



# The Restriction Digest

## GSA Newsletter

a publication of

the Graduate Student Association

Johns Hopkins University School of Medicine

Volume 20

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...and more!

### GSA Fall Activities

#### Orientation Social

**August 20**

Location: Restriction Courtyard/  
Greenhouse

Time: 3:00-5:00 pm (subject to change)

#### Rehoboth Beach

**September 7<sup>th</sup>**

Bus Time TBA

#### Renaissance Festival

**September 26th**

### GREETINGS FROM THE GRADUATE STUDENT ASSOCIATION

*by Joseph Babcock*

On behalf of the Graduate Student Association (GSA) I welcome you to campus, and hope your years at the school of medicine are equally productive and enjoyable. These aren't mutually exclusive goals: research should be thrilling even (or especially) when it is challenging, while a life balanced between work and leisure is ultimately the most sustainable and successful. Likewise, your benchwork and extracurricular pursuits will prove more fulfilling if shared with others, and it is the goal of our organization to foster this kind of community. If you want to help this effort, or simply learn a little more about who we are and what we do, I invite you to join our meetings on the third Tuesday of every month in room 2-108 of the 1830 building. During these sessions we discuss upcoming social events, distribute funds for student groups and travel grants, and advocate on behalf of the student body in matters of university policy. We also receive updates on events planned by the Professional Development Office (PDO) and Johns Hopkins

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### SOCIETY FOR BIOMATERIALS: GIVING LIFE TO A WORLD OF MATERIALS

*by Shimon Unterman*

#### GSA Travel Award Report

Take several thousand biomaterials scientists; throw in four days of scientific presentations and some beer. At the end, you've either got a setup for a great joke or the Society for Biomaterials' annual meeting this past April in San Antonio. Due to a generous travel award from the GSA I was able to attend SfB's engaging and stimulating meeting. During my time there, I learned about some remarkably innovative biomaterials currently under development, and had the opportunity to discuss my own research with some colleagues and experts in the field.

While most of my time was spent in smaller seminars focused on biomaterials of interest to me (tissue engineering, hydrogels, surface analysis, etc.), I did attend a number of the larger podium presentations as well. The keynote address was given by Julio Palmaz, the inventor of the intravascular stent. His major thesis was that the last two decades of stent design,

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Student Assistance Program (JHSAP), both valuable resources for the graduate student body.

Outside of our monthly meetings, the GSA plans many social and educational activities. Next month, we will be hosting a Labor Day trip to Rehoboth Beach and subsidizing tickets for the Renaissance Festival on the 26<sup>th</sup>. I hope you take the time to attend either these or other events throughout the year, or participate in one of the many student groups funded by our organization. In a more academic vein, the GSA hosts an annual student poster session in April, complete with prizes and the chance to share your work with your peers. If you wish to reach a wider audience, we also sponsor travel awards to relieve some of the financial burden of traveling to conferences. Finally, the GSA organizes many invited talks throughout the year, including an informal "Investigator's Reflections" by a prominent researcher and the Alicia Showalter Reynolds Memorial Lecture, given by a noteworthy female scientist.

In closing, please be on the lookout for emails from the allgrad listserv announcing upcoming events, or simply requests for lab supplies from your fellow researchers. We look forward to hearing from you, as well, and invite you to visit our website to learn more (<http://www.hopkinsmedicine.org/gsa/index.shtml>). Welcome again,

With regards,  
Joseph Babcock  
GSA President, 2009-2010

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## JHMI Dance: Salsa Dance Workshop

*by Aggy Djamanakova and Issel Lim*

JHMI Dance, in collaboration with the JHU Ballroom Dance Club, hosted a Salsa Dance Workshop on July 8, 2009 on the Homewood Campus. The workshop featured beginner and advanced lessons taught by Niss Albaig of the Salsa Now dance studio (<http://www.salsa-now.net>) based in Pikesville, MD.

Over 60 students attended the lessons, including

brave beginners and seasoned salsa veterans. The beginner lessons taught rhythm, basic steps, and turns. The advanced lesson allowed students of all levels to try more complicated combinations. At the end of the evening, many of the participants had discovered a new hobby and expressed an interest in having weekly salsa lessons established on campus.

JHMI Dance was initiated in 2008 by biomedical engineering PhD students Aigerim (Aggy) Djamanakova and Issel Anne Lim, in order to emphasize cultural diversity and enrich graduate student life through dancing. This past year, JHMI Dance has gathered groups of students to explore salsa venues around Baltimore, including last semester's discounted lessons at The Ark and this summer's excursions to open dancing at Talara. In the future, JHMI Dance hopes to organize more dancing workshops, discounted lessons, and informal outings. For more information about JHMI Dance and for links to mailing lists, please see the JHMI Dance website: <http://sites.google.com/site/jhmidance>.

The Salsa Dance Workshop was sponsored by the GSA. Thanks to all who attended!

## JHMI Dance Club

### **Purpose:**

JHMI Dance is an organization of students interested in dancing. The club promotes various types of partner-style dance. Our events include sponsoring group lessons on campus, organizing group outings to local studios, and exploring salsa/swing opportunities around the area. JHMI Dance strives to connect people who share a love of dancing. We provide a forum of initiating, organizing, and publicizing community dance events.

### **Events:**

- Group event on campus each semester, including salsa and swing dance workshops.

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- For more information go to:

<http://sites.google.com/site/jhmidancesite/Home/activities>

## **Contact:**

Aggy Djamanakova at [jhmi.dance@gmail.com](mailto:jhmi.dance@gmail.com)

To join our mailing list, go to <http://lists.johnshopkins.edu>, and add yourself to JHMI-DANCE. For salsa-specific emails, feel free to join <http://groups.google.com/group/baltimoresalsa>

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## **INTERNATIONAL WORKSHOP ON SPACE RADIATION RESEARCH**

*by Kevin Soucy*

### **GSA Travel Award Report**

Every two years the space radiation community holds the *International Workshop on Space Radiation Research* to share new biological and technical radiation findings from around the world. Considering the collaboration between many countries for space exploration, highlighted by the International Space Station, the necessity of such a meeting is obvious. Thanks to travel support from the GSA, I was fortunate enough to attend the 5<sup>th</sup> international workshop, titled *Heavy Ions in Therapy and Space Symposium*, held in Cologne, Germany.

Of course, an attractive part of this conference was the location. The trip to Cologne included a high-speed train ride through the green German landscape dotted with numerous wind turbines. Cologne is a beautiful city, existing on the western boundary of Germany. The dominant landmark of the city is the massive cathedral, Kölner Dom. The two spires tower over all other surrounding buildings and the dark grey stone exterior epitomizes Gothic architecture. The Dom also allegedly possesses the bones of the Three Magi, or Three Wisemen of the Catholic faith. Although the Dom is symbolic of medieval times, Cologne contains important sites from many historical periods. I was able to see an old tower from the original Roman outpost. The original birthplace of Cologne, which was the house and factory of the inventor Johann Farina, still exist and is open for tours. Here, I received a free sample of Cologne's famous namesake, Eau

de Cologne (translated, water of Cologne). Of course, Cologne's history is also intertwined with World War II. The old Nazi Documentation Center has recently been restored and converted into a very informative museum. The restoration took care to preserve the Gestapo basement prison. The graffiti from many prisoners is still legible, which adds a spectrum of human emotions and voices to the tragedy. The upper levels presented the war in a different perspective than we, as Americans, are accustomed to, focusing largely on the rise and organization of the Nazi party in Germany and Cologne. Even without any prior knowledge of the city, I really enjoyed my time in Cologne.

The conference included topics from many fields, all interested in radiation. These topics obviously include cancer risks after radiation exposure, but topics such as modeling dose distributions in the body and even predicting solar radiation events were also presented. The research from my laboratory focuses on the relationship between radiation and cardiovascular complications, such as angiogenesis and oxidative stress. Although the biological research presented at the conference was very interesting, the experimental facilities radiation researchers employ are equally impressive. To simulate space radiation, my laboratory, and most of the other US scientists, travels to Brookhaven National Laboratory (BNL) on Long Island, NY. This facility is one of the few locations in the world with a particle accelerator to simulate space radiation. In fact, it is very similar to CERN in Europe that was just featured in the movie *Angels and Demons*, and footage for the movie was actually taken onsite at BNL. A glaring limitation of heavy ions space radiation research has been the inability to apply continuous low dose-rate radiation to samples, with high dose-rate single exposures being applied instead. Astronauts typically receive continuous low-dose radiation in space, and the biological response between low and high dose-rates can vary dramatically. However, it was revealed at this conference that BNL now has the capability to deliver low dose-rate radiation to experimental samples. This small modification will greatly advance the field of ground-based space radiation research and will improve the accuracy of safety regulations for astronauts.

Both the conference location and science made this an unforgettable experience. The travel support provided by the GSA really allowed me to take full advantage of these two unique aspects.



# *BSA: 2009 SOM*

## *Community Service*

### *Group of the Year*

*by Sherri-gae Scott*

The Biomedical Scholars Association (BSA) was recently awarded the 2009 SOURCE Community Service Award for its efforts to strengthen bonds between the Hopkins and East Baltimore communities. BSA is a fabulously fun and fantastic tri-school organization that supports minority graduate students academically, professionally, and socially within the JHMI community. As a group, we strongly believe it takes diversity to promote diversity, so all students are welcome and encouraged to participate. This year we're bringing you even more opportunities to make graduate school memories with our BSA Signature Programs:

#### **Academic Support:**

Pre- & Post-orals Advising Session (Feb)

#### **Social Support:**

Diversity in Science Happy Hour (Sept)

#### **Emotional Support:**

Milestone Celebration (May)

#### **Professional Development:**

Diverse Careers in Science Fall Seminar Series

#### **Community Involvement:**

Junior Biomedical Scholars Mentorship Program

#### **Tri-school Event:**

James E. K. Hildreth Annual Lecture (April)

In the summer of 2008, BSA partnered for the first time with Dunbar High School to establish the Junior Biomedical Scholars Mentorship Program (JBS). JBS is our flagship pipeline program in which we endeavored to foster a love of science at the high school level. We hope our students become the next cadre of diverse scientists. Students were paired with BSA members to design and perform experiments to answer a key scientific question of the students' choice. In order to carry out the various experiments the mentors were allowed to take the students directly to their labs for hands-on, "real world" experience. As a result, our students were extremely successful. They placed 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> at the Morgan State University Science and Engineering Fair. Our 1st place winner advanced to the Intel International Science and Engineering Fair in Reno, NV. Our students also placed 2<sup>nd</sup> and 3<sup>rd</sup> at the AMHPS Biomedical Symposium in Louisville, KY. The mentors have watched the students mature not only as scientists, but as confident young adults who now realize their futures and potentials are unlimited. We are now continuing to mentor the students through our summer college prep program. Even a SOM dean knows how fabulously fun and fantastic BSA is "BSA provides an impressive array (*not the micro kind*) of support and opportunities for graduate students, engages the campus community in difficult issues of diversity to improve the educational climate for all students, and fosters a welcoming climate for underrepresented minority students to thrive at Hopkins. I encourage everyone to participate in their activities and become involved in its leadership"- Daniel Teraguchi, Assistant Dean for Student Affairs and Director of the Office for Student Diversity.

Thirsty for more? Sure you are! Check out our website (<http://www.hopkinsmedicine.org/dev/bsa/index.html>) or send us an e-mail ([bsa@jhmi.edu](mailto:bsa@jhmi.edu))

See you all at the Diversity in Science Happy Hour in September!!!

Your BSA Family



which have largely focused on drug-eluting and biodegradable designs, have not appreciably improved upon the clinical performance of the original stent design. Palmaz further highlighted emerging data about long-term complications of stents and how they are tied to events that occur within a few minutes of implantation. While it is undoubtedly a controversial stance, he gave an intriguing take on the industry from an insider's perspective, and emphasized the importance of rational material design focusing on the fundamental interactions between stents and vascular tissues.

Despite the interesting podium presentations, the scientific 'meat' of the conference was concentrated in the smaller oral abstract presentations. The diversity of subject matter was remarkable, so I focused on attending those seminars that were related to my research. A few presentations were of particular significance. Kristi Anseth's group presented a number of impressive new biomaterials. Most fascinating was a hydrogel spontaneously formed by click chemistry which had photoreactive moieties for the subsequent conjugation of ligands. This allowed them to pattern multiple thiol-containing ligands in any desired configuration inside the hydrogel, normally a very difficult undertaking. Unsurprisingly, it has since been published in *Nature Materials* and occasioned great comment. Another presentation from the Anseth group used enzyme-sensitive hydrogels that could be used for drug delivery in a highly tunable manner. Release could be turned 'on' and 'off' with addition or removal of an enzyme that is secreted by neutrophils when arriving at a point of injury. These amounted to some innovative – and let's face it, cool - material designs.

I also enjoyed seeing some presentations on biomaterials surfaces. While traditionally the realm of surfaces has focused on coatings of hard implants to enhance bioactivity, more and more 'interfacial' materials have been developed to enhance tissue-directed regeneration. This is near and dear to my own scientific heart, as I am fascinated by the behavior of biomolecules and polymers at liquid-solid interfaces, with particular emphasis on lubrication and mechanical effects. I was not disappointed; a number of presentations

demonstrated detailed surface analysis using new techniques. Furthermore, several presentations focused on the behavior of cells on chemically and physically modified surfaces. Lastly, a number of newer biomaterials were showcased, including various self-assembling monolayers, biomolecule-adhesive peptides, and polymer brushes. The breadth of approaches to surface analysis and modification and the diversity of their clinical applications were particularly useful for the development of my own thinking on the topic.

Last but certainly not least was the opportunity to discuss my own research with some of the leaders in the field. During both poster sessions and during chance meetings I was able to run my ideas past a fresh audience of experts. I was pleased to hear significant interest in my material design and my preliminary data. More importantly, I received some excellent constructive criticism – concerns that my material would not have the requisite stability *in vivo*, suggestions for experiments to specifically prove some of my hypotheses, and other potential weaknesses I should address. This kind of intellectual give-and-take is precisely why meetings like SfB are so useful to a growing scientist, since they allow us to discuss risky but creative ideas with more experienced thinkers in the field, while simultaneously gaining alternate perspectives on a specific clinical problem.

On a personal note, I was also honored to have a brief discussion with Art Coury, a well-known biomaterials scientist who worked for Genzyme. He's been behind many of the most exciting tissue engineering-related biomaterials that have been translated to the clinic, including two materials of particular relevance to my work. I was able to briefly present him with my research and receive some very valuable feedback

All in all, the conference was a great opportunity to see what other people in the field are thinking about and working on. My interactions with the other biomaterials scientists there – ranging from new graduate students to world-famous researchers – were all engaging and useful for my own growth as a scientist. Perhaps just as important, the conference was a lot of fun: the Riverwalk in San Antonio was beautiful, the weather was spectacular, and the beer was cold. Don't worry, though, all fun was had in the name of science.





**Johns Hopkins  
Student Assistance Program**

Serving Graduate and Professional Students

# Succeeding as a Graduate or Medical School Student

Succeeding in graduate or medical school means more than simply doing well in your course work. In fact, much of what you will learn during your graduate school years will not come from classes but rather through doing activities such as research, clinical work, internships, attending conferences, serving on departmental and university committees, preparing papers for publication, and joining professional organizations.

Self-motivation, self-discipline, time management and the ability to prioritize are all essential ingredients to graduate or medical school success. The following tips can help you to develop what you will need to succeed in graduate or medical school and beyond.

## Manage your time

Time Management is a key component to academic and professional success. It is an essential skill that will help you to concentrate your efforts on what is most important.

- Plan your schedule
- Make a weekly to-do list
- Prioritize your work
- Break large tasks into their smaller components

- Set goals and deadlines for projects
- Avoid perfectionism
- Do an honest assessment of the amount of time you waste

## Seek out a mentor

Research shows that students who are mentored enjoy many benefits, including better training, greater career success, and a stronger professional identity.

### *Qualities of a successful mentor*

- Approachable
- Have good personal and communication skills
- Have good technical skills
- Are able to provide you with needed support

### *The most effective mentors:*

- Welcome newcomers into the profession and take a personal interest in their career development and well-being
- Want to share their knowledge, materials, skill and experience
- Are patient, enthusiastic, and supportive as they challenge and guide their mentee to new levels of competence
- Expose the recipients of their mentoring to new ideas, perspectives and standards, and to the values and norms of the profession
- Are more expert in terms of knowledge but view themselves as equal to those they mentor

### *How to find a mentor?*

- Identify professors with areas of expertise most similar to your interests
- Talk to your academic advisor and to your instructors for suggestions
- Friends, classmates and other students may also be able to suggest faculty members that have a reputation for being good mentors

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## **Beware of too much stress**

Stress keeps us focused and aware of all the things that need to be done. It can motivate you to study harder and complete assignments and projects on time. But when your stress level becomes more than a motivating tool, or when pressures are too intense or last too long, you may be in stress overload.

### *Signs of Stress Overload*

- Anxiety or panic attacks
- A feeling of being constantly pressured, hassled, and hurried
- Irritability and moodiness
- Physical symptoms, such as stomach problems, headaches, or even chest pain
- Allergic reactions, such as eczema or asthma
- Problems sleeping
- Drinking too much, smoking, overeating, or using drugs
- Sadness or depression

### *Ways to Relieve Stress*

- Exercise. Regular exercise is one of the best ways to keep stress levels under control
- Learn ways to relax your body through meditation, massage, and breathing exercises
- Increase your Vitamin D. Take short walks in the sun. Studies show that Vitamin D increases a positive and focused mood
- Make the best out of stressful circumstances - Be optimistic. Your outlook, attitude, and thoughts influence the way you see things
- Ask for help. People who have a strong network of family and friends manage stress better

## **Maintain a healthy lifestyle**

Your physical and emotional well-being plays a major role in your academic, professional and personal success. Take time to establish and maintain an active and informed wellness plan.

- Exercise and sleep regularly
- Eat healthfully
- Make time for yourself
- Enjoy and spend time with friends and family

## **Seek assistance**

The Johns Hopkins Student Assistance Program (JHSAP) is committed to assisting students in managing the challenges they face during their academic careers. JHSAP provides support to students in dealing with personal, academic, and relationship problems

Getting help is free, easy, convenient, and confidential. Our goal is to get to know you, understand the challenges you are facing, and to discuss how to move forward in a healthy way. To this end, the JHSAP offers a variety of services including:

- Assessment of your current concerns
- Brief, supportive counseling
- Referral to appropriate and accessible community services and resources
- Consultation that supports academic and/or professional development
- Immediate support and management for crisis situations
- Dean, Faculty, and Staff consultations
- Risk assessment for students
- Training, education, and outreach

**For more information contact the Johns Hopkins Student Assistance Program at:**

**443-287-7000**

**or visit our website at:**

**[www.jhsap.org](http://www.jhsap.org)**



# *2009-2010 GSA Council: Officers and Representatives*

## **Officers**

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## Easy

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[www.sudoku-puzzles.net](http://www.sudoku-puzzles.net)

## Baltimore Events Sampler

**32nd Annual Baltimore Farmer's Market:** Jones Falls Expressway at Holliday & Saratoga Streets. Sundays May 3-December 20, 2009. 8:00 a.m. to sell-out (around noon).

**Fells Point Haunted Pub Walk:** 731 S. Broadway. Fridays and Saturdays, August-November, 2009. 7:00 p.m. For details and additional tour options: <http://www.fellspointghost.com/index.html>

**Nevermore 2009: Edgar Allan Poe 200th birthday celebration:** Multiple events through November, details online: <http://www.nevermore2009.com/events.php>

**American Visionary Art Museum:** "The Marriage of Art, Science, and Philosophy" through Sept. 6th. 800 Key Highway. Tuesday-Sunday, 10:00 a.m. to 6:00 p.m. <http://www.avam.org/index.html>

For additional events and activities visit:

<http://www.bop.org/index.cfm>  
<http://www.mvcd.org/events.aspx>  
<http://baltimore.org/events>

## Interested in becoming a Restriction Digest editor?

Named for the Nobel Prize winning discovery made in 1970 by Hamilton Smith and Daniel Nathans, the *Restriction Digest* newsletter has been in publication since 1990. The *Restriction Digest* prints items pertaining to the Graduate Student Association (GSA) and also aims to distribute information that is useful and relevant to students, post-docs, and faculty at the Johns Hopkins University School of Medicine. In addition, the newsletter serves as a forum for members of the Hopkins community to share information, opinions, and perspectives about life at Hopkins.

If you are interested in becoming an editor, making a submission, or if you want more information, contact an editor or visit our website!

<http://www.hopkinsmedicine.org/gsa/newsletter/index.shtml>

## Hard

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7	6			3				
5	2	1		9	4			

[www.sudoku-puzzles.net](http://www.sudoku-puzzles.net)

Solutions to Sudoku puzzles available online at:  
<http://www.hopkinsmedicine.org/gsa/newsletter/index.shtml>