged in both the basic science departments and clinical divisions.

Odds and Ends

George's passion as a child was tropical fish and at one time had eight bubbling tanks and breed different kinds of cichlid fishes. Now, his older son has also taken on the fascination of fish, frogs,

newts and tadpoles. His sons, Jack and Nick, are both huge sport fans, and George spends a lot of time with them playing baseball, swimming, or watching their fire-belly newts.

His biggest hobby other than sports is wine – collecting, drinking, and cooking. Science is what actually introduced him to fine wine and food because during his travels throughout Europe as a graduate student talking about his research, he was very nicely entertained by people who introduced him to the local food and wine. He now has a two-thousand-bottle wine cellar, and his favorites are northern Rhone wines from France and Australian Shiraz.

He thinks he has a pet peeve of non-orthogonal messiness.

Science and Politics

George was very politically active as an undergraduate, hosting a newly elected freshman congressman in the Kennedy School's "boot camp for legislators" program, for example. In many ways he has



become active again, as stem cell research has become caught up in the culture war currently being waged in this country. George feels passionate that the science is important and more than well justified ethically, and he thinks scientists, in these situations, have to defend the nature of their research. After spending countless hours educating the media, policy makers, and the public, he hopes the scientific aspect of stem cells is winning in the court of public opinion.

Professor Recommendations

- *Restaurant*: Troquet – best in Boston for wine value and great food.

see 'Daley' on page 7

How I Survived My First Year

Elizabeth McKenna (G2)

Last year around this time, I was starting to think that 5-7 years away from home seemed more like a self-inflicted prison sentence than an exciting educational opportunity. For some reason that was becoming less and less clear to me, I had chosen to live in a labyrinth of unmarked streets teeming with savage Red Sox fans for an indeterminate amount of time. Besides being overwhelmed by the magnitude of the time and effort I had committed to getting my Ph.D., I was anxious about meeting my new classmates. I did not recognize many of the names of the incoming class from recruitment, and I hoped that all the cool people had not ended up elsewhere.

Luckily, my anxiety did not last very long. I immediately felt welcomed during Orientation, both by the faculty in charge of BBS and by Kate, Steve, and Maria from the BBS Office. I quickly felt like I had more academic attention and support than I had in four years of college. Orientation week, culminating in the BBS Retreat, helped me acclimate to life as a Harvard student in Longwood, and provided opportunities to interact with faculty, my new classmates, and other BBS students.

Thanks to the BBS Retreat, I really started to get to know some of my classmates, and began to feel like I belonged to a community of students. It also soon became clear just how well we BBS students are treated. I continue to be amazed at how well Kate, Steve, and Maria know the program, and make sure that none of us go unaccounted for. The program and course directors actually care about what we think. Most importantly, opportunities for free food and drink abound for BBS students, especially for G1s – there is Rotation Club, Dinner Seminar, Data Club, weekly departmental happy hours, seminars, journal clubs, lab meetings, Christmas parties, chocolate fountains, ice cream

socials – we are pretty lucky.

Of course, in our first year we can also go on all the departmental retreats (BCMP, Cell Biology, Systems Biology, Pathology, Genetics, and Microbiology), which are great opportunities to visit new places, get to know our classmates and the faculty better (perhaps a little too well), and maybe even learn a thing or two by going to talks or poster sessions. In fact, I met my future thesis advisor at the BCMP retreat, and did my first rotation in his lab.



Rachel Dutton (G2), Sejin Ahn (G2), Mary Rodgers (G2), and Lorena Mora-Blanco (G2) pose for a picture on the ferry to the BBS barbeque.

Rotations were great opportunities for me to find out what I needed in a lab. I had the opportunity to rotate in labs of various sizes, headed by PIs who are really involved in daily lab life or by PIs who hardly see or talk to their students. I also got a sense of the social dynamics of the lab, and found out important things like whether or not music is played in lab and the quality and quantity of the food and beer offered at happy hour. Perhaps slightly more important than the food and beer situation is getting an idea of the scientific direction in which the lab is headed. I enjoyed the opportunity to dabble in several different areas of research before finally answering the siren call of chromatin remodeling. In my rotations, I learned a lot of new techniques and met a lot of helpful people. I also realized that I am personally happiest with a PI that is always available and shows interest in what I am up to without micromanaging, and a music-friendly lab

environment that is laid-back and social. One piece of advice I have to share is: rotations are for our benefit, so it is important to not to feel obligated to tough it out if you are really unhappy in a lab.

It was sometimes hard to balance both rotation work and classes, but the PIs and lab members I worked with understood that first-years need to be in class for several hours a day. The six classes I took this past year were painless, and I learned a lot. Almost all of the classes I took were

extremely well organized and run, and it was evident that the professors were always looking to improve their courses and listen to students' concerns. Another reason I enjoyed my classes so much was that it was so refreshing to be in classes with people who really wanted to be there and learn, not pre-meds hell-bent on getting the highest grade possible in classes they were required to take. There was no competition, but a spirit of collaboration—my classmates and I often worked on problem sets or studied together. I

learned—and continue to learn—a lot from my classmates and fellow BBS students, whose breadth of knowledge and varied research backgrounds are a valuable resource. Their enthusiasm about science is equally impressive, whether they are trying to convince a faculty member that bacteria are better than yeast or declaring that they would marry a particularly well-written Micro 230 paper.

In fact, the main reason I “survived” my first year was my classmates, many of whom became my good friends and my family here in Boston. Sitting amongst a big group of friends, large cup of coffee-cart coffee in hand, was a large part of what made spending hours in the Cannon Room every morning a pleasure. I consider myself lucky to be in the same class with such intelligent, enthusiastic, fun, and caring people. I have learned a lot from them in the past year, and they have inspired me to try new things I
see ‘First Year’ on page 6

Michael Stannbach

Out & About: The Head of the Charles

Nora Sullivan (G3)

Have you noticed the small boats rowing on the Charles River as you sleepily cross the Mass. Ave Bridge every morning on the M2 shuttle? These boats (with 1, 2, 4, or 8 rowers) are propelled by undergrads or members of the local rowing programs who are training for the world's largest Fall rowing event – The Head of the Charles Regatta.

During the third weekend of October, Boston serves as a magnet for rowers of all ages who want to watch or participate in the 2-day extravaganza. This year, the Regatta occurs on October 22nd and 23rd and fills the Charles River with boats and rowers for most of Saturday and Sunday.

The most exciting way to participate in the Regatta, of course, is to slip into your spandex, grab an oar, and row the 3-mile race that starts before the BU Bridge and ends after the Eliot Bridge. However, qualifying a boat for the race is quite difficult as the event is always over-subscribed and requires either fantastic skill (a good enough time from last year), or good luck (the remaining spots are filled by lottery).

Being a spectator is a less exhausting way to enjoy the regatta. The Head of the Charles is a great race to watch – the river is not too wide so boats are relatively close,

and races are going on constantly so boats pass by frequently, and plenty of rowing fans mill around for company.

Here are a few things to keep in mind as you watch the races:

1) One of the best places to watch the race is on the Cambridge side of the Charles between the Western Ave and Lars Anderson bridges. Being on the Weeks Footbridge provides an interesting and intimate perspective on the rowers. My favorite spot is just before the Weeks Bridge because the crowds are a little thinner and there is a good view of the middle of the race course.

2) Rowers row backwards and can only see where they have been and not where they are going. This makes for some additional excitement as mis-steerings often occur by an over-excited (or unskilled) coxswain (the extra person sitting in a 4 or 8 person boat without an oar whose job it is to encourage the crew and to steer). Sometimes there are multi-boat tangles and sometimes a boat gets a little too close to a bridge (especially true at the Weeks footbridge).

3) The race is a time trial – the boats start approximately 10 seconds apart and

are racing against a clock. Because the skill levels in a given race vary, boats often pass (or “walk” in rower-speak) the boat ahead of them. How well a boat is doing can often be determined by how much higher its number is than the boats behind it. The number is located on a sign at the bow (front) end of the boat.

4) It is easy to find some amazing athletes to watch. Either come early Saturday morning for the Senior Singles event to see men and women over 70 swiftly navigate this intricate course, or late Sunday afternoon to see the Championship Eights event where the top universities and international teams compete. For collision excitement, though, try the Youth Eights on Sunday morning – they are notoriously poor at steering. To see me struggle through this challenging course, come early Saturday afternoon. I am hoping for an entry in the Club Eights event in the Amherst College Alum boat!

For more information on the race (including directions, an entry list, race times and bow numbers), take a look at the website www.hocr.org. Also, the Metro includes an excellent rowing guide in the Friday, October 21st issue.

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Zon, continued from page 2

Pets

Len has fish and frogs at home, demonstrating that he loves these creatures not only as laboratory model organisms, but also as domestic pets. He has two *Xenopus laevis* that were born on the same day as his son, Tyler. Both Tyler and the frogs are doing very well at age 11.

Professor Recommendations

- **Movie:** the original *Zorro*, a fantastic swashbuckler with a big “Z” that he often thinks should stand for “Zon,” as opposed to “Zorro.”
- **Food:** Blue Ginger in Wellesley.
- **Vacation destination:** Great Wall in China with family.
- **Book:** *John Carter of Mars*, by Edgar Rice Burroughs.

Advice to Graduate Students

Choosing a lab: His philosophy is that you should think about it in terms of relative levels of happiness: you start grad

school with a certain amount of happiness, and when you join a lab your happiness increases. As time goes on, projects run into difficulty and your happiness decreases until there is a discovery. After this, your happiness will increase again, and if you

have chosen the right lab your happiness will be higher at the end of the process than when you started.

Approach to science: Len believes a person should always take the opportunity to be a leader in science. This will not only

help your own individual scientific questions, but will also bring you into the forefront of a community that will ultimately be responsible for promoting you. Participate in that community and reap the benefits.



Recent BBS Student Publications:

*These authors contributed equally to this publication.

Alvarez JV (G6), Febbo PG, Ramaswamy S, Loda M, Richardson A, Frank DA. (2005). Identification of a genetic signature of activated signal transducer and activator of transcription 3 in human tumors. *Cancer Res.* 65(12):5054-62.

Shirogane T, Jin J, **Ang XL** (G3), Harper JW. (2005). SCFbeta-TRCP controls clock-dependent transcription via casein kinase 1-dependent degradation of the mammalian period-1 (Per1) protein. *J Biol Chem.* 280(29):26863-72.

Ang XL (G3) and Harper JW. (2005). SCF-mediated protein degradation and cell cycle control. *Oncogene* 24(17):2860-70. Review.

Boehm JS (G5), Hession MT, Bulmer SE, Hahn WC. (2005). Transformation of Human and Murine Fibroblasts without Viral Oncoproteins. *Mol. Cell. Biol.* 25 (15), 6464.

Campbell CD (G4), Ogburn EL, Lunetta KL, Lyon HN, Freedman ML, Groop LC, Altshuler D, Ardlie KG, Hirschhorn JN. (2005). Demonstrating stratification in a European American population. *Nat Genet.* 37(8):868-72.

Gunshin H, Fujiwara Y, **Custodio AO** (G7), Drenzo C, Robine S, Andrews NC. (2005). Slc11a2 is required for intestinal iron absorption and erythropoiesis but dispensable in placenta and liver. *J Clin Invest.* 115:1258-66.

Dimitri CA (G5), Dowdle W, MacKeigan JP, Blenis J, Murphy LO. (2005). Spatially separate docking sites on ERK2 regulate distinct signaling events in vivo. *Curr Biol.* 15(14):1319-24.

Goehring NW (G7) and Beckwith J. (2005). Diverse paths to midcell: assembly of the bacterial cell division machinery. *Curr Biol.* 15(13):R514-26.

Holz MK (G5) and Blenis J. (2005). Identification of S6 kinase 1 as a novel mammalian target of rapamycin (mTOR)-phosphorylating kinase. *J Biol Chem.* 280(28):26089-93.

Huang FW (G3), Pinkus JL, Pinkus GS, Fleming MD, Andrews NC. (2005). A mouse model of juvenile hemochromatosis. *J Clin Invest.* 115:2187-2191.

Sofer A, Lei K, **Johannessen CM** (G3), Ellisen LW. (2005). Regulation of mTOR and cell growth in response to energy stress by REDD1. *Mol Cell Biol.* 25(14):5834-45.

Lamming DW (G4), **Latorre-Esteves M** (G5), **Medvedik O** (G7), Wong SN, Tsang FA, Wang C, Lin SJ, Sinclair DA. (2005). HST2 Mediates SIR2-Independent Life-Span Extension by Calorie Restriction. *Science.* Jul 28; [Epub ahead of print].

McKee AE (G5), Minet E, Stern C, Riahi S, Stiles CD, Silver, PA. (2005). A genome-wide in situ hybridization map of RNA-binding proteins reveals anatomically restricted expression in the developing mouse brain. *BMC Dev Biol.* 5(1):1.

Parmar KM (G1), Nambudiri V, Dai G, Larman HB, Gimbrone MA Jr, Garcia-Cardena G. (2005). Statins exert endothelial atheroprotective effects via the KLF2 transcription factor. *J Biol Chem.* 280:26714-9.

Jayaraman A, **Roberts KA** (G4), Yoon J, Yarmush DM, Duan X, Lee K, Yarmush ML. (2005). Identification of neutrophil gelatinase-associated lipocalin (NGAL) as a discriminatory marker of the hepatocyte-secreted protein response to IL-1beta: a proteomic analysis. *Biotechnol Bioeng.* 91(4):502-15.

Cowan CW*, **Shao YR*** (G6), Sahin M, Shamah SM, Lin MZ, Greer PL, Gao S, Griffith EC, Brugge JS, Greenberg ME. (2005). Vav family GEFs link activated Ephs to endocytosis and axon guidance. *Neuron.* 46(2):205-17.

Shendure J* (recent grad), **Porreca GJ*** (G4), Reppas NB, Lin X, McCutcheon JP, **Rosenbaum AM** (G3), Wang MD, Zhang K, Mitra RD, Church GM. (2005). Accurate Multiplex Polony Sequencing of an Evolved Bacterial Genome. *Science.* Aug 4 [Epub ahead of print].

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Wang J (G5), Zhai Q, Chen Y, Lin E, Gu W, McBurney MW, He Z. (2005). A local mechanism mediates NAD-dependent protection of axon degeneration. *J Cell Biol.* 170(3):349-55.

Winckler W (recent grad), Burt NP, Holmkvist J, Cervin C, de Bakker PI, Sun M, Almgren P, Tuomi T, Gaudet D, Hudson TJ, Ardlie KG, Daly MJ, Hirschhorn JN, Altshuler D, Groop L. (2005). Association of Common Variation in the HNF1 {alpha} Gene Region With Risk of Type 2 Diabetes. *Diabetes.* 54(8):2336-42.

SL Wong, **LV Zhang** (recent grad), and FP Roth. Discovering functional relationships: biochemistry versus genetics. (2005). *Trends in Genetics* 21(8): 424-427.

Announcements:

BBS classmates **David Adamovich** (G6) and **Wendy Winckler** (recent grad) were married in Dana Point, CA on July 16, 2005.

Laura Reither (G4) and Doug Marcotte are engaged and will be married this November in Charleston, SC.

Plasmid, continued from page 1

Currently, there are two major reasons plasmid requests are delayed or never fulfilled. The first is effort. For some laboratories, sending out plasmids can be very time consuming. Scientists are busy, and plasmid requests are not high on their priority list. The second reason is loss of plasmids. When graduate students or postdoctoral fellows leave a lab, their plasmid stocks often become disorganized. Later, when the lab receives a request for one of these plasmids, they may end up providing an incorrect plasmid or not being able to locate the plasmid at all. While ATCC exists for cell lines and the Jackson Laboratory exists for mouse strains, there was previously no central repository for plasmids.

After graduating from the BBS program in 2004, Melina decided to postpone her research career and tackle the challenge of starting a plasmid repository. Melina co-founded Addgene, along with Benjie Chen, who recently received his PhD in computer science from MIT, and Kenneth Fan, who was experienced in business and finance. Addgene, a non-profit organization, is dedicated to promoting sharing of plasmid constructs described in published literature. The organization's name is a combination of Acquire, Distribute, Discover and "gene."

Addgene is addressing the current problems with the plasmid distribution system. Once a lab deposits their plasmids

to Addgene, they will no longer have to spend time finding, packaging, and shipping plasmid requests. Instead, they can simply respond to requestors with an email link to Addgene's website. Addgene stores all plasmids as bacterial glycerol stocks and tracks them using a 2D-barcode system. Scientists who request a plasmid from Addgene can count on receiving it within a few days of approval from their technology transfer office. A minimal fee is charged for requests in order to support Addgene's operational costs.

In addition to plasmids, Addgene stores all plasmid information on its website, so scientists have easy access to the data they need. Plasmids are linked to the article in which they were first described. Depositors enter cloning and other information, and can upload maps and sequence. The gene contained in the plasmid is linked to relevant information from NCBI, and plasmid backbone information can be obtained from a Vector Database compiled by Addgene. Finally, a plasmid is also linked to related plasmids in Addgene's collection.

Addgene not only wants to help with plasmid distribution, it also wants to help labs organize their plasmids. Through working with scientists, Melina found that many labs do not have an efficient system to keep track of their plasmids. In response, Addgene recently introduced "Addgene Labs" (www.addgene.org/labs). This online software allows labs to organize their

plasmid information and keep track of storage locations within their own freezers. All information is password-protected, so is accessible only to lab members. Addgene hopes that labs will use this software, and then deposit their plasmids once they are published.

Support for Addgene has been overwhelmingly positive. Scientists from 16 universities, including Harvard, MIT, Stanford, and Yale, have deposited plasmids. These plasmids have been requested by and distributed to scientists around the world. The Journal of Cell Biology and the journals of Cell Press now officially recommend that their authors deposit plasmids at Addgene. In addition, Science Magazine recently published a letter to encourage participation in this shared resource (Fan *et al.*, 2005, Science 307(5717):1877).

However, Addgene is still a young organization and needs the support of the BBS community to continue to grow its plasmid collection. We encourage all researchers to donate their published plasmids. Also, please help spread the word to the academic community about this valuable resource. Additional information can be found by visiting us at www.addgene.org. For personal assistance with plasmid deposits, email Sharon (a 2005 BBS graduate from Ting Wu's lab) at sou@addgene.org.

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First Year, continued from page 3

would not have otherwise. Thanks to them, I have a year's worth of great memories—group lunches after class, parties we have thrown, weekly trivia nights, trips we have taken together, and lots more. They have made moving to a new place and the transition to grad school a not only bearable, but an amazing experience.

Even Boston itself has grown on me in the past year—despite its illogical street layout and aggravating lack of street signs, I got to know my way around pretty quick because I could walk everywhere. I have enjoyed sampling the endless number of bars and restaurants and exploring the various Boston/Brookline/Cambridge neighborhoods. And—though it pains me to say this—the obsession Bostonians have with their sports teams is somewhat entertaining, and I cannot help but respect it, although it often frightens me. I am as

happy here as a Yankees fan can be in these dark times of Boston sports supremacy.

So as my second year of grad school begins, I am no longer counting down the days until I get my Ph.D. and get out of Boston. I am in no hurry to go home. I am excited about starting my thesis—sorry, *dissertation*—work and about spending the next few years here with my new friends. However, as I write this, I can imagine some hardened upper years cringing at my naivety, so maybe you should talk to me again in a few years...



Michael Stambach

BBS students Amy Ma (G3), Melinda Faulkner (G3), and Diana Libuda (G3) on their way to the 2005 BBS barbeque.

Money, continued from page 1

savings or checking accounts. While a regular savings account at Bank of America earns only a 0.5% APY (annual percentage yield), a Bank of America money market account earns up to 2.5% APY. And, if you search on the internet, you can even find rates up to 3.7%. Why the big difference? Basically, a money market account invests in a short-term treasury note fund with maturities of less than one year. But, who really cares how they can give an awesome yield as long as they do, right?

So, I should go for the money market account with the highest rate?

When looking for a good money market account, you should look for similar features that you would want in a good savings account. One that requires low to no minimum (minimum amount of money in your account before they charge you fees) will allow you to be more flexible about where you keep your money. One trick is to have two money market accounts with 0 minimums and move your money into the account which has the highest rate at the time. Beware of accounts that charge fees. Sometimes they will give you high rates, but get their money back with loads of charges on simple transactions. Some will also have catches like a high interest for only a limited time or a large closing penalty.

You should also find an account which will match your lifestyle. If you are on the internet constantly, maybe you could trade-in phone transactions for a higher rate and online-only access. Many online institutions require you to have an established checking account to transfer your money from. Most importantly, if you want a guaranteed investment, you will need to find an FDIC insured institution. Check the credit rating of the institution too. Even if the place is insured, it will be a big hassle getting your money refunded and take a long time. Most large banks should be fine.

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Daley, continued from page 2

- *Vacation destination:* Napa Valley or Paris.
- *Books:* *No Ordinary Time* by Doris Kearns Goodwin; *Guns, Germs, and Steel* by Jared Diamond.
- *Movie:* *Casablanca*.

Advice to Graduate Students
What not to miss in grad school: Late

A good place to start looking is www.money-rates.com/mmarket.htm. The site ranks money market accounts by their yield, lists their minimums, and has a handy link to the accounts' website. APY is a normalized rate that you should use for direct comparison of accounts. My personal recommendation is ING Direct for its user-friendly interface and competitive rates. I have had an account there for several years and have been very happy with it. So, more money is good, but beware of the potential trade-offs.

Any other "safe" investments besides MMAs?

For less liquidity but higher returns, you could try CDs where you promise to keep your money at a bank for a certain amount of time and are compensated with a proportional interest rate. If you take the money out earlier than promised, they do punish you by knocking down your interest rate or by charging fees. However, as most CDs are FDIC insured, you are guaranteed to get your money back as long as you leave it in as promised. www.money-rates.com/cdrates.htm has a good list of CDs ranked by yield, term, and minimum.

Other alternatives include treasury savings bonds which are state and local income tax-free and federal tax-deferred. (Tax deferral means you pay tax only when you take the money out, so you can accrue interest on the tax portion in the mean time.) I and EE bonds are currently offered though there is a limit to how many you can buy each year. I bonds help protect you from inflation by offering a composite rate composed of a fixed rate plus an inflation rate that increases with inflation. EE bonds recently changed to be fixed rate only, so I would suggest waiting a while to lock in higher rates as most of the market expects rates to rise. Treasury bonds have a small penalty for cashing out within the first 5 years, so like CDs, they are less liquid than nights in the lab, not just for the science, but for the connections you make with other people who are driven to stay late in the lab.

How to choose a lab: Choose a lab where you are going to derive the most excitement, i.e., be most excited about getting up and going in to work every morning.

MMAs. Their main asset is their tax advantages and inflation protection (in I bonds). www.treasurydirect.gov/indiv/products/tbills_glance.htm is a safe place to buy treasury bonds and to get more information. If you begin accruing many treasury bonds, the Savings Bond Wizard is a handy computer program that automatically keeps track of rate changes, current redemption value, and more and can be downloaded for free at www.publicdebt.treas.gov/sav/savwizar.htm.

Even though being a graduate student can mean late nights at lab, frustrating experiments that just won't work, and constant pressure from professors, it does not mean that we have to go penniless. Pat yourself on the back if you are already saving money. There is no better feeling than logging into your accounts to see that you have made money by doing nothing but parking it in a good place.

Everybody's situation is different. There can be a range of graduate students from those that are in debt up to their ears to those who are independently filthy rich. Your investment plan should really be geared towards your own needs. This article mainly outlines a few investments which are less risky and almost guaranteed, but obviously will not garner miraculous returns. Stay tuned for tips on more aggressive investments. Same BBS Bulletin! Same BBS column!

Disclaimer: The editors and writers at the BBS Bulletin take no responsibility for personal investment decisions. For any investment decisions, readers should do their own diligent research. Investments should be based on individual tax bracket and financial conditions. However, any large gains in fortune, you can totally blame on us.

The secret of success in science: Enjoy being part of a creative community that is doing meaningful work. If you can always derive pleasure from what the community is producing, not just your own contribution, you are going to be much happier.

Assistant Professor of Pathology: Amy Wagers

Research Interests

Identifying and characterizing tissue-specific adult stem cells, especially blood and muscle stem cells from adult animals. The Wagers lab is interested in understanding the regulation of these cells in normal cell turnover and regeneration.

Background

- Born in Ohio, lived in North Carolina, Arizona, Illinois, Georgia, Maryland, California and Massachusetts. By the time Amy started freshman year in high school, she was attending her ninth school.
- *Undergraduate*: Johns Hopkins and Northwestern; worked with Brian Hoffman on hemoglobins and myoglobins.
- *Graduate*: Northwestern; worked with Geoff Kansas on T cell migration.
- *Postdoc*: Stanford; worked with Irving Weissman on adult stem cells.
- Joined the Harvard faculty in May 2004 to enjoy the energy, excitement and concentration of expertise at the newly established Harvard Stem Cell Institute.

Why Stem Cells?

Amy entered the stem cell field with an interesting twist. Three and a half years into her Ph.D. studies, Amy started to think

Yao Chen (G4)

about what field to pursue for her post-doc. One day, she received a phone call from the Bone Marrow Transplant Registry, to which she had signed up as an undergraduate, and was informed that she was needed as a potential donor. While undergoing the full screening procedure, Amy read a great deal about bone marrow transplant and stem cells and developed an interest in the subject. Eventually, the patient needing the transplant opted out, but Amy had already decided to pursue stem cell research for her postdoctoral work.

Biggest Lab Goof-up

In high school, Amy became interested in animal behavior and a science project based on the mating behavior of lemurs. She went to the zoo every day for months, making careful observations and recording

the behavior of each individual lemur. A week before she was to present her findings, she talked to a zookeeper and found out that all the lemurs in the zoo were male. Amy presented her findings anyway, in which she concluded she could not tell the difference between male and female lemurs.

Hobbies

Amy enjoys running, cycling and squash, but her secret love is the flying trapeze. Encouraged by a friend, she took up the trapeze during her post-doc in California and fell in love with it immediately. She initially loved the adrenaline rush from her terrifying flights, but she now also enjoys the challenge of learning new tricks. She goes to a circus school in Reading, where she often gets applause from people eating in a nearby food court.

Professor Recommendations

- *Restaurant*: Oleana (Mediterranean food), near Central Square.
- *Cycling route*: to and from Walden Pond.
- *Running path*: from Longwood Medical Area to Jamaica Pond and back.

Advice to Graduate Students: Do what makes you happy; do what you love.



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