



THE DUAL DECREE

VOLUME II, ISSUE 3. SUMMER 2011



GOING TO CONFERENCES AS A UMB MSTP

APARNA KISHOR, GS IV

Nuts and bolts first. The MSTP Office will provide financial support to send our students to a scientific conference once each fiscal year, as long as the student is presenting a poster or giving a talk. The support is up to \$500, which can go towards registration, accommodation, and transportation. Students must simply notify the Office of the upcoming opportunity and then work with Jane and their graduate department and PI to get the cost of the conference completely covered. When planning for the conference it is important to remember that there may be logistical and transportation options provided by the conference organizers themselves. Additionally, there are often diversity travel awards for underrepresented minorities. Students must be aware that they may end up paying for some of the expenses up front and then being reimbursed by the program later (particularly in the case of airfare). Keep an eye on the conference website to make sure your materials fit their specs (correct poster size, abstract format, presentation format).

Scientific conferences come in all varieties, from the broad to the boutique. Something like the General Meeting of the American Society of Microbiology involves literally thousands of people including vendors, publishers, students of all levels, and faculty spanning numerous sub-disciplines. At the other end of the spectrum are the conferences for the specialist like Gordon Conferences and Cold Spring Harbor Conferences. Naturally, the smaller the



THE AUTHOR DISCUSSING HER POSTER AT THE 2011 MD-
PHD STUDENT CONFERENCE IN KEYSTONE, CO

conference, the more personal the experience can be. The best conference to attend depends on what type of commentary you wish to receive, the type of people you wish to meet, and the state of your project at the time. Each graduate student should attend at least one scientific conference prior to completing graduate work.

Stay long enough in a scientific field, and you will inevitably become part of a large community. Chances are that you will eventually know the people who review your papers (many researchers can figure out the identities of their anonymous reviewers just by analyzing turns of phrase). You may find that you've had beers with someone who trained the person with whom you did your postdoc. Meeting face-to-face with these people, at its best, keeps the field dynamic. At their worst, such interactions can descend into petty squabbling or egotistical one-upmanship. No

matter the size or the tenor, however, conferences can be harrowing for the graduate student since projects must be discussed in real time with relative strangers from whom you may later seek employment. Ultimately, however, most people enjoy the opportunities conferences provide, no matter how daunting or inconvenient they may seem at the outset.

Now to get personal. In the last few months, I have been to two completely different types of conferences. Both helped my science but together allowed me to contrast life as a physician scientist to that of a research scientist.

In June, I attended the Gordon Conference on Nucleic Acids, which

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ROGER THAT!



I have learned over the years that essential ingredients in a successful MST Program include value-added activities that integrate clinical medicine and basic biomedical sciences. Accordingly, we have developed several MSTP-specific activities including the Molecules to Medicine course, the Physician Scientist Clinical rotation, and the Summer Research Symposium, to name a few. In keeping with this goal, we are on the threshold of initiating a new Clinical Case Studies course. Designed by a group of students and clinical faculty on the recommendation of the Student Council, the course will be taken by the GSIs and GSIIIs in our program and will start this upcoming academic year. Based on the framework recommended by this working group, the course will be in the format of an hour-long seminar/workshop that will occur twice per month. By the way, it still needs a catchy name!!

The working group has settled on the following plan: Each student in the course will be in charge of selecting a case study with the help of a faculty member expert. During each session, a student will present his or her case, recounting differential diagnoses, delving into clinical manifestations, and highlighting links to relevant basic science. The faculty member will

be present to provide insight regarding the case and the critical thinking process enabling its resolution as well as to facilitate discussion. Overall, this seminar series will aid our students in maintaining and further developing clinical knowledge and thinking skills and assist in a smooth transition back to medical school while fostering a unique thought process bridging medicine and biomedical science.

I know this new course will be an exciting addition to our MSTP curriculum. As we move forward, I welcome your thoughts and ideas about this plan. Also, if you have recommendations of clinical faculty who would be excellent leaders for these sessions, please contact us. By the end of the academic year we will assess the success of this new endeavor.

Terry Rogers, Program Director

THE DUAL DECREE

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CONGRATULATIONS!

Mark Kvarta: 3rd prize in the Presentation Category at the UMBSOM 33rd Annual Medical Student Research Day for “Corticosterone: Necessary and Sufficient Mediator of the ‘Chronic Unpredictable Stress’ Model of Clinical Depression.” September 21st, 2010.

Melissa Liriano: ASTRO fellowship to do a retrospective study with Dr. Steven Feigenberg in radiation oncology, selection to attend the 61st annual Nobel Laureate meeting.

Jess Shiu: grant from Canadian Institutes of Health Research (CIHR) for a Doctoral Foreign Study Award (DFSA). These awards are intended to provide special recognition and support to students who are pursuing a doctoral degree in a health-related field abroad and are expected to have an exceptionally high potential for future research achievement and productivity.

Sarah Boudova: Doris Duke Malaria Fellow.

WELCOME TO NEW STUDENTS!

Welcome to all of our new students! In the MSI class: **Alexander Tsai, Elise Ma, Haley Simpson, Jeffrey Freiberg, Jeffrey Kleinberger, Jesse Stokum, Kristi Chakrabarti, and Sara Stockman.** Additionally, joining the MS2 class, **Christina Perry and David Kurland.**

INDYCAR COMES TO TOWN: THE BALTIMORE GRAND PRIX

AARON HESS, GS III

The first Baltimore Grand Prix will be held this Labor Day weekend, September 2-4. The event, billed as a “festival of speed,” will feature races from some of the premier American series on a temporary track along the Inner Harbor. It is expected to bring millions of dollars and tens of thousands of fans in to the city. In spite of the anticipated benefits, the Grand Prix is the subject of mixed feelings among Baltimoreans, many of whom complain about the inconvenience and expense at a time when the city is struggling to meet basic needs.

The IndyCar series features single-seat, open-wheeled cars. These are pure racing cars similar to those used in the international Formula One

series, and, unlike NASCAR vehicles, they are not intended to resemble factory road cars. All the teams purchase identical chassis and engines, and then modify them with commercially-available upgrades. The American LeMans Series, also part of the Baltimore Grand Prix, features a mix of custom-built, closed-wheel racers and heavily modified road cars. The other formulae that will race over the Grand Prix weekend use less advanced vehicles that are similar to the IndyCars.

Setting up a race like the Baltimore Grand Prix requires a major up-front investment. The city has put \$5 million of federal road maintenance funds toward improving downtown pavements specifically for the race and an additional \$3 million in loans

to cover related improvements. Pratt, Conway, Light and Russell Streets have all undergone major resurfacing, with much traffic and confusion. In return, the race organizers estimate that about \$200-250 million will be brought into the city over the five-year contract, and the city will receive \$11 million in direct tax revenues plus \$6 million in fees.

The main event will be the IndyCar Baltimore Grand Prix, the 14th out of 17 IndyCar races on the 2011 calendar. The weekend will also include a race in the American LeMans Series and some other junior formulae. Qualifying and practice sessions will take place on Friday and Saturday, and the races themselves will take place between Saturday and Sunday, culminating in the IndyCar race. The organizers are promising “major concerts” for Friday and Saturday night, and a variety of other fairground events and special entertainment. A rough triangle between Raven’s Stadium, Camden Yards, and the Aquarium will be entirely converted into space for grandstands, pits, and entertainment.

The Baltimore Grand Prix will be a major feature of the city calendar for years to come. It will be loud (so very loud), inconvenient, and, to begin with, alien. In a few years, though, it may be part of what the city is, and give it a new market for its services. With some luck and some speed, the cars will bring something great.



THE COURSE OF THE 2011 BALTIMORE GRAND PRIX

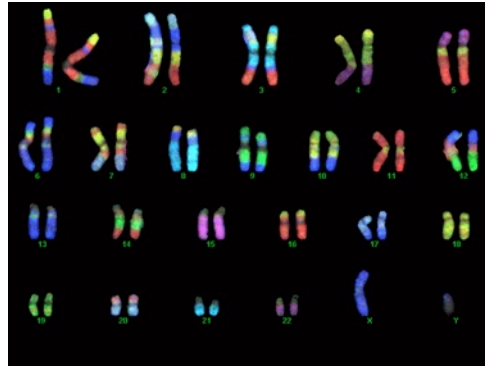
AVOID, REPAIR, ENHANCE: PREIMPLANTATION GENETIC DIAGNOSIS

PATRICK KERNS, GS III

First carried out in 1989 and resulting in several live births in 1990, pre-implantation genetic diagnosis (PGD) enabled several couples to choose the sex of their babies and thus avoid a sex-linked genetic disorder they otherwise might have inherited. As genetics has advanced alongside such assisted reproductive technologies, determining if and when PGD should be used has become a more compelling issue, especially as we draw closer to the ability to not just avoid or repair disease but to enhance the abilities of our unborn children.

The actual mechanics of PGD are simple enough. Sperm and eggs are collected from the parents and the sperm is used to fertilize several embryos in the lab. At one of several stages after fertilization, a single cell is removed from each embryo without harming it, and subjected to high sensitivity tests such as PCR or fluorescence in-situ hybridization to screen for genetic disorders such as Down Syndrome or the universally deadly Tay-Sachs Disease. When an embryo without the disease is found, it is implanted in the mother's womb in the same manner as for standard in-vitro fertilization (IVF). Like any sort of IVF, however, success is not guaranteed and couples may have to go through several cycles to achieve the desired pregnancy.

Even without the specter of superbabies, PGD is already controversial for many of the same reasons that IVF is controversial. Several religious groups, most notably the Catholic Church, oppose IVF on a variety of grounds, ranging from the position that IVF is murder to assertions that it degrades parenthood by dissociating conception from the act of sexual intercourse. I won't be arguing for or against these types of positions because, in order for modern bioethical positions to be useful for society at large, we cannot start from



A COMPLETE SET OF MALE HUMAN CHROMOSOMES MARKED BY FISH

articles of faith unique to particular groups.

In point of fact, PGD does result in the loss of a large percentage of embryos, much like IVF. As I've discussed in a previous article, human embryos do and should hold value for us in an ethical sense but not on par with that of a child. To the degree that we find embryo loss acceptable in IVF we must extend the same acceptance to PGD.

In the secular awareness, the most publicized fallout from PGD has been in relation to the creation of so-called "savior siblings" in which a couple attempts to conceive a child using PGD that will be a tissue match for an existing child in need of a bone marrow transplant. One of the chief ethical problems posed by this situation is the conception of the new child purely as a means to an end, namely to save the first child. Most people will agree, for example, that if a couple were to conceive a tissue-matched child via PGD, harvest cord blood stem cells, and then put the new child up for adoption this would constitute a wrong to the child because the child would have been conceived for purely instrumental reasons. However, this is an extremely unlikely situation. As Devolder points out in a 2005 article on this topic, any couple that would go to such lengths for one of their

children is not likely to discard another of their children (*J Med Ethics*; 31:582-586). Some argue that for conception of such a child to be ethical, the parents have to have a pure motivation to have the child for its own sake, and not as a means to save their other child. The best response to this statement is that motivations are rarely unmixed: as Devolder points out in the same article, people have long had children for instrumental reasons such as to improve the husband-wife relationship, to take care of them in their old age, and to provide themselves a sense of immortality. We don't expect potential parents' motivations to be pure in the normal course of events and thus we shouldn't hold parents desiring to use PGD to save another child to a different standard. These parents should not be interfered with.

One of the most ominous potential consequences of PGD is its combination with advancing genetic knowledge to select the very best of a group of embryos and thus create what many have referred to as a "designer baby." This possibility was examined in the film *Gattaca*, which suggested that widespread adoption of this technique could lead to new forms of discrimination based on one's genetic code. Furthermore, such a technique, it is worried, would widen the gulf between the upper and lower economic classes by providing the children of the rich with genetic advantages. Such questions are largely speculative at this point, but worth asking. Next issue of *The Dual Decree*, we'll consider the ethical implications of designer babies in depth.

Please direct any correspondence on this article to The Dual Decree.



BEATING THE HEAT: CHILLING OUT IN BALTIMORE

MONICA CHARPENTIER, GS II

It's been a record-breaking hot summer in Baltimore. What's an MSTP student got to do to stay cool around here? Well, if you've spent too much time hiding out in the frigid air conditioning of the lab or the library, try these options instead:

Local Swimming Holes:

The Baltimore area offers several quarries open for picnicking and swimming. In addition to the ice cold water, there are often rope swings, rafts, cliffs for diving, ziplines into the water, and regular swimming pools. Check out the Beaver Dam Swim Club, the Millford Mill Swim Club, or Oregon Ridge Park. You can buy memberships or day passes. For an unofficial, unsanctioned dip into cold, cold water, consider heading to Gunpowder Falls State Park or taking a bike ride along the NCR trail – there are plenty of paths down to the rivers.



OREGON RIDGE WATERFRONT

Water Sports:

Ultimate Water Sports offers sailboat, windsurfing, kayak, and stand up paddle board rentals and lessons at Gunpowder Falls State Park and Dundee Creek.

or head farther out to Harper's Ferry for a variety of tubing experiences from a lazy afternoon to a white water adventure.

Tubing:

Rent a tube and spend a hot afternoon floating down one of the refreshing area rivers! Rent tubes at the Monkton Bike Shop for an afternoon on the Gunpowder River,



AROUND BALTIMORE

September 2-4:
Baltimore Grand Prix

September 17:
Inner Harbor Art Festival

September 23-25: Baltimore
Book Festival

October 1:
Fells Point Fun Festival

October 22:
Charm City Roller Girls -
Home Team Championship

October 1-31:
Free Fall Baltimore: a month
of free events downtown,
www.freefallbaltimore.com

November 1:
Jay-Z and Kanye West at First
Mariner Arena



THE BEAVER DAM SWIM CLUB

STUDENT HOBBIES: SCUBA DIVING

TIM FEENEY, GS II

“SCUBA diving? Where do you do that? Is there even anything to see?” Those are the questions I typically hear when I tell people about my hobby. I think the problem is that when people think of diving they usually only think of coral reefs and ultra warm tropical environments. This is only part of the experience, though, because the marine life and sunken objects that occupy colder water are fantastic in their own right. Nevertheless, no matter where you choose to do it, SCUBA is fun, challenging, relaxing, peaceful, exhilarating, and a great way to meet people from all walks of life.

What is SCUBA diving?

SCUBA stands for Self Contained Underwater Breathing Apparatus, and it allows anyone willing to stay under water much longer than any human can hold their breath. It takes advantage of modern technology and uses metal tanks to hold breathable gas at high pressures that can be delivered to a diver via demand-operated pressure valves called regulators and is the most amazing activity ever.

Why dive?

The answer to this obviously differs between individuals. For me it's an escape to a space that is almost alien. I have always loved marine life, so to experience these ecosystems directly is an amazing experience full of majestic wonder. Wreck divers often love the search for artifacts or learn about the history associated with shipwrecks. Further, wrecks are often teeming with life, offer a hugely different perspective of a massive vessel, and can be a great way to explore a historical event. Despite the differences, there are a few unifying principles that form the foundation of “why go diving” for everyone. First, it is a chance to see something less than 1% of the population ever gets to see. Whether you love the biology of the



MINIMAL GEAR KEEPS COSTS LOW AND FUN HIGH.

ocean, history, or just to see something on a scale you can't possibly imagine while floating “weightless,” SCUBA diving has what you need. Second, it is a ton of fun for everyone from the thrill seeker to the gadget lover. Last, it is an extremely social sport. From team diving and the buddy system to parties and cook outs held all the time, there are always friends to be made and enjoyed. I have met some wonderful people through diving and made friendships way beyond simple land relationships. There are always smiles and laughs to be had and heard on a dive boat—that is for sure.

Where can you dive?

The short answer is: everywhere. I have been diving in every part of the Atlantic Coast from Florida to Massachusetts, and even some large rivers such as the Delaware and the St Lawrence. Each place is great for different reasons, and offers much to see while also offering a range of temperatures. The waters of the northeast are no exception, and offer some of the best diving.

PROGRAM REMINDERS

To Do between August and October:

All students

Monthly program seminars!!

MS I:

Pay quarterly taxes

Molecules to Medicines

MS II:

Pay quarterly taxes

Molecules to Medicines

Follow guidelines for Step 1 registration

Check grant deadlines

GS I & II:

Finish laboratory rotations

Work on 1st author publications

Register for classes and health insurance renewals

Check grant deadlines

Plan for clinical longitudinal (GS2)

Clinical course (GS2)

GS III+:

Work on 1st author publication

Check grant deadlines

Longitudinal

Clinical course (GS3)

If you're returning to the clinic, check status of all school accounts

MS III:

Pay quarterly taxes

Think about residency and Step 2

MS IV:

Residency interviews

You may be thinking “it's far too cold to go diving in the north.” However, temperature tolerance is highly variable and depends greatly on your choice of protection. Technology provides the diver with a range of protection types from thicker wetsuits to drysuits to meet all your needs. So, regardless of your tolerance and the exposure protection, the beautiful waters of the


(Continued on Page 7)

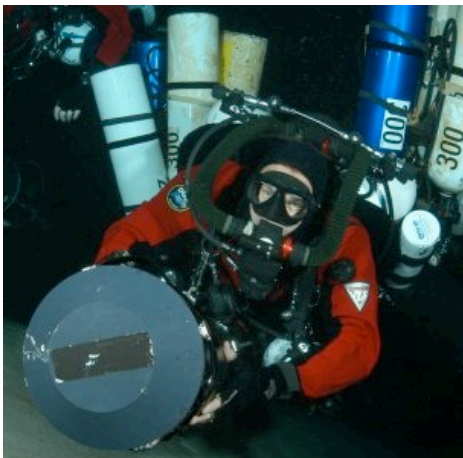
(SCUBA from Page 6)

north should not deter you solely based on temperature; there is a way to make you comfortable no matter what the water temperature.

How do you get involved?

First, you should really try it. Mini classes called “Discover SCUBA” will allow you to get experience in a controlled body of water or pool before you make any commitment. These sessions are usually free, and it will allow you to determine if SCUBA is right for you. Breathing underwater is highly addictive! Once you try it and decide you like it, you need to enroll in a certification course that will show you the ins and outs of the gear and teach you the skills necessary to dive safely. Once enrolled in a course, you will be exposed to a variety of experiences and equipment that will help you decide if you want to buy or rent.

Diving always presents me with new challenges and unique things to see. Each and every dive is truly magical and an opportunity to really get in touch with yourself and the natural world. I have spent lots of cash on the activity, but I have yet to be disappointed with a single purchase; diving is really a deal. So I encourage everyone to at least give it a try! And feel free to ask n  more details!



COMPLEX DIVES REQUIRE MULTIPLE BOTTLES, REBREATHERS, AND SCOOTERS.

RECIPES FOR LATE SUMMER

MONICA CHARPENTIER, GS II

The heat and humidity in Baltimore are finally starting to die down and those first crisp mornings that signal fall’s arrival will be here soon. But it’s not too late to savor these last summer days with these easy and elegant summer dinners, best served from your rooftop deck with a cold glass of white wine (or a Natty Boh) as you watch the O’s battle in their last games of the season.

Gazpacho Salad

Adapted from smittenkitchen.com

Serves 4

- 2 1/2 cups cubed day-old dense country bread (1-inch cubes)
- 2 medium-size garlic cloves, pressed or minced
- 1 large pinch of coarse salt (Kosher or sea)
- 1 pinch of cumin seeds, dry toasted briefly in a non-stick pan until fragrant
- 1 pinch dried thyme leaves
- 4 tablespoons sherry vinegar red wine vinegar
- 1/3 cup extra-virgin olive oil
- 1 2/3 pounds very ripe but firm tomatoes, cut into 3/4-inch cubes
- 2 small cucumbers, cored, seeded and diced
- 1 red bell pepper, chopped
- 1/2 cup finely chopped red onion
- 1/2 cup seedless green grapes, cut in half
- About 1/2 cup chopped basil

1. Preheat the oven to 350 degrees. Arrange the bread cubes in a single layer on a large rimmed baking sheet and bake until they are just beginning to turn golden and slightly stiff, 8 to 10 minutes, stirring once. Heat in batches, letting the bread cubes cool.
2. Place the garlic, salt, cumin, and thyme in a measuring cup and



SUMMER SALAD

mash them into a paste using the back of a spoon. Add the vinegar and olive oil and whisk to mix.

3. Place the toasted bread and the tomatoes, cucumbers, pepper, onion, grapes, and basil in a large bowl and toss to mix. Add the dressing to the salad and toss to combine well. Let the salad stand for 5 to 10 minutes before serving to allow the bread to soak up the dressing.

Grilled Whole Fish with Lemon and Herbs

1 lb whole fish, such as branzino (or walleye or Atlantic black sea bass or other whole fish if branzino is not available) per 1-2 people
Seasonings: lemons, kosher salt, fresh thyme, fresh rosemary, olive oil

1. Prepare grill for high, direct heat and oil grates well.
2. Season the inside of the clean and scaled fish with salt, olive oil, lemon slices, and thyme and rosemary sprigs.
3. Generously coat the outside of the fish with olive oil and salt.
4. Cook the fish for 5-7 minutes a side, taking care with tongs and metal spatula to gently lift the fish when turning .
- 5.



(CONFERENCE from Page 1)

has a reputation for being friendly to grad students. Usually Gordon Conferences are geared for sub-specialists but the one on Nucleic Acids is broader since both DNA and RNA people are represented. Depending on the chairs and who agrees to speak, the conference may be slanted towards one field or the other; this year it was RNA-dominant which was appropriate for my project.

The second conference was the Annual MD-PhD Student Conference in Keystone, Colorado. It is hosted by the MSTP at the University of Colorado and features lectures by physician scientists, breakout sessions on topics of interest (choosing residency, negotiating your first academic position), a career panel, student presentations, and poster sessions. Most importantly, the conference provides an opportunity to interact with MD-PhD students from around the country. Our MSTP sends students every year on a rotating basis. I encourage everyone to avail themselves of the opportunity when their turn comes around.

The Gordon Conference on Nucleic Acids, held in Maine, was largely attended by basic scientists, predominantly academicians, giving it a cloistered feel. For the Americans in attendance, the troubles at NIH were subtext to everything. Graduate students were largely recognized by their mentor. Finally, since this conference tends to have a molecular and structural bent, I was virtually the only one to present experimental findings in higher eukaryotes. I admit to feeling out of place because portions of my work were divergent from the rest of what was being presented and I am not comfortable with a professional life as neatly circumscribed as these seemed to be. Despite this feeling, I ended up enjoying my time there and



JULIE GERBERDING, MD MPH SPEAKING AT THE KEYSTONE CONFERENCE. GERBERDING HEADED THE CDC FROM 1998 TO 2009.

truly profiting from it. When else could I have the opportunity to interact with so many people published in *Science* and *Nature*? I had to learn quickly to speak authoritatively about my work (while reminding myself to read more). The last night, I thanked the conference chairs and was pleased to be able to tell them that the program had restored my joy at being a scientist.

But these weren't my people. I had one professor say to me "forget that silly MD stuff... just stay with us!" She later apologized, but it was clear that she was not alone in this sentiment. This, I thought to myself, is the hardcore research world.

It wasn't until I spent some time with the people training to be physician scientists at Keystone that I began to regain my equanimity. The faculty there reminded us that our training is so different from the typical graduate student that comparison is almost ludicrous: just as we've developed into competent researchers, we hustle back to clinic. If we choose to pursue further clinical training, chances are good that we don't get another dedicated research stint until sometime during our fellowship—this can mean up to four years away from our scientific

community. Then, if we carry on the path of academic medicine, we have to constantly negotiate with our institution for fewer and fewer clinical hours so that we can attempt to join ranks with other scientific faculty. Compare this to the course of the typical grad student who will have an unbroken scientific experience. It's not that we cannot compete effectively with these people or that we will have trouble getting respect in our fields. It's that we start being PIs a lot later than they do and our attention to our labs will always be ever-so-slightly compromised unless we totally forego clinic.

In the end, each of us will make a decision about how much of a physician and how much of a scientist we want to be. Not only that, but we will probably revisit this decision several times over the course of our professional lives. Keystone reminded me that joining an MD-PhD program means that I have, at least for the moment, committed to becoming a member of a hybrid species. I am being trained to hold my own among the attendees at a Gordon Conference while at the same time heading towards the goal of applying scientific principles to a human context.

