THE MSTP POST

Director’s Note

DIRECTOR’S NOTE
BY DEANE MOSHER, MD

The training grant renewal went through the second level of review, Council of the National Institute of General Medical Sciences, “without problems.” What happens now depends on the Institute’s budget, a scary prospect. Because we command only a small number of slots, however, we should be better off than larger programs that need to protect more slots.

The two substantial issues raised by the Study Section concerned our publication record and number of courses required by some graduate programs. They thought we were making progress with publications, and that will only get better. Regarding courses, we can use the critique as a reason for MSTP students to take only the most essential ones.

The Study Section was OK with our plans to address the nine areas identified as critical for doing Ethical Conduct of Research and to bring students from under-represented minorities through our program. We cannot rest on our laurels, however. Jon and Rachel will work this summer to involve us more heavily in UW’s Summer Opportunities for Research Program (SORP) with the goal of sponsoring our own slots in SORP in 2012, and René and Farsh are working to insure that we complete this year’s seminar series with the required number of ethics-related sessions.

Other MSTPs are interested in how we have adapted our program to activities of our Institute of Clinical and Translational Research (ICTR) funded by our NIH Clinical...
Outside of the field of zoonotic diseases, the significance of livestock diseases is often overlooked. However, as Ted Griggs (M1, MSTP) demonstrated in his recent publication, this lack of interest is misguided for both scientific and practical reasons. In his lab at the University of Minnesota, he studied Porcine Reproductive and Respiratory Syndrome Virus (PRRSV). PRRSV was first isolated in the 1980s and has since taken an enormous financial toll on livestock farms; the virulence of the disease has increased significantly, and is now responsible for late-term stillbirths and interstitial pneumonia in pregnant sows and growing pigs. A member of the arterivirus family, PRRSV is one of a number of positive-sense, single-stranded RNA viruses that cause a wide range of non-human illnesses. This family was first discovered in 1957, and since its discovery, the structural and non-structural proteins of PRRSV have been extensively characterized. Nevertheless, the mechanisms of virulence, infection, and immune response have been frustratingly elusive.

Ted’s lab believed that the PRRSV genome contained additional open reading frames that coded for structural proteins essential to the virus’s function. After purifying and centrifuging cell culture lysates, they analyzed protein preparations of virions with mass spectrometry. Four separate preparations were revealed to contain a number of tryptic peptides located in an alternate open reading frame (ORF5a). ORF5a showed a relatively low level of expression compared to the non-alternative ORF5, indicating that there is some as-yet-uncharacterized basis of preferential expression. However, the protein encoded in ORF5a does appear to play a role in pathogenesis; pigs infected with PRRSV developed low levels of anti-ORF5a protein antibodies four weeks after infection, reaching a peak at seven weeks. This time frame, and the comparatively low levels of antibodies, may indicate that the ORF5a protein elicits a predominantly cell-mediated, immune response.

Structural analysis of the ORF5a protein sequence indicated that it is likely a membrane-spanning protein; it contains two cysteine residues at the edge of the putative transmembrane region, which indicates that it could form disulfide bonds needed to promote oligomerization with other viral proteins. A comparative genomic analysis showed that all arteriviruses encode a highly similar ORF5a protein, with the same potential transmembrane domain and a highly-conserved R/Q-rich endodomain, a feature which has been shown to be involved in RNA binding.

Given the huge financial burden of PRRSV, the discovery of a novel structural protein that is an intrinsic part of the viral lifecycle is extremely exciting, as it provides a potential target for vaccines. However, from a purely biological standpoint, the fact that this alternate reading frame is so well-conserved in a wide variety of other animal viruses is just as fascinating. Based on the presence of the R/Q rich domains and the transmembrane domain, the lab hypothesized that this protein is involved in RNA transport, processing, or packaging. The discovery of ORF5a’s importance likely extends to the entire Arteriviridae family.

Nice Work Ted!

and Translational Sciences Award (CTSA). MSTP students deserve much credit for making this work. We will be exceptionally well-positioned to build upon and solidify this progress with the return of Brad Schwartz to Madison from Illinois, where he has been Regional Dean of the Medical School (http://mcb.illinois.edu/faculty/profile/schwart2). Brad will be Director of Research Education and Career Development of the ICTR and a third Associate Director of the MSTP. Brad directed our MSTP in 1997-99 and is looking forward to being involved again. He is due to start in early April and will try to attend our Symposium on March 29.

Kelli Pointer of the current Med I class will join the MSTP in May as the first to accept an offer from this year’s roster of candidates. Kelli has a prior commitment that conflicts with our activities on Wednesday afternoon this semester but we all should do what we can to welcome and involve her in our program.

Otherwise, there is no action on the recruitment front. We have made a number of offers, many holding our offers have offers from other programs, and we are ready to make more offers. Lisa and the program did a great job with the recruiting visits and showing off our program. I am confident that we will bring in an exciting class.

Deane
**M1 Interview: Aman Prasad!**

**BY BRITTANY YOUNG AND JASON CHIANG**

*Tell us about yourself. Like...how did you end up in Wisconsin??* Well, after I interviewed here, I knew this was where I wanted to be. Funny story: I had randomly spent a summer here in 2004 (during high school and the first year the HSLC was open!) doing a research program for teenagers. Up to that point, I had never even been to Wisconsin. Although I loved that experience, I never imagined I'd end up in Madison for graduate school. Well, low and behold. This place was definitely the right fit and I love everything about Madison (even the cold and snow). I think it's a real privilege to get to live in a city like this. Most importantly, the people in our MSTP make every day great.

*What are you looking for in a soul mate?* Must have a soul and be willing to mate. Actually, judging by how my love life is going, I'll probably be setting up a profile on eharmony or match.com soon. Look out for "sexysurjin1234." And let's be honest: I'm probably going to find a lot of physician scientist profiles on there.

*What is your favorite place in the HSLC?* The views from the library are nice. But my favorite place is the atrium – it has a lot of energy and is a great place to enjoy a coffee.

*Do you have any funny stories to share with us about your classmates?* Oh, lots! I mean, my roommate is Ted Griggs (another MSTP M1). So I think that just guarantees some stories. But after that whole professionalism lecture on the first day of medical school...

*What do your classmates say when they find out you're an MD/PhD student?* They're all really positive and end up asking me about my research interests and such. I think we all blend really well as an M1 class.

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**Children of the MSTP Photos!**

**BY HEATHER TAFF**

Baby Jonah Mirer (son of Anna Mirer, G1) was spotted at the Capitol rallies this past week. He was apparently a big hit and had a very successful Baby's First Protest.
MSTP Photos!

BY HEATHER TAFF

I WOOD 4U... another plate captured by the MSTPost

GO PACK!!!
The delicacies shown above, made by some M2s, were key to the Super Bowl victory. Immediately after the censored cookie shown above was eaten, the Pack Attack started dominating Ben...

G1s Farsh at Anna at the Capitol

Ben Krasity gave a wonderful talk in Nottingham, England in January, where he was lucky enough to meet the famed Robin Hood (unfortunately only in statue form).
M1 Interview  Continued from Page 4

If medicine/basic science research didn't exist, what would be your alternate-universe career? I always wanted to be a Blue Man in the Blue Man Group. I like to eat and feed people so something in the realm of food would work too.

What is the one biggest obstacle constantly getting between you and all that studying you think you should be doing? Facebook stalking people. And refreshing NYtimes.com and WSJ.com. Seriously, I can quote you the news on any given day because I waste so much time on those sites. I also spend a few hours scanning the blogs: Politico, HuffingtonPost etc.

What's one thing still on your "Exploring Madison" to-do list? Summer restaurant week!

What's your favorite thing to do on a Friday night? Chill at home with Netflix (Dexter, anyone?), something non-electronic to read (like a magazine), and a coffee. Occasionally, I can find a crappy Jason Statham movie on instant streaming and, of course, have to watch that.

What's your favorite book of all time? Why? It has been so long since I've read something not related to school or science. I would say The Great Gatsby because I believe it's the one book I've read that best captures the era it's written about.

If you could ask Paul Cook any one question, what would it be? Paul: Do you think the government is hiding aliens in Area 51?

Tell us something interesting about yourself that nobody in the program yet knows. I like to think I put all of me out there for everyone to see everyday. That said, I'm looking for people to join me in the HSLC Atrium Streakers Club. We have plans to streak the medical school admissions tours.

What's your biggest fear? Having to raise children. I mean, have you seen teenagers these days? Props to my parents for surviving that three times over.

What doctor-skill are you most looking forward to learning/doing? Well, definitely cutting people open. But right now: transitioning to the patient sex history without letting out an awkward laugh. Gets me every time.

Besides water, what food and/or beverage would you not want to live without? Diet coke lime.

Name three unexpected things currently in your HSLC locker. All those junk handouts in our mailbox (SIG this, MoMS that), my stethoscope box, and a rotting orange.

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Gossip Alerts!

BY HEATHER TAFF

Andrew Wentland (G2) is currently teaching his toddler son Zaafir calculus, according to an unnamed source within his class. This blond classmate of his whose name begins with an O also mentioned an exuberance from both Wentland men over the new candy shop on State St.
Selected New MSTP Publications

A paper from Peter Chen:


A paper from Theodor Griggs:


Three papers from Andrew Wentland:


Cook’s Corner

What you always wanted to know about Paul, but were afraid to ask until now.

What is the worst job you’ve ever had? (Please don’t answer, “MSTP Administrator.”)

I had six months to wait before my job teaching English Conversation in Japan started, so I landed a job at Inland Chemical in my home town, Toledo, Ohio. This was a company selling chemicals to industries around town. My duties were to empty 55 gal. "drums" of used paint stripper using a pressure hose. The steel drums were often leaking in the yard; many had ballooned out from sitting in the hot sun. The pressure fitting didn't always seal correctly, causing a spray of used stripper and paint (lead?) to spread out everywhere, including on me. The gunk was then distilled to recover any usable chemicals with the remaining sludge being picked up by a guy named Ralph. He came at night, loaded his taker truck and said with a smile when I asked what he did with it, "I dump it on fields on my farm." The water table around Toledo is just below the surface.... it was a swamp before the early settlers drained it! No wonder there are health problems in America with these business practices! The whole plant was a barren wasteland, not even weeds grew there. It also happened to be on situated on the Maumee River. I feel lucky to have lived to tell the tales (there are more). Next worst job.....making fiberglass at Johns-Manville two summers. Ask me about that sometime!
THE MSTP POST

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N.B. The MSTPost is written, edited, and assembled by students of the UW MSTP. The views represented in the MSTPost do not necessarily represent those of the University of Wisconsin Madison, the UW School of Medicine and Public Health, or the Medical Scientist Training Program.