Over the last few months, there have been some new developments both within and outside the Microbiology and Immunology Program/Department. The qualifying exam set up and the recruitment process for prospective students have been tweaked following recommendations from students. Also, the second Biopark building, where a new research center, the Institute for Genomic Sciences, together with some pharmaceutical and biotechnology companies are going to be housed, is finally ready.

As always, the year began with the second year students taking their qualifying exams. However, for the first time students were allowed to use computers (without internet) to type in their answers as opposed to writing them out by hand, as done previously. The computer center in MSTF was used for this purpose. Most of the second years agreed that this was a better system, as it allowed them to edit their answers without having to erase everything out—thus shortening the time they spent on the exam and making it less stressful.

February and March brings in the eagerly awaited recruitment season and this year was no different. Current students look forward to meeting and interacting with the applicants, some of whom may become a part of the student body in the months to come. There is always the added attraction of free lunches and dinners of course, not to mention the happy hours! The 2008 recruitment season was an immensely successful one. To begin with, the Microbiology and Immunology Program received a record 121 applications, out of which 32 national and 24 international applicants had GRE scores of over 1200—an all time high. From this year onwards, the admissions committee members and other faculty interviewed applicants on a one to one basis rather than in pairs. June Green, Program Coordinator, said that this worked out well but it meant that she needed more current students as volunteers. She said that over 25 students helped out and that she was...
With this issue of the Microscoop, I would like to introduce a new column discussing our impact on the Baltimore/Maryland community.

One of the things that struck me about our department is the community involvement of our students, faculty and staff. Most of us desire to improve the quality of lives of others through our work, but the payoffs are often long-term and sometimes difficult to foresee. I think for that reason, many of us desire to make an impact in a more tangible way and are involved in social and environmental endeavors.

With this issue, I would like to begin by sharing my involvement with a church youth program in the inner city. In the future, I would like to highlight the efforts of members of our department. Through this column, I hope to encourage others to get involved as well as recognize the work of those who strive to improve our community.

MetroKidz at Charm City Church

Through a complicated network of people leading from Rhode Island to Kansas to Baltimore, my husband and I found a youth program called MetroKidz (MK) operating out of Charm City Church (CCC) on 2001 Frederick Avenue in west Baltimore, run by Pastor Mike Kemper and MK coordinator Colleen Smith. On Wednesday nights, MetroKidz runs a Christian youth program with Bible lessons, games, sports activities and dinner for kids ranging in age from 3 to 18 years old. Once or twice a month, instead of lessons, we hold events where people from the community speak to the students. The program is still growing, but the pastor and MK coordinator envision many new programs including tutoring, computer lessons, young mother classes, etc. CCC welcomes any and all people from the community including drug dealers, addicts, etc. as long as they have a sincere interest in hearing about God. CCC strives to provide services for the people in the community including a recently begun Work Fund program where the homeless men and women who come to the church can do odd jobs for pay so they don’t have to resort to begging for money.

I live just a dozen or so blocks east of this church, but was fearful of going more than one or two blocks west having heard that this was a rough part of town. Indeed it is. On my first excursion to Charm City Church (CCC), I saw many of the things that I was fearful of in those neighborhoods, drugs, prostitution, addictions, crime. What I learned was that the kids who participate in the MK program deal with this everyday and live in these environments in their neighborhoods, their schools and even their homes. I was overwhelmed, but I clearly knew that this was where I could contribute. I found a role assisting the pastor’s wife in teaching lessons to 4th, 5th, and 6th grade girls, but my role went well beyond that, growing into an interaction with all the kids, seeing them every Wednesday, gaining their trust, providing structure and showing them sincere love and concern. We’ve recently begun monthly excursions with our class with activities like picnics, movies, etc. to get to know them better outside MetroKidz.

These kids are certainly hardened by their experiences, but they still desire to be loved. Though I have only been working at MK since September, I have seen great changes in the kids I work with, better attitudes, less discipline issues, and more willingness to open up to me. I ask them about their dreams. Many desire to be doctors, nurses and teachers. Some simply dream about their families being reunited or to be good mothers/fathers to their children. While I could never understand what our kids endure daily, I thank them for sharing their lives and allowing us to make an impact on their lives, albeit small. I hope that by assisting these kids, helping them cope and showing them that they can resist the negative influences around them that they can achieve their dreams.

If you would like to share your work and how you impact the lives of others, please contact me at 1234567890 or email me at mhayes@example.com.

“This saw many of the things I was fearful of... [the kids] deal with this everyday and live in these environments in their neighborhoods, even their homes”

Guest speakers come into to talk to the kids. In February, “Abe Lincoln” came to speak to the kids, they had lots of questions.
“NEWS” CONTINUED

“extremely grateful” for their support. At the end of each of the recruitment sessions (held on 3 consecutive Fridays), Happy Hours were organized, which allowed current students, post-doctoral fellows and faculty a chance to get to know the applicants better. This was followed by ‘after-happy hours’ at Bedrock and Pickles! This year the program is going to take 8 students- which include 1 international student and 2 MD/ PhD candidates. So far 3 students have accepted offers from the program.

The UMB Biopark II will officially be open from April 2008 onwards, which means that Dr. Claire Fraser-Liggett and other faculty will soon move into the new building and become a part of the Institute for Genomic Sciences (IGS). Barbara Wright, Senior Accountant will leave the Microbiology and Immunology Department and join the IGS. She will still be interacting with the MMI Program though. President Ramsay together with the Board of Directors of the UMB Research Park Corporation are hosting a party on March 31, 2008 to celebrate the opening of building two and will launch the development of Biopark-III. When

“NEWS” CONT.

time faculty member at UMB, he is looking to collaborate with other faculty members. He hopes his experience, knowledge, insights, and scientific reputation will serve as a synergistic value in acquiring research funding and sustaining a fun, productive group in a new lab.

Dr. Schmaljohn believes strongly in education and enriching the public in science and critical thinking skills. As a testament to this, he teaches science part-time at a local middle school. He enjoys noting the many similarities, and few differences, between teaching 8th graders, Army personnel, graduate students, and colleagues. He hopes to be able to continue educating students at UMB by participating in the Virology course and is more than willing to serve on thesis committees if needed.

Outside of science Dr. Schmaljohn enjoys bicycle touring, tennis, kayaking, recreational reading (both fiction and non-specialty science areas), and news television including CSPAN, the Daily Show, and the Colbert Report.

The Department is pleased to welcome back Dr. Alan Schmaljohn, just as he is pleased to give back to the institution through research, collaborative efforts, and student interactions.

GRANTS AND AWARDS

Dr. Abdu Azad had his RO1 grant titled “Murine Typhus: Vector Biology & Transmission” renewed until 2013.

Dr. Michael Donnenberg renewed his RO1 grant titled “The eae Gene Cluster of Enteropathogenic E. coli.” for 17-22 years (direct costs = 1,166,667).

Dr. Martin Flajnik was invited to edit an issue of Current Opinions in Immunology titled “Immunogenetics: alternative strategies in adaptive immunity and the rise of comparative genomics” Volume 19, 2007.

Dr. Gregory Melikian competitively renewed the NIAID RO1 grant titled “The Entry Mechanism Used by a Model Retrovirus” for 5 years (direct costs = 250,000/ year).

♦ Quan M. Nhu (Vogel lab) was awarded a Keystone Symposia scholarship to attend the Keystone Symposium (Innate Immunity: Signaling Mechanisms) in Keystone, Colorado (Feb 24-29, 2008), with funding provided by the National Institute of Allergy and Infectious Diseases (NIAID), BioDefense.

Dr. Hervé Tettelin received a one-year $52,734 grant from the International Livestock Research Institute, Kenya (prime sponsor: German Federal Ministry for Economic Cooperation and Development) for his work titled “Application of genomics and proteomics to camel Streptococcus agalactiae: development of vaccines and diagnostics to

Dr. Hervé Tettelin
NEW FACULTY AND STAFF

Since the summer our department has had a major growth spurt. Ellen A. Rorke, Ph.D. (Asst. Prof.) and Alan Schmaljohn Ph.D. (Prof.) recently joined the department along with several new faculty members through the Institute for Genome Sciences (UMIGS). They include Emmanuel Mongodin, Ph.D. (Assoc. Prof.), Julie Hotopp, Ph.D. (Asst. Prof.), Hervé Tettelin, Ph.D. (Asst. Prof.) and Joana Carriero da Silva, Ph.D. (Asst. Prof.). (We also featured new IGS faculty members in the fall 2007 issue.) Among the staff they bring are Pawel Gajer, Ph.D. (Res. Assoc., Ravel lab) and post-doctoral fellows W. Florian Fricker, Ph.D. (Ravel lab), Mark Eppingar, Ph.D. (Ravel lab) and William Hsiao, Ph.D. (Fraser-Ligget lab). Other new staff members include Diana Miller (lab assistant in the Feldman lab) and Rachel Griffin (Res. Asst. in the Vogel lab). We also welcome Mr. Olugbenga (Olu) Adewunmi, who replaces Barbara Wright, to the M&I Administration accounting team. Please welcome all our new department and GPILS faculty and staff!

PUBLICATIONS

- He, X., Q. Jia, F. Li, M. Saltis, Y. Liu, L. Xu, and Q. Zha. 2008. CD8+ T cells specific for both persistent and non-persistent viruses display distinct differentiation phenotypes but have similar level of PD-1 expression in healthy Chinese individuals. Clinical Immunology, 126: 222-234.
MEETINGS AND POSTERS

Dr. Nicholas Carbonetti will be giving a seminar at the Asthma and Allergy Center at Johns Hopkins University on April 9, 2008, titled “Immunomodulation by pertussis toxin during Bordetella pertussis infection of the airways”.

Dr. Martin Flajnik was invited to give seminars at Johns Hopkins (October), Vanderbilt University (Nashville, November), the University of Nebraska (Omaha, December), Mayo Clinic (October), and Cornell (Ithaca, February).

Dr. Cybele Garcia (post-doc, Lukashevich lab) presented a poster titled “Characterization of Junin Virus Inactivated Particles by Zinc Fingers Reactive Compounds” at the ASM Biodefense and Emerging Diseases Research Meeting in Baltimore, Maryland (Feb 24-27, 2008).

♦ Marco Goicochea (Lukashevich lab) presented a poster titled “A Recombinant Viral Vaccine Candidate Against Lassa Fever and Yellow Fever” at the ASM Biodefense and Emerging Diseases Research Meeting in Baltimore, Maryland (Feb 24-27, 2008).

Dr. Nicola M. Heller (post-doc, Keegan lab) will be presenting a poster titled “The type I IL-4 receptor complex selectively activates the tyrosine phosphorylation of IRS-2”, at the AAAAI (American Academy Of Asthma, Allergy and Immunology) Annual Meeting in Philadelphia, Pennsylvania.

Dr. Gregory Melikian was invited to give seminars at the Weizmann Institute, Israel (January), Tel-Aviv University, Israel (January), Dalhousie University, Canada (March), the Aaron Diamond AIDS Research Center in New York (March), and also presented a poster at the Biophysical Society Meeting in Long Beach, California (February).

♦ Quan M. Nhu (Vogel lab) presented a poster titled “PAR2 and TLR4: A novel paradigm for receptor cooperativity” at the Keystone Symposium (Innate Immunity: Signaling Mechanisms) in Keystone, Colorado (Feb 24-29, 2008).

Dr. Mark Shirtliff presented a seminar titled “Persistent Biofilm Infections” at Harvard Medical School, and at The Schepens Eye Research Institute in Boston, Massachusetts (November 1, 2007), as well as a seminar titled “Biofilms and Polymicrobial Infections” at Johns Hopkins University, Division of Infectious Diseases (January 9, 2008).

GOOD NEWS!

 Babies!

Stella Rose Dreher-Lesnick was born to Sheila Dreher-Lesnick (Azad lab) and her husband Sky on November 8, 2007.

Cole and Ophelia were born on February 3 to Zoe Worthington (Carbonetti lab) and her husband Larry. The twins spent a few weeks in the NICU but are now doing well at home and are over 4lbs each.

Sara Venø Shirtliff, daughter of Mark Shirtliff and his wife Birthe, was born on February 15, weighing 8lb 8oz. Both mother and daughter are doing well.

Isla Bree (pronounced eye-la bree) Morin was born to Cara and Nick Morin (Kaper & Nataro labs respectively) on February 16 at 8:27am; she weighed 5lb 12oz and was 19” long. She decided to come about 5 weeks early and spent several nights in the NICU for observation. She is home now and everyone is doing great!

June Green’s 2nd grandson, Otto, was born on March 20; he weighed in at 8 lbs & 4 oz and was 20 inches long. His proud parents are Anne & Ben Chenot and his big brother, Finn, is now 2.

♦ Marco and Lindsay Goicochea are expecting their first child (a boy!) on August 12, 2008.

 Cheers!

Dhan Kalvakolanu has been elected to the editorial board of the Journal of Biological Chemistry (JBC).

Nicole Ammerman & Khandra Sears (Azad lab) have both received travel awards to attend the 5th International Conference on Rickettsiae and Rickettsial Diseases. They were both selected to give oral presentations.

 News

Lisa Harrison (Kaper lab) is now Lisa Plemons; she got married on June 22, 2007.

Martin Flajnik’s daughter Ariel has the lead (Maria) in the upcoming musical, West Side Story, at Centennial High School April 2-5. Martin also watched every episode of Terminator: the Sarah Connor Chronicles, and fell in love with Cameron, the new terminator.

Kristen Burdette’s (Williams lab) brother, Marty, plays with the band Expressway which won Battle of the Bands at Fletcher’s on March 16, 2008.
SC: Can biofilms be used to our advantage? For example, in terms of drug delivery or waste management?

Dr. S: Yes, it can be used in waste management and in bio-remediation. For example, carcinogens like PCB and TNT are typically incinerated which results in pollution and costs a lot of money. Organisms that can dechlorinate PCB or break down TNT are allowed to form a biofilm around the dump site that will then break down the carcinogens. A biofilm matrix that has upregulated electron transfer systems has also been used as a layer between the two electrodes in batteries to generate electricity.

SC: Are biofilms typically made up of one kind of organism or could it be a symbiotic association of different species?

Dr. S: Yes and No. Infections in indwelling medical devices are usually seeded from bacteria in the blood and therefore usually have only one species. Biofilms associated with compound fracture injuries or diabetic foot infections are susceptible to biofilm formation with up to 20 different bacterial species due to environmental exposure. In the natural environment, it is almost always multispecies.

SC: Are biofilms sequestered from the immune system?

Dr. S: It depends on the bug. Early on, it is susceptible to the immune response. However, it can detach and multiply at another site. Quorum sensing agents then step in and upregulate virulence factors which are then turned down once the biofilm is formed. So this is something we are still trying to figure out.

SC: Is your research directed towards better diagnosis or prognosis?

Dr. S: Both. We would like to achieve better diagnostic strategies at the early stages of biofilm formation. Preventive strategies include designing vaccines against antigens that are biofilm-specific, knocking-out agents required for biofilm formation. Also, we are trying to manipulate the Th1-Th2 immune balance to skew it towards a more effective one.

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Unscramble the spring issue words below. Results will be published in the next issue.

1. ntriecuemt________________
2. ecsnsnosfeionmicceieltgru________________
3. tmridoezk________________
4. tyaohsccluopcs________________
5. rckobed________________
6. worktaopbi________________

Opinion Poll
Loves Jays pizza: 30%
Hates Jays pizza: 70%

Want your opinion heard? Look for our next poll in the fall!