Program in Cellular and Molecular Medicine
at Boston Children's Hospital

HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

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JULY 2025 NEWSLETTER

Happy July, PCMM –

we hope everyone's doing OK. In this issue, we're taking a page from BCMP department's newsletter and starting an "Introductions" section to welcome new PCMM members. As always, if you have any suggestions for the newsletter, please let contact us at vera.gaun@childrens.harvard.edu and colin.smith@childrens.harvard.edu.

In this issue

PCMM Retreat Registration is Now Open!

When: Monday, Sept 15 - Wednesday, Sept 17th
Where: Sea Crest Beach Resort in North Falmouth in Cape Cod.

Please register here by **August 6th.** (An email with the same registration link has also been sent out to PCMM).

To register: please click "Refresh Connection" and "Allow" in the window that appears for SharePoint and/or Microsoft365 and proceed to the main page in Power Apps. In order to get an accurate seat count for our bus reservation and to avoid late cancellations, please be sure to confirm whether or not you will need the bus for the retreat.

Abstracts: the format is Last Name, First Initial, Middle Initial (Author, F. M.), poster title, and an abstract of 250 words or less. Please note that you can register for the retreat now and submit your poster abstract and information later; abstracts are due **August 15** at the latest.

For any questions, please contact James Falvo at James.Falvo@childrens.harvard.edu . We look forward to seeing everyone at Cape Cod!

Introductions: Ziqing (Anney) Ye of the Hur Lab

Photo: courtesy of Ziqing (Anney) Ye

Tell us about your role here at BCH.

I'm a graduate student in Sun Hur's lab. I don't have my own project yet, but for now I'm focusing on understanding the role of double-stranded RNA (dsRNA) in triggering the integrated stress response. Right now I work mostly with Dr. Max Paget, but soon I'll work more independently on that project, but of course with a lot of help from the other members of the Hur Lab!

Where were you before you joined the Hur Lab?

Before starting my PhD here, I was an undergrad at Johns Hopkins University, where I double-majored in Computer Science and Biophysics. Before that, I grew up in Shanghai, China, but went to High School in Pennsylvania.

What's your favorite thing to do in the lab?

I think my favorite thing to do is pipette things, I find it mesmerizing! I enjoy the physical process of manually moving reagents around. In contrast to purely computational work, you can sort-of relax and follow the protocol.

What's the best piece of advice you've ever gotten?

One piece of advice that's been helpful, that I got from my Structural Biology Professor, is that it's okay to make mistakes, as long as you keep improving. Also, that details matter! She stressed that you can't cut corners, because the quality of the experiment will deteriorate.

What are your hobbies outside of work?

My main one is Choir! Right now I'm part of the Harvard Summer Choir, and we have a free concert coming up on August 1st! [It's on Friday, August 1, at 8pm and held at Sanders Theatre, Memorial Hall.] We do a mix of classical music and spiritual music. My personal favorite is Schubert!

What made you want to pursue a career in science?

I wanted to help solve health problems, without necessarily having to interact with patients, because I'm an introvert. For me science is an intersection between my intellectual interests and what could be the larger good of human health. When I was little I loved watching BBC documentaries about animals, which is very different from modern day molecular biology, but I think that started my interest in studying biology.

If you had unlimited funding, what kind of research would you do?

If I had unlimited funding, I think I would do more niche biophysics research that might not be as translational, but is just cool. In particular, condensed matter physics!

Alumnae Careers

Tenure Track Assistant Professor: Dr. Hongli Hu

Congratulations to Dr. Hongli Hu, a former instructor in Alt lab, who recently started an assistant professor position at the University of Science and Technology of China, in Hefei, China. Dr. Hu shared a few thoughts about his experience on finding a faculty position.

Photo: courtesy of Dr. Hu

The application process: The following documents are required: cover letter, CV, statement of research accomplishments and a future research plan, and 2 (or sometimes more) recommendation letters. Having independent funding helps but is not required.

Dr. Hu started looking for faculty positions after finishing a *Nature* publication first, on which he was a senior author. He emphasized the importance of communicating about future plans in advance with one's PI. Planning in advance allowed sufficient time for the lab to recruit a new postdoctoral fellow and for him to "inherit" Hongli's knowledge and skills. In general, actively communicating with one's PI can help one gain more knowledge and experience beneficial for one's career. Dr. Hu comments: "Fred gave me many suggestions, such as which career directions I could think more about, and helped modify my research plan. He also kindly gave me many chances to attend meetings to talk about my work, make myself well-known."

To look for positions, Dr. Hu checked various universities' websites and sent his CV directly to the ones of interest. He also used his network extensively: he talked to colleagues and used websites like LinkedIn and Chinese social media apps. Additionally, former PhD supervisors can also be a great source of information about potential hiring institutes. In the Longwood Medical area, he learned about the Chinese Scientists and Scholars Association at Harvard Medical School, which holds seminars and recruitment presentations regularly. There, one can also learn more information about hiring in China.

For Chinese universities, the 2 main application cycles happen during spring and fall, and the selection committees respond relatively quickly to submitted applications. So, if Dr. Hu didn't receive a response after 2 weeks, he continued sending more CVs to other locations. In total, Dr. Hu sent out 5 applications and did 2 preliminary interviews online. (However, an applicant can choose to attend the preliminary interviews either in person or online, based on their situation, such as convenient time, cost, and visa status).

Interview process: The preliminary interview is the first step, where the applicant gives a 10–15 -minute general talk about their work, usually online. If one passes the preliminary interview, the in -person interview follows: it includes a 1-hour research talk, a tour of the institute, and (sometimes) interviews with individual PIs. For his research talk, Dr. Hu practiced quite a lot after work and

attended other faculty candidates' research seminars, as encouraged by Dr. Alt. Dr. Hu noted that it's important to consider competition from other applicants with similar research backgrounds and to highlight one's unique strengths to stand out. For him, the most challenging part of the application/interview process was two-fold: 1) being able to explain one's research accomplishments clearly 2) articulating one's research goals and why they're important.

Making a decision: Once Dr. Hu had offers to choose from, he made a comparison list of items like support and space offered as well as start-up packages and compared the advantages and disadvantages of each. For the start-up package, the employer has a standard range for new employees in the first 3 years. They are different among different universities, so you need compare and select the one that you like.

Growing the lab: Dr. Hu's lab will continue building on the immunology work he did in Alt lab (VDJ recombination in B cells), and he will also branch out into cancer research. He is now in the process of growing his lab: he has a lab manager (shared with 2 other labs), can also recruit grad students, and is getting his lab equipment ready. Dr. Hu also acknowledges the learning curve: he is now learning to communicate effectively with colleagues and to identify new collaborations.

Dr. Hu concludes: "If you want to find a good position in China, there are many opportunities. But you need to prepare yourself well enough because there are many competitors. For an academic field postdoc, a good result of your current work is the steppingstone for your application."

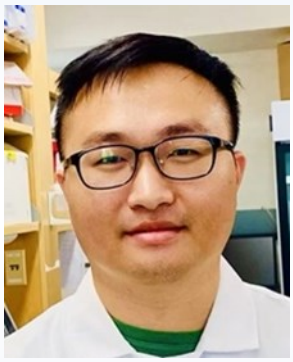
We thank Dr. Hu for taking the time to talk about his application experience and wish him the best of luck as he starts a new chapter in his career!

Faculty Honors and Recognition

Anne Goldfeld, MD, has been awarded the Jimmy and Rosalynn Carter Humanitarian Award from the National Foundation for Infectious Diseases (NFID). The NFID website notes: "The Jimmy and Rosalynn Carter Humanitarian Award is presented annually by the National Foundation for Infectious Diseases (NFID) to honor individuals whose outstanding humanitarian efforts and achievements have contributed significantly to improving global public health through domestic and/or international activities." Dr. Goldfeld is recognized for "her work as an extraordinary humanitarian and physician-scientist who has made transformative contributions to the basic scientific and clinical understanding of the HIV/TB disease complex and to building partnerships across the world."

Julia Li, PhD, has been awarded The Smith Family Award for Excellence in Biomedical Research from Health Resources in Action, to uncover a previously unknown fundamental link between human and viral DNA in both healthy and abnormal genomes. Dr. Li has recently discovered a cluster of Epstein Barr Virus (EBV)-like DNA sequences on human chromosome 11, which are bound by the EBV nuclear antigen 1 (EBNA1) protein present in 95% of the human population carrying lifelong latent infection with EBV, where binding can trigger breakage of chromosome 11. The Li Lab is now investigating how this cluster of EBV-like sequences contribute to both 1) normal functioning of chromosome 11 as well as 2) abnormalities of chromosome 11 found in human diseases like cancer and a spectrum of genetic diseases. The award will fund projects that employ genetic, biochemical, and unbiased genomics and proteomics approaches to reveal a fundamental link between human and virus co-evolution.

PCMM Researchers Win Prestigious Fellowships



Le Xiao, PhD, (Wu Laboratory) has been awarded a BCH OFD/BTREC/CTREC Career Development Award. The NLRP3 inflammasome is a central component of the innate immune system, implicated in a range of inflammatory and chronic diseases. Dr. Xiao employs state-of-the-art cryo-electron microscopy and biochemical approaches to reveal how danger signals like nigericin trigger NLRP3 activation, and how post-translational modifications regulate this process. In collaboration with leading immunology labs, Dr. Xiao also investigates small-molecule modulation of NLRP3, including a promising new compound with potential for tumor immunotherapy. This work not only advances fundamental understanding of innate immunity, but also offers a structural framework for drug development targeting inflammatory and autoimmune diseases.

Kai Xu, PhD, (Alt Laboratory), has been awarded an Irvington Postdoctoral Fellowship from the Cancer Research Institute. Dr. Xu studies how B cells improve their antibody responses through somatic hypermutation (SHM), a process that introduces mutations into immunoglobulin (Ig) variable (V) exons. Although the enzyme AID can act across the genome, SHM is highly restricted to V exons. The underlying mechanism for this restriction is long-standing question in immunology. Our preliminary findings suggest chromatin looping as a key mechanism in SHM regulation. As a CRI Fellow, Dr. Xu will use specialized mouse models with engineered Ig alleles to test how super-enhancers and chromatin architecture guide SHM. His work could reveal fundamental principles of immune regulation of SHM that ensure SHM specificity and, thereby, help preserve genomic integrity in B cells.