



The Vulcan Letter



Voice of the MSTP at the University of Alabama Birmingham

Summer 2005

WELCOME NEW STUDENTS

by *Olusimidele T. Akinsiku*

One of the highlights of the annual retreat is the introduction of the entering class. From all over the country, the 2005 incoming class is a diverse group, each coming with their own unique experiences. This year we are pleased to welcome 7 new members to the MSTP community.



Sarah Baxley

Sarah E. Baxley is originally from Houston, Texas and earned her degree in Biology from Davidson College in 2004. She spent the past year working at the NIH developing a genetic model to study retinitis pigmentosa, a neurodegenerative disease of the retina. In her spare time, Sarah enjoys arts and crafts and singing.



John Hammond

John C. Hammond attended Lafayette College where he earned a degree in Behavioral Neuroscience in 2003. Since then, he returned to his home state and began work at the Wilmer Eye Institute of Johns Hopkins University where he

was involved in a number of projects focused on glaucoma research. He plans to further pursue his interest in neurology with a focus on neurodegenerative diseases.



Kayci Huff

Kayci R. Huff is a Missouri native who attended the University of Miami, Coral Gables. She graduated in December 2004 as a Microbiology/Immunology major along with minors in Chemistry and Spanish. Before coming to Birmingham, Kayci worked on cruise ships for about two and half months, stopping in places like Barbados and Antigua. She plans to continue her interest in studying immunology here at UAB.



James Gladden

James D. Gladden is a native of Jasper, Alabama and completed his degree in Biomedical Engineering from UAB this past May. Having enjoyed his undergraduate experience at UAB, he sought to stay on campus for his graduate work.

New Shelby Interdisciplinary Biomedical Research Building

by *Brian Dizon*

In April 2002, ground was broken at the site for the Shelby Interdisciplinary Biomedical Research Building, a state-of-the-art facility that will have a tremendous impact on clinical and basic research at UAB. Once completed, the 12-story, 340,000 square foot Shelby Building will increase research space at UAB by 25%, generate \$100 million in new grants, create at least 1,400 new jobs, and house four programs:

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Autoimmunity and Immunobiology:

Currently scattered throughout the UAB campus, clinical and research faculty in the Divisions of Clinical Immunology and Rheumatology, and Developmental and Clinical Immunology, as well as those with interests in mucosal immunology, will relocate to the Shelby

by Yawar Qadri

As a new member of the MSTP, you have likely been bombarded with advice from friends, family, faculty, and the older students in the program. Having gone through the process in the last few years, we thought it would be helpful to present you with the best pearls of wisdom that we've found during our time in the program.

The 1st year here at UAB forces you to evolve. Thrust into a new environment, you must adapt and survive. The amount of information can be overwhelming, but you quickly learn to filter out the important facts. You will adapt to the grind of juggling medical school, graduate school, and your personal life. Tests and crises will come in waves; be sure to keep yourself working at a steady pace so you are not caught unprepared.

In retrospect, it is critical to find a group of friends who can take their coursework seriously and yet still remind you of life outside of your small sphere. The course load can become your life, so remember that the real world doesn't grade you on your grasp of gross anatomy. You were more than a student before you got here—don't forget that.

Remember your goals. You are here to be a medical scientist, not a pure physician. Work towards this goal instead of focusing solely on your courses. Designate time to think about your future PhD mentors and upcoming rotations. Talk to the older students and learn from their experiences.

Lastly, try to attend lectures or seminars given by professors with whom you are interested in working. Though these often

get pushed aside due to coursework and other commitments, they can provide valuable information about the faculty members. You will be able to see firsthand the way a researcher interacts with an audience, presents information, and handles questions. Experiences such as these will give you a great preview of their potential as a mentor.

The 2nd year in the MSTP can be a bit easier. You have already adapted to the workload and after dealing with the schiz-

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ophrenic graduate and medical school curricula of the 1st year, you will likely find it refreshing to focus only on your medical studies. However, it becomes easy to lose the graduate skills of processing and applying knowledge while caught up in the medical school mantra of absorbing and regurgitating facts. Thus, try to attend some of the graduate school seminars. This slight change of venue is helpful to remind you of where you are going and also can help to reinforce your classes.

A large amount of the workload during the 2nd year occurs outside of the classroom. There will be numerous quizzes, checklists, and small items that will occupy your time. Find a system that keeps you organized. There will always be something looming on the horizon, but you shouldn't let that ruin your weekend. Remember to protect time for seminars and interactions with possible PhD mentors.

The medical school will be working full tilt to prepare you for the USMLE Step 1 exam. Pathology and pathophysiology are the cornerstones of the exam and you will be well versed in these subjects by the end of the year. Keep up with the coursework, do the reading, and try hard to look over the First Aid for the USMLE Step 1 review book. It may not help with your coursework, but it is your lifeline for the first step of the licensing exam. If you have skimmed it once, you will be a step ahead when you are preparing for the exam in May/June.

After your first two years, you must decide on a lab within one of the graduate school departments. Much like any other decision, there are many variables that must be considered. In an ideal world, one would look only at the research and decide based upon the science and caliber of training one would receive. Realistically though, you need to consider the personality and portfolio of the mentor, the composition and disposition of the lab, the stability and quantity of funding, and the projected length of the project. Expect to have doubts and remember to seek out older students for advice. For many, the time it will take to earn the PhD is the biggest concern. Again, this is a very personal decision but consider this: the time will pass anyway but the experiences you have will last until dementia kicks in.

Once you have chosen a mentor, the next hurdle is to decide on a project. The sooner you formulate a plan and a committee, the faster you will be done with your PhD. Once you have a project written, consider applying for some sort of funding. Most of the graduate departments require your project be written in a

Conferences and Presentations:

- **Kevin Nash** presented an abstract at AACR this year titled “KISS1 maintains metastatic suppression by inhibiting growth at the secondary site”. Also, he won first place at the graduate student research day for best oral presentation with his talk on the same topic. He also wrote a review slated for press in January 2006 in the journal *Frontiers in Bioscience* with the title of “The KISS1 Metastasis Suppressor: Mechanistic Insights and Clinical Utility”.
- **Rizwan Akhtar, Jennifer Guimbellot, and Victor Lin** attended the 46th Annual National Student Research Forum, University of Texas Medical Branch, Galveston, TX on April 29, 2005. **Rizwan Akhtar** earned the James E. Beall II Award in Neuroscience, **Jennifer Guimbellot** received an Award in Human Genetics, and **Victor Lin** was given the Center for Aging Award.
- **Rizwan Akhtar and Nate Weathington** attended the 20th Annual National M.D./Ph.D. Student Conference in Keystone, CO on July 29, 2005.
- **Jennifer Guimbellot** will be presenting a poster at the 19th Annual North American Cystic Fibrosis Conference in Baltimore, MD., October 20-23.
- **Matt Alder** attended a meeting in January 2005 in Marseille, France titled “The Road Ahead: Future directions in Fundamental and clinical immunology”. It was both a review of advanced immunology and a meeting where new research was presented. Matt was the only student of about 400 that was from the United States.
- **Tanya Rege** presented posters at two recent conferences: the American Thoracic Society International Conference, May 20-26, 2005, in San Diego, CA and the American Society for Cell Biology 2005 summer conference on systems integration in directed

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National MD/PhD Conference Panel on Future Career

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by *Rizwan Akhtar*

Every year, the MSTP at the University of Colorado Health Sciences Center hosts the National MD/PhD Student Conference. A highlight of this conference is a panel of recent MD/PhD graduates who discuss their perspectives on training options for physician scientists. Similar to the panel held at this year's UAB MSTP retreat, the panel members had many interesting points concerning the early careers of MD/PhD graduates, which are summarized below.

- Most panel members spend between 10-33% time in clinic.
- When selecting a residency program, try to pick the one with the best clinical training. Ultimately, you may go from 100% clinical time to somewhere around 20% time, so your skills will atrophy unless your residency training was excellent.
- Doing less than 20% clinical time may be unsafe, depending on the specialty. It is easier to keep up with the trends, treatments, research directions, etc. of your specialty if you have a narrow clinical niche or focus.
- During the third year of residency, identify a strong post-doctorate lab at your fellowship institution with good role models.
- As a fellow, write as many grants as possible.
- Your fellowship lab should be a “top lab” with the latest technologies and skills available to you. The lab or the PI does not have to cater directly to your research interests, but they do need to know how / why / when / where to publish in the top journals of your field of interest.

When looking at different departments and institutions, make sure the chairperson / program director understands 1) how you are

different from the other MDs, and 2) what exactly your career goals are.

Competitive residency programs will differ in whether they are interested in someone with top clinical skills, top research skills, or both. You have to find out what the tastes of individual residency programs are before interviewing. One panel member gave the example of his program where they will not rank people with relatively weak clinical skills, despite the fact that you have a Nature or Cell paper. The reasoning is that his program has so many hospitals and is very spread out so residents have to be independent very quickly. Other programs may have more direct mentoring during clinical training so they may be interested in people with top research even if their clinical skills aren't that great.

The transition from a fellow to an attending is much easier than the transition from a post-doc to an independent investigator. It is “easier” to prove yourself as a superb clinical person than a superb research person.

When starting your own lab, the HHMI publication “Making the Right Move” (<http://www.hhmi.org/labmanagement>) was highly recommended.

Be assertive when asking for protected time, space, money, technicians, etc. The powers that be will not volunteer to give you these resources if you don't ask for them. Do not re-invent the wheel; delegate lab responsibilities and draw on the expertise of others.

Two panel members were married to each other, and said the first four years with children were very hard. They had to find, and pay for, a “Mary Poppins-like home care team.”

cell motility, July 27-30, 2005, in Seattle, WA.

- **George Atkinson** was awarded an immunology training grant
- Graduate **Gautam Prasad** received a 2-month clinical and research fellowship in Radiation Oncology at UCSF.
- **Kisani Ogwaro** is attending the 9th International Conference on Malignancies in AIDS and Other Immunodeficiencies in Bethesda, MD on September 26-27.
- **Chris Dodd** is on an institutional Training Grant in the Division of Rheumatology.

Congratulations MSTP's Newest PhDs

As many students in the program work hard in the laboratory to complete their graduate work, six MSTP students have finished and are entering back into the clinic. **Tom Bender** defended his work on "Cancer incidence among semiconductor and storage device manufacturing workers" on December 28, 2004 and graduated in May 2005 under the direction of mentor Elizabeth Delzell in Epidemiology. **Long Phi Le** finished in May 2005 with the dissertation entitled "Genetic adenovirus labeling system for detection of viral replication and spread" with the guidance of mentor David T. Curiel. **Sam Keros** graduated from the Neurobiology department under mentor John Hablitz. On June 10, he presented his work on "Inhibitory Mechanisms in Rat Neocortex". **Nate Weathington** defended his work on "Peptide agonists and antagonists of a novel pathway in neutrophilic inflammation" on July 8, 2005. Weathington studied with mentor J. Edwin Blalock in the department of Cellular and Molecular Physiology. **Juan Torres-Reveron** completed his work on "Functional Properties of Subplate Neurons" and graduated from the Neurobiology department in the Spring of 2005 under mentor Mike Friedlander. **Mark Stonecypher** defended "Activation of Neuregulin-1/ErbB Signaling Promotes Proliferation in Human Schwann Cell Neoplasia" on August 15 under the mentorship of Steven Carroll. Congratulations to everyone and good luck in the transition back to the clinics.

Two UAB Programs Make U.S. News and World Report's Top 10

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Two UAB Hospital specialty programs made the Top 10 and nine specialty programs are ranked in this year's U.S. News & World Report's annual "America's Best Hospitals" issue, released in August.

Rheumatology was ranked sixth for an unprecedented 14th consecutive year; and Heart and Heart surgery has leaped from 25th to 10th during the last two years.

"Once again, these rankings are a testament to the outstanding faculty and staff here, and the high-quality and cutting-edge health care services they provide," says Dr. Robert R. Rich, UAB senior vice president and dean of the UAB School of Medicine.

The annual rankings rate hospitals in 17 subspecialties. In 12 of the 17 subspecialties, rankings are based on three equally rated criteria: reputation, death rate, and care-related factors such as nursing and

patient services. The others are ranked based on reputation, as recommended by three percent or more of board-certified physicians who responded to U.S. News surveys in 2003, 2004 and 2005. All 6,007 U.S. hospitals were evaluated. Of those, only 176 hospitals scored high enough this year to rank in even a single specialty. Most of the hospitals in the rankings are referral centers.

Other UAB programs ranked include: Cancer, ranked 22nd; Ear, Nose and Throat, ranked 29th; Geriatrics, ranked 27th; Gynecology, ranked 15th; Kidney Disease, ranked 15th; Neurology and Neurosurgery, ranked 35th; and Orthopedics, ranked 34th. Cardiology has been ranked for the past 10 years and gynecology for seven years. This is the 16th year that U.S. News has published its "America's Best Hospitals" issue.

MD/PhD Grad Receives Four-Year Award to Study Brain Injury in Infants at UASOM

Brian Sims, UASOM MD/PhD graduate and current third-year postgraduate fellow with the UAB division of neonatology in the Department of Pediatrics, has received a \$328,000 grant from The Robert Wood Johnson Foundation (RWJF). Dr. Sims will use the four-year grant to research strategies to protect against cerebral palsy in premature infants. The grant is part of an on-going core program of the RWJF, with the objective of increasing the number of minority faculty who achieve senior rank in academic medicine and foster the development of successive classes of minority physicians.

The program awards four-year postdoctoral fellowships in biomedical research, clinical investigation, and health services research to minority physicians who are prepared to devote four consecutive years to research and committed to academic careers. They must be U.S. citizens, have excelled in their education and completed formal clinical training as residents.

After completing his undergraduate and graduate degrees at UAB and UASOM, Dr. Sims completed a MD/Ph.D. clinical research fellowship and a pediatric residency at Washington University School of Medicine and St. Louis Children's Hospital.

Five Graduates in 2005!

There were five MSTP students who completed the program in the spring of 2005. Everyone was accepted into exceptional residency programs and we are very proud of all of them. Three will be completing their residencies in Boston, MA, one in St. Louis, MO, and one here at University of Alabama in Birmingham.



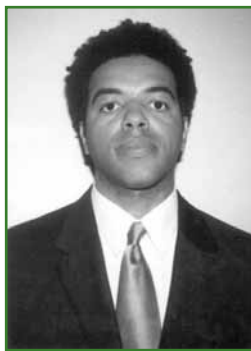
Kimberly Parkerson

Kimberly Parkerson has moved to Boston, MA where she is completing her General Medicine year at Brigham & Women's Hospital. Then she will start her Neurology residency at Massachusetts General Hospital in 2006.



Joshua Short

Joshua Short matched in General Surgery at UAB.



Tommy Thomas

Tommy Thomas is also currently at UAB doing his General Medicine year before he heads to Boston, MA., to complete his Neurology residency at Massachusetts General Hospital.



Brian Van Tine

Brian Van Tine matched in Internal Medicine at Washington University in St. Louis, MO.



Duane Weseman

Lastly, **Duane Weseman** is training in Internal Medicine at Brigham & Women's Hospital in Boston, MA. Congratulations to everyone.

From the Director's Chair

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by *R. Pat Bucy, MD, PhD, Director MSTP*

I hope you enjoy reading this edition of the Vulcan Newsletter and learning about the activities of the UAB Medical Scientist Training Program. This Newsletter is organized by the MSTP



students and is the result of the hard work of the student editors and contributors for this edition. As you can see, the program has had another very successful year and we are all excited about the continued growth and enhancement of the program. We had a record number of applications last year and we successfully recruited an outstanding group of new students. Applications for next year's class are coming in at a pace ahead of even last year's strong pace.

I would also like to welcome Dr. Lou Justement as the Assistant Director of the program, who joins Dr. Gerald Fuller and myself to oversee and facilitate the program curriculum and activities. Thanks again for reading our Newsletter and please feel free to contact any of the Faculty Directors, or the program coordinator, Ms. Kellei Johnstone (MSTP@UAB.EDU), if you have any questions or need further information about our program.

P.S. Coming in next newsletter, more about the new Assistant Director, Dr. Lou Justement



NIH Praises UAB MSTP in Site Visit⁶

By George Atkinson

As part of the renewal process for the Medical Scientist Training Program Training Grant, the National Institutes of Health recently sent a group of distinguished scientists from across the nation to review the UAB MSTP. The resulting report is decidedly enthusiastic and reveals the NIH's belief that the MSTP at UAB continues to be one of the nation's strongest physician-scientist training grounds.

In the past years, the renewal process for MSTP training grants has become increasingly competitive for a number of reasons. First, the NIH has fixed the number of total positions to fund across the country; limiting the supply of important federal funding for MSTP slots. Furthermore, each renewal cycle sees an increase in the number of institutions seeking to begin an MSTP, increasing the

overall demand for this limited funding. With this competitive atmosphere, many institutions are being granted fewer NIH-funded positions.

Despite these alarming trends, the MSTP at UAB not only retained all of its current slots, but was recommended to receive an increase in slots over the next five years. Overall, UAB's program was judged to be "Excellent".

The report from the review committee demonstrates many reasons for the recommended increase in positions and funding. One of the most common themes throughout the review was the success of the MSTP in integrating the realm of discovery with the understanding and treatment of human disease. In their summary the reviewers note, "The program is thoughtfully structured with several unique features that strengthen the cross-training between the medical

and graduate phases ..." In particular, the committee appreciated the combined medical and graduate curricula during the first year, as well as the monthly seminar on translational research.

The reviewing committee was also encouraged by their discussions with Dr. Robert Rich, the new dean for the medical school. One reviewer noted that "Dr. Rich pledged support for the program and the desire to increase the MD/PhD entering class to "approximately 10% of the annual medical school class." With statements like these, Dr. Rich has displayed an ambitious agenda for the future of biomedical research at UAB. Students and faculty are confident that he will continue to be a strong advocate for the MSTP in the years to come.

A final theme in the report was a high regard for the program leadership. The reviewers note that Dr. Pat Bucy and Dr.

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Welcome New Students

He plans to pursue his interests in electrophysiology and cardiothoracic surgery. James enjoys outdoor activities such as wakeboarding and fly fishing.



Aimee Merino

Aimee M. Merino is a native of Indiana and attended Indiana University. After earning an Associate Degree in Nursing in 2001, Aimee worked as an RN in a neonatal intensive care unit. Continuing at IU, she earned a Biology degree this past spring. Among other things, Aimee enjoys painting and writing. She recently submit-

ted a children's book about the birth of a premature infant and its impact on an older sibling for publication. Aimee has a six-year old son who is excited about the move to Birmingham.



Nicholas Reish

Nicholas J. Reish is from Michigan and earned a degree in Molecular Biophysics & Biochemistry from Yale University in 2004. Over the past year, he continued his work in this department studying SynCAMS, a family of synaptic cell adhesion molecules found in the brain.

Nicholas is fluent in French and plays the violin. He has a keen interest in synapse formation and may continue to pursue those interests.



Ryan Wells

Ryan M. Wells is from Idaho and attended Brigham Young University where he studied Botany. Ryan went on to earn a Master's degree in Medicinal Chemistry at Idaho State University in 2003 and completed his PharmD from Idaho State this past May. A testament to his avid interest in outdoor sports, Ryan climbed Mount McKinley, the highest mountain in North America, just before his relocation to Birmingham.

New Shelby Interdisciplinary Biomedical Research Building

Building upon completion of its first phase in September 2005. For Robert Carter, MD., “[the Shelby building] is essential to bring together groups that have focuses on basic immunology and those with expertise in immune-mediated diseases.” With the commingling of basic research and clinical immunology faculty in a single facility, researchers will have more opportunities to understand disorders such as rheumatoid arthritis, type 1 diabetes, and multiple sclerosis, which are associated with immune system dysfunction.

Neurobiology: Housed on floors 8-12 of the Shelby building, the Department of Neurobiology has established new programs to conduct translational studies in the neurosciences. A program named The Brain Initiative will focus on elucidating the brain’s adaptive responses to injury or disease, such as behavioral disorders, spinal injuries and brain tumors. Another program, the Evelyn F. McKnight Brain Institute, will strive to study the effects of aging on brain function in hopes of minimizing age-associated impacts on learning and memory in humans. Dr. Harald Sontheimer, PhD, is enthusiastic about the impact of the new facility on research in the neurosciences at UAB: “It is probably fair to say that we will see an explosive growth in the Neurosciences over the next 5 years with tremendous potential.”

Biomedical Engineering and Bone Matrix Research: Located on the seventh floor, this program is a collaboration between the Center for Metabolic Bone Disease, UAB School of Engineering, and the Cell Adhesion and Matrix Research Center to focus on the interface between biomaterials, bone, and matrix. Diseases such as osteoporosis and joint disease are becoming exceedingly common, and research through this program hopes to benefit patients who need implant devices, such as hip and knee replacements.

UAB Diabetes Research and Training Center: The establishment of this new program is designed to foster an interdiscipli-

nary collaboration between numerous research and clinical faculty with expertise in diabetes and supply them with the office space, research space, and equipment needed to build a diabetes center of international prominence.

The consolidation of research and clinical faculty with similar interests will benefit students by establishing an environment conducive to collaboration. Dr. Carter believes that the relocation is a necessity for training students in translational research: “Having the two separate labs [to accommodate studies involving both basic mouse models and human patient work] has made teaching students difficult and has made recruitment harder, so bringing the Immunobiology and Rheumatology groups together is very important for researchers like me who do translational studies.” Moreover, Dr. Louis Justement, PhD., is certain that the Shelby building will promote a better research experience for graduate students at UAB by “fostering day to day collaboration and the development of new research initiatives that might not happen otherwise. Students in the MSTP will benefit by being able to work in

a highly interactive and focused research environment. The ability to consult with other faculty and students who share common interests and are located in close proximity should prove to be quite exciting.”

Located at 1825 University Blvd, the Shelby Building was designed with a number of neoclassical features that will make it an eye-catching addition to the UAB campus. The exterior of the structure is brick, natural limestone and granite, and contains hand-tooled cornice pieces. At its front entrance, a three-story rotunda embellished with glass, copper, and Grecian columns will provide an appealing focal point. Other important projects include the construction of two bridges that connect the Shelby Building to nearby parking decks, as well as an adjoining 105,000 square foot, five-story support facility.

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NIH Praises UAB MSTP in Site Visit

Gerald Fuller have done an excellent job of strengthening the program since 2002, when they began their current tenure as Program Director and Associate Director, respectively.

Upon hearing the results of the NIH review, students were excited and proud. Lauren Van Duyn, who has just begun the graduate phase of the program, said “It’s great to be a part of a program that was reviewed so well! This is going to be a very positive development for the future of our MSTP.” Second year medical student, Travis Lewis, agreed that the site review would be helpful for the program. “I’m glad to see that we scored so well. This type of review shows the public and our applicant pool just how strong our MSTP is here at UAB.”

SURVIVING THE BASIC SCIENCE YEARS

grant format for your qualifying exam. Thus, with some effort, your qualifying exam can become a foundation for an actual application for funding. The School of Medicine offers information about the general process of acquiring funding and writing grants at www.uab.edu/uasom/research. They provide links to possible funding opportunities as well as links to free resources such as www.grantsnet.org. Use these resources and begin to build your curriculum vita.

Most importantly, remember that your life is not on hold, so keep living it. Also, prioritize your family and friends, as you will enjoy and remember them far longer than your grades. We all hold ourselves to high standards, but we must not forget that our lives are measured not by the numbers but by the memories, not by the grades but by the experiences, not by the positions we hold but rather by the people we hold dear.

Congratulations

- Chris Yuskaitis got engaged.
- Chris Dodd just bought a house in Chapel Hills Subdivision in Fultondale.
- Kevin and his wife, Nicola, bought a new house in the new development Caldwell Crossings between Acton Rd and Valleydale Rd.
- David Mayhew bought a townhouse on Ashwood Lane in Homewood.



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