We sat down with Andrew Kruse, BCMP's newest faculty member, to chat about his road here and where his laboratory is heading.

Where did you get your start in science?
I grew up in the suburbs of Minneapolis, and I went to college at the University of Minnesota, mainly because it was close to home and it was cheap. I was interested in quantitative areas of biology, and I joined a structural biology lab during my sophomore year to get hands-on experience in research. I've been doing one form or another of structural biology ever since.

For graduate school you headed to Stanford to work on G protein-coupled receptors (GPCRs). What drew you to that work?
At the time when I was first applying to grad school, I knew that I wanted to do something involving structure and function of proteins important in human health and disease. GPCRs are critical regulators of most aspects of human physiology and they're targets for 30% of marketed therapeutic drugs. And protein conformational change signaling mechanisms, to me, are just really interesting: these receptors are molecular machines and I just think that's kind of neat.

While you were in grad school your advisor, Brian Kobilka, won the Nobel Prize in chemistry. How did you learn the news on the day of the announcement?
I actually lived right next to Brian while I was in grad school – a long story. I rented a little cottage behind the house of Brian's neighbor. On the day he won the prize, I got up and there were all these news vans lining the street. I wondered what was going on – I didn't know at the time – then I biked to work, and when I got to lab, everything was crazy.

What went into your decision to apply to faculty jobs directly out of grad school?
It was kind of a combination of things. I didn't feel like I needed to learn an entirely new field, because I knew I wanted to do receptor structural biology. Also, I felt like I was ready: I had the background that I needed, and I knew that the science that I wanted to do was an extension of work I had been doing as a grad student. With my thesis committee supporting my decision, it seemed like everything fit together.

For graduate school you headed to Stanford to work on G protein-coupled receptors (GPCRs). What drew you to that work?
**Kruse interview, continued**

**Are you at the bench a lot?**
I've been doing a lot of grant writing this last month, but in general, I try to be there about half the time.

**Are you eager to let the bench work go?**
No, actually. With all the grant writing, I appreciate bench work more. Initially, it's nice to take a little break from running gels and doing some of the more mundane things, but bench work is quickly becoming a more relaxing thing than writing all the time—writing gets to be a bit tedious, fast!

**Are you liking Boston?**
Yeah! I mean, it's a big transition from California, and the weather especially this past winter was pretty intense. My parents are in California, so I still get a chance to go back for the holidays.

**Do people in your lab call you Andy?**
I think people mostly call me Andrew. I don't really care what they call me! As long as I know they're talking to me, it's fine.

**What's the story behind the paperweight of a GPCR structure sitting on your desk?**
This is the active β2 adrenergic receptor in complex with the Gs heterotrimer. This is probably the most important structure I was personally involved with during my time in the Kobilka Lab. A postdoc in the lab [Søren Rasmussen] led the project, and I worked on the X-ray data collection, and did the structure refinement together with Bill Weis. When we were solving this structure, we were flying to Chicago basically once a week for data collection. We knew we had the real thing, but we needed to get a complete data set and we wanted to get higher resolution data. It was a very intense time— to get the structure solved, get everything refined, and get it written up and published as quickly as possible. At the time we thought someone else might have had a similar structure, though that turns out not to have been true.

**Puzzle: Who is this?**
Can anyone tell us the names of these mystery professors whose portraits are on the second floor of C-building?

Answers will be featured in the next BCMP newsletter!
Describe your science for us.

In the Chou lab, I study membrane protein structure using NMR spectroscopy. I recently determined the structure of a bacterial transmembrane reductase. This new structure led us to propose a new mechanism in bacterial thiol-redox regulation. It was the last missing piece in this big pathway and I’m pretty excited to get the story out there.

Why did you become a scientist? What’s the coolest thing about being a scientist?

I love having an idea, testing it, and then looking back over the results and seeing that my idea was correct (or that it was wrong, but that I’ve learned something else). This can happen in a day, or over the course of years—either way, I find it very satisfying. Also, I’m happiest at the bench. I love executing a well-planned experiment. Oh, and magnets. REALLY big magnets. So cool.

If you could ask any scientist, alive or dead, one single question, who would you ask and what would the question be?

I’d rather ask every single scientist, “Can you explain your work to anyone, any age, any background, so that they could understand it?” I think demystifying current science in the general population could go a long way toward supporting scientific growth in society. Also, we have Neil deGrasse Tyson and Bill Nye…but where is our supercool woman of science superstar? Let’s get our diverse voices out there!
Word on the Street

By Elissa Hobert and Jess Williamson

Q: If you were not a scientist in BCMP, what would your job be?

“Brew master”
James Kath, Loparo Lab

“Novelist”
Seung-Joo Lee, Richardson lab

“Writer for WB TV shows”
Joe Loparo

“Baker”
Jyoti Dev, Chou lab

“Full-time bird watcher”
Ethan van Arnam, Clardy lab

“Dive master”
Emily Mevers

“Writer”
Purba Mukherjee, Coen lab

“Gas station attendant”
Kevin McCarthy, Harrison lab

“Jedi Knight”
Thomas Graham, Loparo/Walter labs

“Singer”
Yujin Chun

“Chemist or engineer”
Andrew Kruse

Farewells

Buratowski lab postdoc Sebastian Marquardt is now an Assistant Professor at the University of Copenhagen.

Jessica Williamson (Chou lab) has joined Beryllium (Bedford, MA) as a research scientist.

Tanxing Cui (Chou lab) is now Senior Development Scientist at Scientific Protein Laboratories.

Degree in hand, Jacob Sargent (Loparo lab) is returning to the field of education.

Adem Koksal (Springer lab) joined MedImmune in Gaithersburg, MD as a research scientist.

Pontus Nordenfelt (Springer lab) is establishing his lab at Lund University in Sweden.

Jianghai Zhu (Springer lab) is now a senior scientist at the Advanced Biomedical Computing Center at Frederick National Laboratory for Cancer Research.

After earning her PhD, Shuai Li (Wagner lab) joined IBM in Armonk, NY.

Wagner lab visiting postdoc Xinjing (Sid) Jia returned to University of Queensland in Australia.

The Zhao lab said goodbye to technician Mayuko Segawa.

Milestones

Samir Sharma (right), the son of Mukesh Sharma (Chou lab), arrived on March 13.

Peng Du (Gregory lab) and his wife Lijuan announced the birth of their son, Andy Du, on November 24.

On December 14, Lizz Thrall and her wife Giselle welcomed their son, Henry “Hank” Worthy Schuetz-Thrall, shown below in an onesie designed by the Loparo lab at their baby shower.

Julien Duxin (Walter lab) and his wife Fernanda announced the birth of his son Felix on November 1.

Shunsuke Imai (Wagner lab) and his wife Chifumi were joined by their daughter Reika on December 18.

Mahmoud Nasr (Wagner lab), his wife Marwa Sabe and daughter Yasmine welcomed another daughter, Amina on December 27.
Wagner lab, cont.


Walter lab


Wong lab


Zhao lab


Career resources

The majority of biomedical PhDs pursue non-academic or non-tenure track science-related careers.* Harvard and the Greater Boston area offers a variety of resources to explore your options.

Career guidance for academic and non-academic jobs

Office of Career Services (for students)

http://www.ocss.fas.harvard.edu/students.htm

Events: Info events, consultation for resume writing and interviews, connection to Harvard alumni networks

Office of Postdoctoral Fellows

http://postdoc.hms.harvard.edu/

Events: Workshops, career panels, office hours for consultation

Harvard clubs (see links for listserve access)

Harvard Biotech Club

http://thebiotechclub.org

Events: Career fair (9/5/15), journal club every other week

Harvard Graduate Business Club

http://harvardgraduatebusinessclub.com/

Events: Mini-MBA program (every summer), monthly business journal club, finance workshops, entrepreneurship and career development events

Harvard Consulting Club

http://www.harvardgraduateconsultingclub.com/

Events: Consulting Career Fair (06/24/2015), MIT vs. Harvard Case Competition (8/17/15), weekly case/interview practice sessions, consulting workshops, panel discussion with consultants, networking events, information sessions with representatives from different firms

GSAS Science Policy Path

http://projects.iq.harvard.edu/sciencepolicy/home

Events: Faculty chats, yearly DC trip in the spring (preference toward graduate students)

DMS PATHS

https://www.hms.harvard.edu/dms/resources/paths.html

Individual clubs available to students, focusing on non-tenure track careers: Biotechnology, Consulting, Education, Law, Policy and Non-Profit, Science Writing; resources potentially available to start new clubs

Boston area organizations

Massachusetts Biotechnology Council

http://www.massbio.org/

Some events and resources may require membership, which may be available to those at HMS/hospitals

Massachusetts Association for Women in Science

http://mass-awis.org/

Biotech Tuesday

https://biotechtuesday.com/

*http://ascb.org/where-will-a-biology-phd-take-you/

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Trapped!

A harrowing true story of terror and survival!

Seven members of the Clardy lab became stranded in one of the C building elevators on April 21st. They were leaving the lab to get ice cream in the middle of a work day. The stranded individuals were able to communicate with the outside world through a small crack between the elevator doors and they remained in positive spirits while facilities maintenance staff worked to free them. Professor Jon Clardy oversaw the “rescue” effort and offered to feed the stranded individuals leftover Happy Hour candy through the crack in the door, though this offer was declined. The maintenance staff successfully dislodged the jammed doors and the lab members were freed after approximately 20 minutes of captivity. The elevator was returned to service the next day and has functioned without incident since.
Chou lab


Coen lab


Daley lab


Laparo lab

Springer lab


Daley lab, cont.


Roberts lab


Wagner lab
