



The Restriction Digest

GSA Newsletter

a publication of

the Graduate Student Association

Johns Hopkins University School of Medicine

Volume 19

Number 3

January 2009

GSA Travel Award Essay: ASHG Meeting

by Annan Yang

The 58th meeting of the American Society of Human Genetics was held Nov 11th to 15th in Philadelphia. Thanks to the GSA travel award, I had a wonderful experience at my first ASHG meeting. Dr. Aravinda Chakravarti from the Institute of Genetic Medicine at Johns Hopkins University School of Medicine gave the presidential address. He reviewed the path of human genetics, the fast progress in recent years and the future challenges. The meeting featured a variety of topics including conventional pedigree studies, large scale genome wide association studies, and emerging sequencing studies. I would like to report some progress in the latter two.

Genome wide association study (GWAS) is used broadly in finding mutations and polymorphisms and recently has focused on copy number variation (CNV). Dr. J. Stone, representing the International Schizophrenia Consortium, reported their discovery of CNV in schizophrenia. By comparing over 3000 patients with schizophrenia and matched

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The Science of Art, the Art of Science

by Laura Koontz

Whenever I go to a new city, I eat in the cheapest ethnic restaurants I can find, drink the local beer, and hit up as many museums as I can. You could say I'm a bit of a museum nerd. Case in point: For our five year anniversary, my boyfriend and I took the MARC down to DC, ate at a noodle shop in Chinatown, and hit up the Smithsonian museums. (FYI: They have two giant squids in the recently redone Natural History Museum). We had a pretty great time.

When out-of-town friends come to Baltimore, I always take them to the American Visionary Art Museum. I tell them, without any hint of exaggeration, that it is my favorite place in all of Baltimore. It's also my favorite museum *anywhere*. The AVAM is a bit different from most art museums: (a) rather than being founded by a wealthy benefactor, the AVAM was founded by Rebecca Allen Hoffberger, a psychiatric nurse, who raised money in order to open a museum which showcased the creativity of formally untrained artists (b) all exhibited work comes from these self-taught artists, including many patients

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Germano's Restaurant Review

by Jeremy Rotty

Having lived in Baltimore for the better part of four years, I have had ample time and opportunity to patronize several restaurants in Little Italy. Yet until recently I had never even considered visiting Germano's Trattoria, which sits in subdued elegance on the corner of High and Fawn streets. Indeed, for those of you who, like me, have become somewhat disenchanted with the typical fare of Little Italy, perhaps I can offer you a revitalizing alternative in the form of an evening at Germano's.

Upon being led to our table, my wife and I immediately noticed a warmth in the dark wood paneling and soft red lighting of the dining room. The particular charm of the establishment presents itself in faux wine casks set into one wall, a brick fireplace along another, and framed prints of Italian theatre advertisements and art reflecting the Bohemianism of the late nineteenth century. Simply speaking, it is a place to which I look forward to returning as much for the atmosphere as for the food itself!

In addition, our server seemed to
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An Ideological Correction

by Jeremy Rotty

I am exceedingly grateful for having it brought to my attention that the previous article I published in *The Restriction Digest* contains a factual inaccuracy regarding the ratio of the U.S. national debt to gross domestic product (GDP). The national debt is not, as I supposed, higher than the GDP of the U.S. There is no excuse for this sort of glaring informational lapse. It was always my intention to go back and thoroughly fact-check everything I wrote, as the last thing I want is to disseminate misleading information. But for whatever reason, I forgot to.

In reality, the national debt is about 70% (maybe even closer to 75%) of our gross domestic product. A more accurate and balanced statement would have been that the national debt 'rivals' the GDP of the U.S. I think that is a fair argument to make and gives the proper sense of scale that was missing from the original piece, as pointed out to me by a reader.

That correction being made, my intention was to draw a parallel between the behavior of U.S. citizens using debt to live unsustainably* and the tendency of our government in recent years to spend capital that it doesn't have, thereby adding to the national debt and increasing the national debt: GDP ratio. Currently our national debt: GDP ratio is higher than at any point in the last fifty years. It is easy to anticipate a near future where the national debt is 80% or 85% of the GDP, though it is difficult to predict whether or not this will occur in reality.

My point is this: Our society seems to have forgotten that we cannot carry massive amounts of debt as individuals or as a nation and hope to be financially secure.

At the end of the day I am still an economic novice and am grateful that somebody was paying enough attention to correct the inaccuracy that I should have caught myself. My desire for everything I write is to spark discussion. It is only through conversations with others that I can become a better writer and more informed citizen.

*Again my intention is not to malign debt (and therefore credit) in general. I am critiquing the idea that we can indefinitely spend money we don't have on goods and services we can't afford.

News from the Financial Aid Office

<http://www.hopkinsmedicine.org/som/offices/finaid/>

Meet your new Financial Aid Staff Members...

Two new staff members, Melvina Johnson and Genene Strickland, have joined the School of Medicine's Financial Aid Department this past October and look forward to meeting and working with you throughout your time at JHU. Ms. Johnson is the new Associate Director. Ms. Strickland is the new Financial Aid Administrator. Please feel free to stop by anytime so they can get to know you.

FAFSA Deadlines:

Don't forget to complete the 2009-2010 FAFSA application by the priority deadline of March 15th. Online applications are available now at www.fafsa.ed.gov.

Exit Interviews:

Exit interviews will be scheduled beginning in April for students that are graduating this May. The Financial Aid Office will keep you informed about the specific dates and times in upcoming issues.

Keep Your Information Safe: AAMC's Tips on Protecting Yourself Against Identity Theft

Nine million Americans have been victims of identity theft as estimated by the Federal Trade Commission. Here are a few tips to make sure that you do not become one.

Check your Credit Report Annually

- The Fair Credit Reporting Act requires each of the three nationwide credit bureaus--Equifax, Experian and Trans Union--to provide you with a free credit report once a

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year. You can get your free report at www.annualcreditreport.com.

- Once you receive your credit report, check for debts that do not belong to you, accounts that you did not open, and any other inaccurate information.

Know the Signs of Identity Theft

In order to guard against becoming a victim of identity theft, the Federal Trade Commission advises you be aware of:

- Accounts you did not open
- False information on your credit reports
- Failure to receive bills
- Receipt of credit cards that you did not apply for
- Being denied credit or contacted by debt collectors for no apparent reason

I've Been Victimized...What do I do now?

The Federal Trade Commission's website on identity theft will provide you with the steps to follow if you find that your identification has been stolen. Visit www.ftc.gov for this and more tips on the prevention of ID theft.

The Science of Art, the Art of Science, cont. from Page 1

in psychiatric institutions (c) many works in the museum are interactive – such as the warehouse of hand-crank moveable sculptures (d) since their permanent collection is pretty small, each and every October a new exhibition opens which occupies most of the space at the museum and remains open for 11 months. The current exhibition is called “The Marriage of Art, Science and Philosophy”.

It's a bit difficult to cohesively explain what this exhibit *is*. Depending on point of view, it could be very different things to different people. As a scientist, I was interested to see how many artists

draw inspiration from the things that we think about each and every day in the lab. More so, the exhibits give a different perspective on science after filtering it through the lens of art or philosophy. To pique your interest, (and hopefully get you out of the lab and into a museum on a Saturday) I'm going to give you just one example of a section of the exhibit.

In 1914, H.G. Wells wrote a book entitled **The World Set Free** in which he envisions harnessing radioactive decay to create powerful weapons. His ideas were so well reasoned that 31 years later physicist Leo Szilard applied for, and received, four patents for a nuclear chain reaction based on his reading of Wells' work. While the ideas of writers and artists may seem far-fetched at their time of inception, many cases, like this of H.G. Wells, exist. It is in this context that the AVAM asks us to consider the work of outsider artist Kenny Irwin, Jr. Irwin claims to have memorized over 60,000 vivid dreams he has had of the future - of cosmos, aliens, doves with lasers, and continued Middle Eastern tension. Using only a Bic ball point pen, Irwin then painstakingly transcribes all of these dreams onto paper. For a hint of what you'll find at the AVAM, visit <http://tinyurl.com/KennyIrwin>. Is Irwin totally coming out of left field? Probably. Would people have thought the same thing of H.G. Wells? Of Jules Verne when he described air and underwater travel before it existed? Maybe. But, does the plausibility of Irwin's visions even matter if they get you thinking about things differently than you usually do?

Okay, okay... so if that whole “thinking out of the box” thing seems trite to you, I'll promise you a couple more things. You'll see crop circles, quilted fractals, farm implements sculpted from pencil lead, and the musings of Nikola Tesla. You'll get to play a bird wing xylophone, see yourself in infrared, and touch and move a whole bunch of stuff. Finally, if you're a careful reader, you'll learn a little known fact about Hopkins' Peter Agre. (Hint: It's near the machine entitled “Cram Guy”.)

“The Marriage of Art, Science and Philosophy” is currently on exhibit at the American Visionary Art Museum until September 6th, 2009. Visit avam.org for more hours, ticket prices, and more information.



Germano's Restaurant Review, cont. from Page 1

have soaked up a generous amount of the warmth and idiosyncratic charm of the establishment. Always attentive, friendly, good-humored and gracious, our server engaged us in a way that seems to have completely vanished (understandably) from the more frantic, frenetic chain restaurants that stand as more accessible but less fulfilling cousins to Germano's. There is an ease in the servers' manner that seems to be a remnant of the easy European efficiency so countercultural to the busy mechanical efficiency of our modern age.

'Great,' I can hear you saying, 'But what about the food?'

From the bread and accompanying olive oil blend used to accentuate it to the salad and main courses and the delicious dessert, everything was above average or superb. But before I delve into more thorough descriptions of our meal, I must digress to accentuate a noteworthy feature of Germano's: their half-price wine list. It seems unbelievable that a restaurant would offer such a menu on a Friday night. Yet there we were, enjoying a half price bottle of Chateau Ste Michelle. Over the course of an hour our glasses were never empty, always having been refilled by the gracious attention of our server.

But wine or no wine, Germano's exceeds even the jaded culinary expectations of one who has spent far too many evenings in mediocre Italian restaurants. I mean pasta is pasta, right? Not so with Germano's!

It's generally difficult for me to choose an entrée when I go out to eat. That's the truth no matter what restaurant I go to. At Germano's, however, there are even more than at a typical Italian restaurant. Included on their diverse menu is everything from the familiar comfort of spaghetti and meatballs to more exotic and challenging fare, like lobster ravioli (my wife's favorite) and even eclectic choices like steak and seafood dishes.

But because I am a bit of a philistine, I eventually settled on the lasagna. Since I went with a familiar dish, I find it easier to set Germano's take on this Italian staple beside the dozens of other lasagnas I've encountered throughout my life, from frozen dinners to fine dining. I am a lasagna man if there ever was one.

Simply put: The lasagna at Germano's is the best I've had.

Better than the Stouffer's frozen dinners that were such a staple in college. Better than Olive Garden or the comforting sameness of any other Italian chain restaurant. And better, by far, than anything else I've encountered in my sojourns through Baltimore's Little Italy.

Hands down, Germano's lasagna is the best I can recall. I am convinced it is due partially and significantly to the homemade pasta made with attention and care on Germano's premises. But also the meaty cheese-infused sauce gave a unique taste and color (literally), which gave new life to this sometimes stereotypical dish. I am no gourmand, but I know what I like!

After the meal, regardless of what you finally decide upon, you must try the dessert at Germano's. Granted, it isn't Vaccaro's and doesn't try to be. But the delicious "Bongo Bongo", a cream-filled puff pastry drizzled with chocolate sauce, certainly holds its own in terms of uniqueness and quality and is the perfect size to split with a loved one after the generous dinner portions. It is the crowning touch to a delicious and satisfying meal.

Germano's Trattoria stands in stark contrast to the perception that I carried for so long about Little Italy. That is, that Little Italy was composed mainly of overpriced and underachieving restaurants that sustain themselves by offering their limited charms to tourists and the newly arrived. At the risk of sounding snobbish, I simply found other restaurants more endearing and worthy of patronage and none of my encounters in Little Italy, in my mind, warranted a second visit. Not so with Germano's. Germano's is fast becoming one of our favorite

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fine dining establishments and is on my personal 'Best of B-more' list. That being said, it is a bit on the expensive side (to the grad student budget, at least), but it's worth a visit the next time an anniversary or birthday presents itself or when family comes to town for their first encounter with Baltimore. Germano's charm and subtle elegance are just as much reason to uniquely esteem it as the homemade pasta and delicious deserts that left us happy and contented as we carried the warmth of Germano's out into the chilly night.

Party of two: \$75-85 with wine, \$50-65 without.

GSA Travel Award Essay, cont. from Page 1

controls, schizophrenics were found to have a higher burden of CNV with a frequency less than 1% and sizes greater than 100kb. Two large deletions on chromosome 15q13.2 and 1q21.1 were found to be significantly associated with schizophrenia. These studies are powerful in discovering multiple genes or disturbed pathways in complex diseases. The weaknesses of genome wide association study are false positive discovery and insensitivity to rare variations. Although the density of SNPs analysed in GWAS continues to increase in density (~ 10kb average spacing is common), a lot of regions are missed. The most accurate and complete method to study the genome is still sequencing.

The cost of DNA sequencing has dropped to below 1 cent per base, which makes sequencing portions of a person's genome affordable. A Chinese company at the meeting advertised that they would sequence a human's exome for \$3,000. Sequencing has already been applied to study cancer, notably here at Hopkins. Dr. M. R. Stratton from the Wellcome Trust Cancer Institute reported findings from sequencing exons and splicing junctions of all known protein kinase genes in humans. They hypothesized that "driver" mutations contributing to oncogenesis would be under positive selection in tumors while "passenger" mutations, not contributing to oncogenesis, would be under neutral selection. They found that most somatic mutations were "passenger" mutations. In screening 518 protein kinase genes in 210 diverse human cancers, they generated a top 20 list of genes most likely carrying at least one "driver"

mutation, several of which have been associated with cancer development in other studies. An attention-getting report at this meeting was the 1000 Genome Project. The 1000 Genomes Project aims to identify and make publicly available all DNA variation in the accessible genome at a minor allele frequency (MAF) of 1% and above. Until now, 3.8 trillion bases of data have been generated. Take the amount of data in GenBank before the 1000 genome project started--roughly that amount more was deposited each week in September and October and 10 times more data will be generated next year. The first analysis of variations from these studies will be released in January 2009.

This unprecedented large scale study is just the beginning. It seems the trend of sequencing everyone to catalog individual genomes is unstoppable. Interestingly, a survey was carried out to see people's opinion on having their genome sequenced. Most people were willing to participate if given information about their genome sequence. This trend put at least three challenges in front of all geneticists. First is the need for massive computing and statistical infrastructure to store and analyze all the data. Second is finding biological meaning in those variations and in mutations found by GWAS and sequencing. Last, but not least, is the question of how to use biological knowledge to benefit people, not only to develop personal medicine but also to protect individual privacy.

Acknowledgements to Dr. Sheila Cherry and Dr. Roger Reeves for editing

solution to puzzle from Page 8, www.sudoku-puzzles.net

4	8	6	3	5	2	9	1	7
7	3	2	4	9	1	8	6	5
9	1	5	8	6	7	2	4	3
3	7	8	1	2	5	4	9	6
6	4	1	9	7	8	3	5	2
5	2	9	6	4	3	1	7	8
1	6	3	5	8	4	7	2	9
8	9	7	2	1	6	5	3	4
2	5	4	7	3	9	6	8	1

A Look at the Textbook Market

by Eugene Aronsky

When I was an undergraduate, buying textbooks (or any books for that matter) was straightforward. All I had to do was go to the university bookstore and buy the book, or I could shop on Amazon. If the price of the book approached stratospheric numbers there were always student loans. In my own case, I spent close to \$7000 over 7 years of education on textbooks. I could hardly care less at the time. My disregard for future loan repayment, combined with the not-so-slight nudging by the university towards its own bookstore, helped pave the way towards my current predicament with debt.

Things are markedly different today. Of course, anyone can still go the university bookstore and do things the old fashioned way. The reality, however, is that student loans are harder to come by, and with the job market being what it is, everyone is struggling and will likely continue to struggle after graduation. And the truth of the matter is that there is absolutely no need to spend thousands of dollars on textbooks.

There are vastly more options available for textbook purchases today than ever before, and professors have more options when it comes to assigning texts. Professors are now able to choose from not only multiple books (priced differently) but they also have the choice to use open textbooks, or e-textbooks, which can be found either for free or for a minimal cost online. Students no longer have to pay their annual tribute to the university bookstore or Amazon. Books can be had from anywhere in the world with just a few clicks and at a fraction of the price. This is especially true given the increasing availability of international editions, which almost always cost less.

While all of this information is available to those who look for it, tracking down and comparing prices for every one of the textbooks for a given course can be extremely time consuming. In order to avoid the hurdles related to finding book deals and comparing prices there are multiple book comparison sites to help with the search. Some examples of these include Big Words (www.bigwords.com), Addall (www.addall.com), and We Compare Books (www.wecomparebooks.com). These sites allow you to compare prices on any book at the web's largest and most trustworthy bookstores.

www.addall.com), Addall (www.addall.com), and We Compare Books (www.wecomparebooks.com). These sites allow you to compare prices on any book at the web's largest and most trustworthy bookstores.



**Johns Hopkins
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Winter Blues: How to Cope With Seasonal Depression

Winter brings shorter days and less sunlight. For many, the cold weather and diminished hours of light bring about a mild case of winter depression called the winter blues. The National Mental Health Association estimates that 25 percent of the population suffers from this condition. So what exactly is this form of seasonal depression?

Winter Blues

The winter blues is a mild form of depression brought about by the diminished amount of sunlight available during the fall and winter seasons. This lack of light results in a decrease in the production of serotonin, a neurotransmitter responsible for mood, hunger, and sleep. The darker days also signal the brain to overproduce melatonin, a hormone that regulates our circadian rhythm, which determines when we fall asleep and when we wake up. Winter blues typically begin in the late fall or early winter and improve in early spring. Although the winter blues are not as severe as its counterpart, Seasonal Affective Disorder (SAD), or long-term depression, it can change the way a person thinks, reacts, and deals with everyday challenges. Symptoms vary from person to person but most commonly include some of the following:

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- tiredness or decreased energy
- isolation and withdrawal
- apathy
- decreased interest in activities or hobbies
- change in weight or appetite (usually increase)
- problems concentrating at work, school or home
- lower self-esteem, guilty feelings
- sleep problems (sleeping either more or less, or disturbed sleep)
- difficulty concentrating
- craving carbohydrates

If the winter blues are disrupting your winter solstice, the following tips may help:

Light up your space:

Light plays an important role in our health, and the amount of time exposed to it affects our performance. Bring as much light into your life as possible. Spend time outdoors during the day. Arrange your home and workplace to receive more sunlight or natural light. For more severe symptoms, consider the use of a 'light box'. Studies have found that those suffering from the winter blues experience relief from this form of light therapy.

Keep active:

Exercise releases important endorphins that elevate mood. Choose a physical activity to practice throughout the season. Take a brisk walk, go for a run, take part in winter sports. If outdoor activities do not appeal to you, join a fitness club or start an in-home exercise program.

Eat Well:

Eat foods that boost your immune system such as whole grains, pasta, rice, fresh fruits and vegetables, seafood, and lean meats. Avoid high-sugar foods and large amounts of caffeine as these can 'feed' depression and decrease energy.

Get enough sleep:

Establish a regular bedtime and get up at the same time each morning. This will give you more energy during the day and reduce feelings of depression. Try to sleep at least 8 hours a night.

Seek assistance:

If the feelings associated with the winter blues interfere with your day-to-day routine or become more severe, seek professional assistance.

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

If the winter blues interfere with your ability to focus and perform well, you may benefit from more individualized services. Contact the Student Assistance Program (SAP) at 443-287-7000.

National Mental Health Institute <<http://www.nimh.nih.gov>>

National Organization for Seasonal Affective Disorder (NOSAD) <<http://www.nosad.org>>

Rosenthal, N. (1993). Winter Blues: Seasonal Affective Disorder, What it is and how to cure it. (1993). New York: Guilford Press.

The next submission deadline for the newsletter is March 1st!

If you would like to have your work published in The Restriction Digest, please contact an editor:

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You can also visit us on the web at:
<http://www.hopkins-medicine.org/gsa/newsletter/index.shtml>

The Last Page-Diversions!



Clipper City Brewery Tour

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			8	9	1			
	3	5				8	9	
4								1

www.sudoku-puzzles.net
solution on Page 5



GSA Halloween Happy Hour