UNC MD-PhD Newsletter

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Thanks to Alex Raines, Erin Steinbach, Katy Cappell, & Catherine Fahey for pictures.

2011 Beach Retreat Preview

Students, admin, faculty anticipate weekend of science and fun

It's not too often that you get to go to the beach on someone else's dime. Throw in delicious meals, the best entertainment, and ample science-related intellectual stimulation and you've got yourself a once-in-a-lifetime experience. Or actually, make that an eight-times-in-a-lifetime experience.

This summer's retreat (July 29-31) will be the 17th annual UNC MD-PhD Program retreat. For a decade, the program wandered from venue to venue (the mountains, the Governor's Club, the beach) before choosing NC's sunny Wrightsville Beach as our retreat home. Since 2005, the retreat has consistently taken place there, at the Blockade Runner Hotel.

For those whose first retreat will be this July, come prepared to reflect on the past year, plan for the next year, and think a lot about science. The team draft (emceed by Perry Tsai, G1) occurs Friday

ABOVE: In August 2010, over 70 students, faculty, and staff gathered at The Blockade Runner hotel in Wrightsville Beach, NC, for the annual retreat.

night, breakfast with Dr. O and breakout sessions happen Saturday morning, research and keynote presentations take place Saturday evening.

Each year, a physician-scientist husband-and-wife-dream-team delivers the keynote address, which covers topics such

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Nobel Laureate, Noted Speakers Lecture at Monday Night Seminars

Every second Monday during the academic year, the students of the MSTP file past tables of free dinner and into Bondurant G100 to participate in one of the longest-standing traditions of the MD/PhD program at UNC: the Monday night seminar. The series brings a variety of scientists, clinicians, and public figures – nominated by students but hand-selected by Dr. Orringer, with his extensive connections inside and outside the university – to speak on topics ranging from vascular biology to funding for public-health programs to career development. Highlights from 2010-2011 included Dr. Nancy Allbritton, who presented her group's eye-catching work in lab-on-a-chip technology; Leah Devlin, former State Health Director for North Carolina; and Dr. Oliver Smithies, UNC's

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Rotons of the MSTP

Second successful summer for lunch-time first and second year rotation seminars

Two important facets of the UNC MD/PhD Program are supporting our sense of scientific community and advancing in our skills at communicating our research interests and successes to others. To help embrace our newest matriculants into this community and assist them on this path to successful scientific presentations, the Program has begun a series of summer lunch-and-learn seminars that we call the "Rotons of the MSTP" (sounds like a cheesy sci-fi flick title, right?). Actually, these seminars represent a great opportunity for the incoming class to learn about the laboratory rotations being performed by their peers in the Program. Faculty mentors also attend and provide invaluable feedback on the students' 10 minute presentations, thereby assisting in refining communication skills.

Now in its second year, these lunch-time seminars have been a great way to learn about the considerable breadth of exciting research being performed by Program participants across the UNC campus, from the development of anti-malarial vaccines and drugs, and the creation of new genetic tools to study inter-strain differences in mouse global gene expression patterns, to the unique controls on apoptotic signaling shown by human embryonic stem cells.

David Siderovski, PhD, Professor of Pharmacology and the Thomas J. Dark Research Director of the UNC MD-PhD Program. He runs a very successful research program and designs movie posters.

ABOVE: James Byrne (MS2) shares his work, done in the DeSimone lab, developing drug delivery devices for pancreatic tumors. LEFT: Dr Siderovski's "Rotons" ad. If he ever tires of science, Dr. S could always design cinema-quality movie posters.

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resident Nobel Laureate, who as a co-inventor of both gel electrophoresis and knockout mice was pretty well-qualified to reflect on what makes a successful scientist.

The biweekly seminar has several functions, Dr. O says: to foster a sense of cohesiveness in the program, by collecting students from MS1 to PhD to MS4 into one room; to keep students engaged with high-quality basic and translational research while in medical school; and to expose students to the breadth of career opportunities available to them as future physician-scientists. –APM

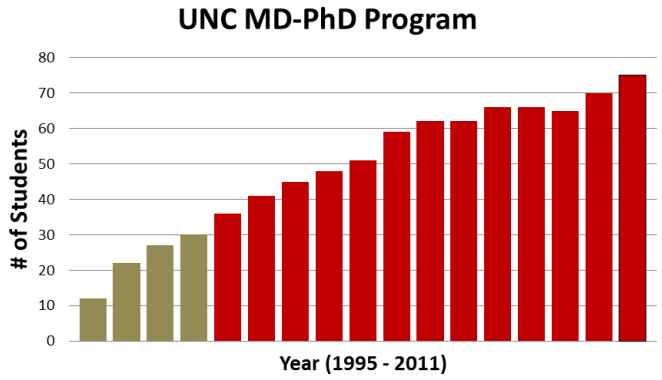
Have a suggestion for a future seminar speaker? Want to hear more (or maybe less) about a particular topic on Monday nights? Remember it and speak up when suggestions are taken at the retreat.

Clockwise from lower left. Jonathan Berg, MD, PhD; Nancy Allbritton, PhD, Leah Devlin, DDS; Kathleen Caron, PhD; and Kevin Slep, PhD. There is a tempting Monday-night football pun we could probably make here, but we will restrain ourselves...

A Message from Dr. O

Eugene Orringer, MD
Professor of Medicine
Program Director, UNC MD-PhD Program

I am pleased to contribute a brief description of the history and current status of the UNC MD-PhD Program to this, the inaugural edition of this newsletter. UNC established an MD-PhD Program in the early 1970's, the purpose of which was to identify and then train individuals, the goal of each of whom was to become a physician-scientist. While a number of exceptional scholars trained here at UNC during its early years, this combined degree training program accepted no more than 1-2 students per year until the mid-1990's and, as such, represented a rather modest component of the Medical School environment. In 1995, then Dean Michael Simmons made a major commitment to expand the MD-PhD Program and to invest the institutional resources that were necessary to do so. Over the 15 years between 1996 and 2011, Dean Simmons' initial goal was realized as the UNC MD-PhD Program grew from 12 to 75 students, and we have become nationally competitive for the best and most accomplished candidates. In the year just completed, for example, we received over 350 applicants and have matriculated an outstanding class of 10 students (6 women and 4 men) whose mean undergraduate GPA was just over 3.7 and whose mean MCAT scores were 34.5. Even more importantly, each of these students is coming to UNC with a wealth of research experience and with a passion and commitment for a career as a physician-scientist.



ABOVE: UNC MD-PhD Program growth under Dr. Orringer's leadership. Red lines mark years for which the program has won MSTP funding.

In addition to the growth of our program described above, we were also able to fulfill Dr. Simmons' second major goal which was to write an application that would enable us to compete successfully for a Medical Scientist Training Program (MSTP) grant from the NIH. The purpose of such an MSTP award (that we received on our initial submission) is to provide at least some of the funds that are needed to support combined-degree trainees. It is important to emphasize that not all MD-PhD Programs receive funding from the NIH in the form of MSTP awards. In fact, there are many more medical schools with combined-degree training programs that do not have MSTP awards and are supported almost entirely by institutional funds. However, most premedical students as well as their undergraduate advisors view an MSTP grant as the "*stamp of approval*" of a given MD-PhD Program. Indeed, without such a grant, it is very difficult to compete for the best and most highly qualified students.

Here at UNC, we are just now beginning year 13 of our MSTP award, and early next year we will be submitting a renewal application to the NIH for the MSTP award that we hope will support our MD-PhD Program in years 16-20. The remarkable success that our students have enjoyed, as illustrated by their publications, many of which have appeared in high impact journals along with the numerous grants, honors and competitive awards that they have earned, a number of which are highlighted throughout this newsletter, should greatly enhance our chances of success as we embark upon this renewal process.

The Incoming Class

Out of the nearly 350 applicants to UNC's MSTP, we are proud to present the incoming class of 2011. To get to know them better, they've shared their Research Interests, Favorite Genetic Locus, and an Interesting Fact about themselves.

Brooke Matson

College of William & Mary, 2011
Major: Biology
Research Interests: Posttranslational modifications, gene regulation, genomic instability and DNA repair, chromosome segregation . . .
Genetic Locus: Yeast SUMO (SMT3) because of the use of sumo wrestler clip art in Powerpoints.
Interesting Fact: Brook is terrified of birds

Christopher Giardina

Georgia Institute of Technology, 2011
Major: Biomedical Engineering
Research Interests: Neuroengineering, surgical device development
Genetic Locus: Gene Wilder
Interesting Fact: Christopher co-invented the surgical device AutoRhexis for cataract surgery. (Look it up - it's pretty cool!)

Jamie Jarmul (a.k.a. Jamie Bell)

Duke, 2009
Major: Biomedical Engineering
Research Interests: Health policy, childhood obesity prevention and interventions
Genetic Locus: No idea
Interesting Fact: Jamie's mom and our very own Carol Herion went to high school together. On the topic of high school, as a result of playing sports Jamie, her brother, and her sister share a combined 5 torn ACLs. Her least favorite genetic locus is the one that caused that statistical anomaly.

Kelly Gewain

UNC Chapel Hill, 2009
Major: Biology & Chemistry
Research Interests: Cancer research, drug discovery, and cell signaling
Genetic Locus: 17p13—Kelly's project for the past year has been focused on USP6, and it has become her "science baby."
Interesting Fact: Kelly has a 5 month old Australian Shepherd puppy named Mia. Although she's a handful, she is supposedly really "cute."

Lee Hong

Duke, 2010 (go Devils!)
Major: Biology
Research Interests: Investigating pharmacological targets for drug therapy
Genetic Locus: katanin-60 (Drosophila, chr. 3R). Lee's senior thesis involved a genetic screen investigating interactors with katanin-60, which encodes a microtubule-severing protein important for neural development.
Interesting Fact: After graduation, Lee worked as an IRTA research fellow at National Institute of Environmental Health Sciences in RTP. Outside of research, she likes to cook Korean cuisine and rock climb.

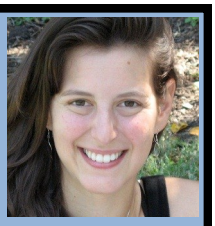
Michael Clark

UNC Chapel Hill, 2011
Major: Chemistry (Biochemistry Track)
Research Interests: Immunology, immunotherapy, exercise and sports science
Genetic Locus: ALDH7A1—Michael's first publication studied its regulation in melanoma sub-types.
Interesting Fact (in his own words): "I have keratoconus, a degenerative corneal disease, and as a result, the vision in my left eye is estimated to be around 20/400. In other words, my eyesight isn't so great. However, to compensate, my right eye has developed Cyclops-esque laser-vision. So I got that going for me, which is nice. "

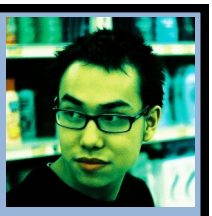
Naman Shah (G3) won the Paul and Daisy Soros Fellowship, which provides substantial support to 30 new Americans each year. Selection criteria emphasize "creativity, originality, initiative, and sustained accomplishment." Congrats!

The Incoming Class *(continued)*

Marni Siegel
Duke, 2011
Major: Chemistry & Biology
Research Interests: Cancer Genomics
Genetic Locus: BRCA1
Interesting Fact: Marni tented outside in K-Ville for two months (in the winter) her freshman year at Duke for tickets to the UNC-Duke basketball game. Wasn't that one of the years Duke lost? On a less-polarizing note, her brother is a professional chef.



Patrick Lang
Duke, 2011
Major: Cell and Molecular Biology
Research Interests: Tumorigenesis; malignant cell survival and proliferation; cell death
Genetic Locus: 7p13.1 (TP53): governor of life and death
Interesting Fact: Patrick was in a couple of commercials and TV shows as a kid. (In fact, this may be a screenshot from his show *Green Supervillain Stalking the Shampoo Aisle*.)



Robert Corty
Harvard, 2010
Major: Chemical and Physical Biology
Research Interests: Neuroscience
Genetic Locus: 7p12.2 – it codes for Grb10, which has its paternal copy active only in the brain while its maternal copy active everywhere EXCEPT the brain. To make it even better, both copies are involved in totally different pathways.
Interesting Fact: As a kid, Robert couldn't whistle. To overcome this disability, Robert once devoted an entire day to learning. Expect to hear whistling.

Sarah Rutstein
Duke, 2007
Major: Public Policy Studies
Research Interests: Developing and evaluating cost-effective strategies for managing antiretroviral therapy for HIV-positive persons in resource-limited settings.
Genetic Locus: CKR-5—Heterozygosity for deletion in this gene may be associated with AIDS "non-progressors."
Interesting Fact: Sarah hosts an annual chili cook-off (mmmm), complete with prizes and roasts for the winning and losing chilies, respectively.

Upcoming Events

What: Cool Mountain Education Fund Benefit Concert with Scarlet Virginia
Where: Southern Village
When: Saturday, August 27th, 4:30pm
Why: Support a good cause and support Katharine Liang (G2), who is organizing and playing in the concert with her band, Scarlet Virginia (see right).
Suggested donation: $5

Bring your family and friends to music on the lawn at Southern Village to support the Cool Mountain Education Fund. There will be a raffle and prizes, with proceeds going to fund scholarships for the upcoming year. Scarlet Virginia (Katharine's indie/folk/rock band) will be playing, along with one or two other bands. Stay afterwards for a movie on the lawn. Picnic-ing and drinks encouraged, plastic cups only.

More Info: The Cool Mountain Education Fund is dedicated to educating the Nuosu people (see right) in the Cool Mountain region of China. They provide scholarships for graduating primary school students in rural areas to continue their studies in middle and high school. Additionally, they organize teacher training workshops, and facilitate community development projects to improve infrastructure.

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as how to balance science and life's other demands.

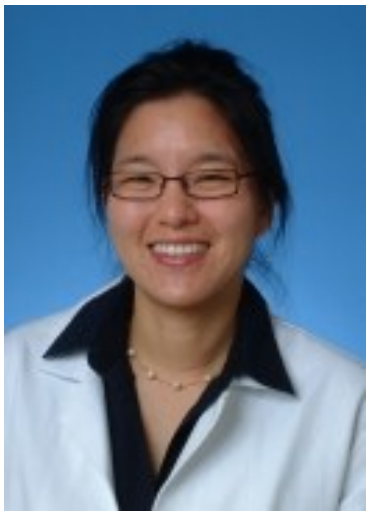
Last year's speakers were Kathleen Caron, PhD, Associate Professor in UNC's department of Cell and Molecular Physiology, and her husband, Michael Datto, MD-PhD, who is a molecular pathologist and is director of Duke Health System's Clinical Molecular Diagnostics Laboratory.

This year's dream-team is comprised of Drs. Jen Jen Yeh, MD, Assistant Professor of Surgery at UNC, and Billy Kim, MD, Assistant Professor of Medicine and Genetics at UNC. Dr. Yeh is a surgical oncologist and Dr. Kim runs a cancer research program in the Lineberger Cancer Center. Dr. Kim is also a faculty advisor to the MD-PhD team CELL YEAH.

Apart from business and science, this year's pilgrimage of fun and sun and science promises to be just as exciting as last year's. Gene's Knockouts have been hard at work planning evening and daytime activities. At night, expect a mixers, capture the flag, or both. Of last year's evening activities, Robin Muller says, "I've never been covered in so many name tags."

The yearly relay race will kick off Saturday's activities. If CELL YEAH wants to defend their status as reigning relay champions they will have to work hard and come hungry, as this year's team relay will be even faster-paced, more intense, and more delicious than last year's.

Finally, a word of advice to the MS1's—relish this retreat, because after it's over you'll only have seven left. –CMP



ABOVE: Drs. Jen Jen Yeh and Billy Kim will be the keynote speakers at the 2011 retreat.

Dates to Remember:

MSTP Beach Retreat . . . . . July 29-31

MS1 Orientation . . . . . August 8-12

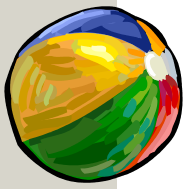
MS2 Orientation . . . . . August 11

MS2 Classes Begin . . . . . August 12

MS1 Classes Begin . . . . . August 15

Retreat watch list:

- *Breakfast with Dr. C – one of the few chances you'll have to eat breakfast with Dr. C, so take advantage of it.*
- *Being swept away or crushed by giant waves during surf or scuba lessons.*
- *When tubing, if the water starts to steal your pants, let go of the tube to reclaim them.*
- *Grad students' report back from the Keystone Conference—if you didn't go, you'll be jealous.*
- *Hold on to your nametag—see page 7.*



Rushina Cholera (G4), Tricia Lenhart (G3), and Sarah Rogan (MS3) recently won the Gertrude Elion Award, which provides support for women medical students pursuing health-related research projects.

Marriages, Match results, F30s, and Babies:

Milestones in the life of an MD/PhD

Match results 2011

Reem Hasan	*Med/Peds*	*U Michigan*
Kari Hacker	*OB/GYN*	*UNC*
Yolanda Huang	*Anesthesiology*	*Columbia*
Caroline Lee	*Med/Peds*	*Duke*

University of Michigan Health System

UNC HEALTH CARE

COLUMBIA UNIVERSITY

Recent F30s awarded

Dustin Bosch — *Elucidating a G-protein signaling pathway in* E. histolytica *amoebic colitis*

Chris Dibble — *Endothelial progenitor-derived endothelial cells as a model for familial CCM*

Jeff Federspiel — *Impacts of cost sharing and echocardiography on outpatient care of heart failure*

Chris O'Conor — *Osmotic signaling in chondrocyte aging and osteoarthritis*

Rohit Prakash — *Development and use of the Two-Photon Optogenetic toolbox*

And we're not just getting F30s. Be on the lookout for other award announcements throughout the newsletter.

Weddings, etc.

On June 13, 2011, Erin Steinbach (G3) gave birth to a beautiful Prelim Exam. It weighed 14 g and was 10 pages long.

Shortly after Klara Klein (G1) divorced her previous husband, USMLE Step 1, Evan Zeitler stepped in and proposed.

On July 16, Jamie Bell (MS1) married Jonathan Jarmul. The wedding took place at La Residence Restaurant right here in Chapel Hill.

That same day, Katharine Liang (G2) and Scott Houck got engaged.

Jason Simmons (MS4) and Kimberly Burrows will be married June 9, 2012.

Recent PhD defenses

Sarah Rogan	**Feb 14**
Liz Hoffman	**April 7**
Amir Aghajanian	**April 21**
Rebekah Nash	**April 26**
Adam Kole	**May 5**
Katy Cappell	**May 13**
Chris Welch	**May 20**

ABOVE: Kenan Aghajanian was born June 7, 2011 to Amir Aghajanian (MS3). He weighed 8lbs 12oz, and was 21.25" long.

George Chao (G5) is featured in the "Meet A Tar Heel" Expose. Google "chao meet a tar heel" to view the piece.

The Year in Pictures: *Beach Retreat, 2010*

FIGURE 1: Photographic documentation reveals a strong correlation between the Beach Retreat and fun times. (A) Alex Raines "Feelin Nauti" while renting a boat Saturday afternoon. (B) Chris Dibble (G3) and Jason Simmons (MS4) under the sea—while program administration called the Coast Guard to search for them. (C) Dr. "O" as master of ceremonies. (D) Newly minted MS1s found that Robin Muller's identity crisis made learning names difficult. (E) Team CELL YEAH celebrates after dominating the relay race. (F) Kari Hacker (MS4), Marybeth Anderson (G2), and Kate Hacker (G2). (G) Carol Herion and Alison Regan are the two reasons why the Beach Retreat (and life in general) just works. (H) Mini Golf, anyone? (I) Tricia Lenhart (G3), Erin Steinbach (G3), Reid Roberts (G4). (J) Team CELL YEAH rallies around the starfish-shaped inner tube they used to save the MD-PhD program administration from a watery end.

The Year in Pictures: *And the rest of the year*

FIGURE 2: (A) Nate Sowa (MS4) and Lillian Brown (MS4) at the summit of Mt. Kenya. (B) Naman Shah (G3) and Will Jeck (G3). (C) Although George Chao (G5) is not physically on top of the world, he probably feels the part while chatting with Nancy Andrews, MD-PhD, Dean of the Duke SOM, and Georgette Dent, MD, UNC's SOM's Dean of Student Affairs. (D) Med School Research Day. MD-PhD students are highly enriched in this population. (E) Nate Sowa (MS4) and Jason Simmons (MS4) hiking the Kalalau Trail in Kauai. Yes, we're jealous. (F) Catherine Fahey (MS2) and Jason Melehani (MS2) at the White Coat Ceremony. (G) In lieu of a speedy trip through med school, Tricia Lenhart (G3) chooses to dominate on the track. (H) James Byrne (MS2), Michael Durando (G4), and honorary MSTP student Chris Packey, MD. Watch out, Jason. (I) Robert Mango (MS4) not eating mangoes. (J) Gene's Knockouts rack up good deed points by helping build a Habitat home. (K) That looks suspiciously like a floaty from the retreat relay race.

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Next time you run into one of these guys . . . pat them on the back