



National Space Biomedical Research Institute Society of Fellows

Quarterly Newsletter

Information for First Award Fellows

Volume 1, Issue 1

Fall 2013

Creating an Individual Development Plan

How an IDP will help you harness your skills, interests, & values to land your dream job.

Need to determine your long-term career goals? Not sure if you need to acquire additional professional skills?

Completing an IDP will help you formulate your goals, determine where your skills need enhancing, and find what careers might interest you. IDPs are planning tools that help an individual identify professional development needs and career objectives and are useful in helping postdocs examine their professional skills, personal values, and interests to establish long-term career goals. Given the funding climate, finding the perfect R1 academic position is not as simple as it sounds. Numerous career opportunities are available for scientists, but the challenge is identifying these possible career choices. By creating an IDP, you can begin to explore additional

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What roadblocks stand in your way?

Editor: Catherine M. Davis, Ph.D.
NSBRI First Award Fellow
(Third Year)

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Success Stories: Alumnus Receives K99/R00 Award

2009 First Award Fellow Andrew J. Phillips, currently Instructor of Medicine at Harvard Medical School, answered our questions regarding his NSBRI fellowship, his current work, and his recently awarded NIH K99/R00 grant.

QN: Can you describe your NSBRI research and how that work influenced your current projects?

AJP: During my NSBRI postdoctoral fellowship, I developed a mathematical model of human sleep and circadian rhythms that could be used to predict performance and the effects various countermeasures, including pharmaceuticals. I am currently funded by NIH to continue development of this model, including extending the model to other temporal scales (e.g., effects of chronic sleep restriction), incorporating electrophysiological data, and using the model to study sleep in other species.

QN: Congrats on receiving the K award. Can you describe the application process and provide any advice for other postdocs thinking about applying for this award?

AJP: I was very fortunate to receive a K99 career development award at this time. I worked with my mentor, Elizabeth Klerman, to identify grant mechanisms that were a good fit for me, and she provided invaluable help and guidance in grant writing. I would advise other postdocs to be planning very far ahead. A typical funding cycle is about a year, and it can be much longer if you need to resubmit or get caught in the middle of budget sequestration (**QN:** or a government shutdown!). My first application (2 years ago) was not funded. It's very discouraging to have a grant rejected, especially when you have spent months working on it, but it's important to carefully study the reviewer feedback and keep on trying.

QN: What was the best advantage or outcome from your NSBRI fellowship?

AJP: The best thing about the NSBRI postdoctoral fellowship is that your time is carefully protected to do research, which is really critical to getting the results you need for future success.

QN: When you're not working in the lab or writing grants and manuscripts, what do you do in your spare time?

AJP: I enjoy rock climbing, reading, chess, and recreational mathematical modeling.

QN: Thanks for taking the time to answer our questions, Andrew. Best of luck in all of your future scientific endeavors! ■



2009
Fellow

Andrew J. Phillips, Ph.D.

Instructor of Medicine, Division of Sleep
Medicine, Harvard Medical School

Mentor: Elizabeth Klerman, M.D., Ph.D.
Team: Human Factors and Performance



"The NSBRI community is close-knit and involves a bunch of really exciting research teams. Try to take advantage of the fact that you are in close company with these other teams. You may find some unexpected opportunities for collaboration." ~AJP

IDP
Cont.



career options suited to your skills and careers that incorporate your interests and values, such as travel or a good work/life balance.

An IDP is similar to an annual review, where you and your mentor evaluate your progress and areas for growth. Given the requirement by NIH for grant-supported trainees to complete IDPs, Science Careers, in collaboration with FASEB, created an easy-to-use online IDP tool where you and your mentor can complete an initial assessment of your skills. After this assessment, you can formulate short- and long-term career goals, such as acquiring grant writing skills or teaching experience, based on your career matches. By creating an IDP, you will have access to information regarding numerous careers and how each career matches your skills, interests, and values. Follow the steps to the left to get started. ■

Start your IDP today!

The Science Careers website has a great free IDP developer available. You can easily create an IDP, formulate and save short-term and long-term goals, and receive email updates about your progress. It allows you to easily evaluate your skills and find careers that fit with your interests and values.

Follow the instructions to get started:

1. Visit myidp.sciencecareers.org. Create an account and set your email preferences.
2. Start your self-assessment by considering your skills, interests, and values. Be honest. If you have no teaching experience, for example, say so.
3. Examine the career options identified by your self-assessment. Research possible careers, set goals, and recruit a mentor (or several!) to help you achieve those goals. Having your mentor rate your skills is a great comparison tool for growth and goal development.

Developing an IDP helped a majority of postdocs identify the skills they would need to advance their careers.¹

¹Hobin et al., 2012, "You Need a Game Plan"

Thoughts
from the
Top

Science *plus* a real life?

Gary Strangman, Ph.D.

Being a research scientist is a challenging profession—particularly for junior investigators. The expected duties include conducting scientific projects, analyzing data, writing manuscripts, preparing talks, attending scientific meetings as well as various teaching and training responsibilities. Those are the activities for which most scientists sign up. However, other responsibilities often creep into the mix. Grant writing is a big one, which all scientists recognize as critical, but time consuming. Then there is committee work, dealing with various review boards, financial management, and myriad reporting requirements, which are typically the less-preferred activities. Many may have responsibilities for a young family, too. Mix all that with a challenging funding climate, and the job can seem completely overwhelming.

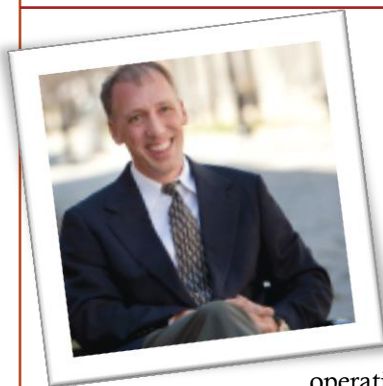
Balancing work and non-work activities is difficult, and depends heavily on your mentors' and collaborators' expectations. Early on, I was imbued with a pretty simple, if atypical, attitude: family first. If you are not happy away from the workplace, your work will suffer significantly.

My first recommendation: Keep family and outside activities a high priority—for you *and* those working for you. Go out on the town, or to the soccer games, or on that fun vacation. Separate home and work as much as possible, so vacations are not side-trips from a conference, where you can only be half-there, but a separate event with everyone fully involved. When fun activities are planned in advance—including smaller events like going to a fair, or out for dinner, or exercise/relaxation activities—everyone can look forward to the fun, and that helps take the sting out of long days or late nights required for conducting experiments or writing grants.

My second recommendation: With your remaining time, prioritize, prioritize, prioritize. There are only so many hours in a week, so there will always be trade-offs to make: go to that conference or finish that manuscript? Review that paper or complete that IRB? Unfortunately, how to prioritize depends on your personal situation. However the following general suggestions may be helpful in setting priorities. First, focus on good science and completing the associated papers. Papers are the currency of the realm and, although it may not seem likely, a strong paper will lead to multiple opportunities. Second, join or develop a strong group of peers. Science is a community endeavor, and so it is important to be part of that community, not only to disseminate your findings, but to help collect new ideas, collaborators, and even students. Third, learn to say No. By saying No to certain opportunities, you are implicitly saying Yes to others, including having some form of work-life balance. And when you (and those around you) are happy outside of work, you will be able to work harder, more efficiently, and enjoy the job more. ■



Reasons for a good work/life balance:
Dr. Strangman's three sons.



Dr. Strangman is an Associate Professor at Harvard Medical School and is the Director of the Neural Systems Group at Massachusetts General Hospital. He is also the Team Leader for NSBRI's Smart Medical Systems and Technology Team.

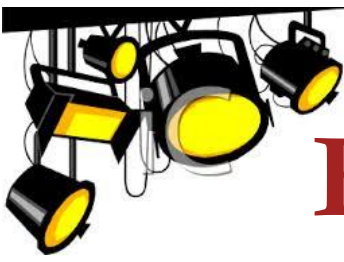
His research areas include the design, development, testing, and application of advanced technology in operational healthcare settings. His lab focuses in particular on brain monitoring and imaging technologies, with applications in spaceflight as well as a variety of in- and out-patient clinical conditions including traumatic brain injury, stroke, syncope, and depression.

Thoughts from the Top

This section is a quarterly column written by mid-career and senior-level scientists containing advice and tips for post-docs and early career scientists.

Have an idea for a discussion topic? Want to hear from a certain senior scientist?

Send your suggestions to hackler@bcm.edu.



Fellow Spotlight

Frances Meredith, Ph.D.
2012 First Award Fellow

Project Title:
Signaling at the vestibular calyx synapse

University of Colorado Denver
Department of Otolaryngology
Sensorimotor Adaptation Team
Mentor: Katie Renner, Ph.D.



Frances and her husband Martin.

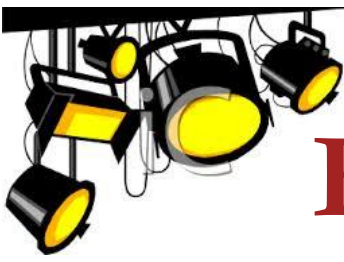
QN: Can you describe your NSBRI-funded research? **FM:** I study the vestibular system, which is responsible for our sense of balance. It plays a crucial role in our perception of body orientation and movement but we don't yet fully understand how mechanical signals generated by head movements are transformed into electrical signals by vestibular sensory hair cells and their associated afferent terminals. The goal of my research is to better understand how information is transferred between vestibular hair cells and their afferent nerve fibers, and to probe the mechanisms underlying plasticity. I use whole cell patch clamp electrophysiology to record electrical activity in afferent terminals. I have developed a technique to slice the very small sensory epithelium, called the crista, from the gerbil semicircular canal to explore regional differences in signaling. I have found that outward whole cell currents inactivate more in calyx terminals supplying peripheral regions of the epithelium than those innervating central regions. I am exploring which ionic currents underlie this difference by using specific ion channel blockers. **QN:** What are your future plans and career goals? **FM:** I would like to continue studying the

electrophysiology of the inner ear. I am also drawn to teaching and am hoping to be able to combine the two in my future career. **QN:** Can you share some advice for current or future postdocs about your experience thus far? **FM:** Immerse yourself in the questions and enjoy the science. Persevere through those days where things don't work – you'll get to where you want to be with persistence, tenacity, and hard work. And, for anyone wanting to apply for a fellowship with NSBRI, go for it! It opens up great opportunities, and the support is fantastic. **QN:** What do you do when you aren't in the lab recording vestibular synaptic events? **FM:** I love hiking and cycling and enjoying all the beauty that Colorado has to offer. My family keeps me grounded and their quirky sense of humor keeps me smiling. Martin, my husband, and I are both from South Africa. Martin is an actuary and mountaineer.



Clockwise: Frances, Martin, Alex, & Rick

[Continued on Page 9](#)



Fellow Spotlight

Anthony Lau, Ph.D.
2012 First Award Fellow

Project Title:
Whole joint health: Investigating modeled spaceflight changes in mice

University of North Carolina—
Chapel Hill
Department of Biomedical
Engineering
Musculoskeletal Alterations Team
Mentor: Ted Bateman, Ph.D.



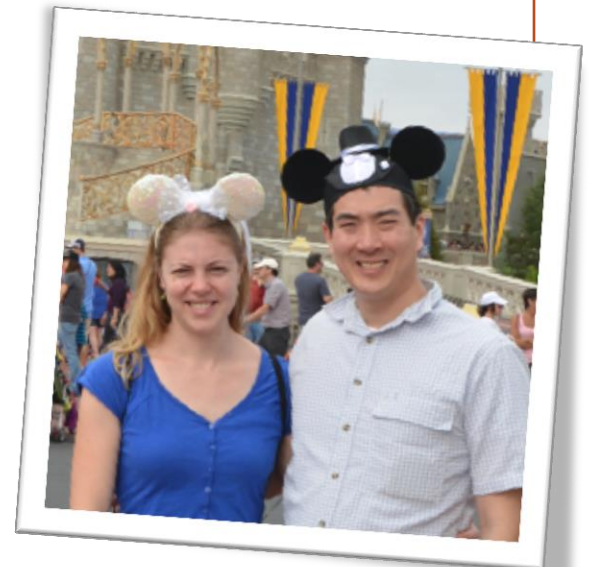
Anthony at the launch of Space Shuttle Atlantis

QN: Can you describe your NSBRI-funded research? **AL:** My current research focuses on using medical imaging techniques and computational modeling to investigate degradation from unloading during spaceflight. In particular, I am trying to improve soft-tissue contrast in micro-CT imaging so that we can better analyze the knee soft tissue changes in the mouse knee. Currently, we have just finished a study on Finite Element Modeling of the Femoral Neck and L5 Vertebrae to look at changes in bone strength in mice flown on Space Shuttle Mission STS-135. Also, I am using the microCT imaging techniques to look at joint degradation resulting from joint bleeding in Hemophilic mice. **QN:** What are your future plans and career goals?

AL: I would love to be a university professor. I really enjoy teaching and mentoring students as well as making the world a better place through research. **QN:** Can you share some advice for current or future postdocs about your experience thus far?

AL: Everything takes longer than planned and something unexpected will come up. You never know what demands other people have on their time; so if you are applying for the fellowship, start planning your application early, including contacting your academic references! Getting publications out the door is a war of attrition, so block

off 1-2 hours every morning and dedicate that time to writing. Slow and steady wins the race. **QN:** When you're not in the lab studying bones and cartilage, what occupies your time? **AL:** On the side, I enjoy playing guitar and piano, photography, cooking and eating delicious food, and playing all types of sports (football, basketball, tennis, etc.). On the more technical side, I like computers and advanced technologies and also love driving fast cars. ■



Anthony and his wife Susan

Fellow Outreach at Boise State

Q: How do you get a group of 4-5 year-old preK students excited about space science?

A: Invite an astronaut and let them play with their food!

In April, that is exactly what 2011 First Award Fellow Liliana Mellor did at the Boise State University Children's Center. The students had a day full of learning about the planets, how bones change in space, and what flying on the ISS is like from former Astronaut and Distinguished Educator in Residence, Barbara Morgan.



Liliana F. Mellor, Ph.D. (left), her son, Nathan, and Barbara R. Morgan at Boise State University Children's Center in April 2013.



Liliana initiated her outreach activity by contacting the Director of the BSU Children's Center. The Director helped in the planning and even provided the funds for the materials (e.g., fruit, skewers, etc.). For her outreach activities, Liliana turned to the NASA and NSBRI Education Websites. She soaked chicken bones in vinegar to demonstrate how they are affected by spaceflight.

The students then compared the feel of "Earth" and "Space" bones. Fruits and snacks of varying sizes served as

"planets" and students had to assemble their solar system skewer in order, starting with the Sun (orange, pictured top left) and ending with Pluto (corn). Finally, Barbara Morgan used a video of astronauts on the ISS to explain to how it feels to be in space. The students also planted seeds that were flown in space (pictured middle left).

Liliana's outreach was a great success! "Most of the things we did were really inexpensive," she stated when asked to give tips about outreach activities. "Don't let funding or 'lack of' become an obstacle. It also helps to reach out to others who share similar interests. You can set up stations with more activities to help keep the students engaged." ■

"Seeing how excited the kids were was priceless!" ~LFM



Space Policy News



After a 16-day shutdown, the government is up and running and is slowly returning to normal. Importantly, the disparities in FY2014 budgets between the House and Senate also include very different funding levels for NASA in the FY2014 Commerce-Justice-Science bills. The Senate bill would give NASA \$18.0 billion, whereas the House bill would provide \$16.6 billion. Negotiations between Senate Budget Committee Chair Patty Murray (D-WA) and House Budget Committee Chair Paul Ryan (R-WI) will conclude on December 13, presumably leaving enough time for appropriations bills to pass by the January 15, the expiration date for the current Continuing Resolution that is funding the government.

More information regarding these and other space policy issues, can be found at SpacePolicyOnline.com

The Science Advocacy Corner

While many scientists toil away in their labs day after day, they overlook the importance of advocating for continued or even increased levels of federal support for biomedical research. In a post-sequestration funding climate, science-related advocacy is critically important to maintaining our research workforce and continuing to attract creative young minds to careers in the sciences. Scientists must be proactive and contact their congressional representatives, work with various societies that lobby Congress, or simply engage the general public about science-related funding issues. Getting started is easy and there are many useful resources available. See the list of websites and other materials below.

Research!America:

- ✓ A great resource for science-related issues, including tips and strategies for effective advocacy and where to get started
- ✓ Visit: researchamerica.org/advocacy101

Federation of American Societies for Experimental Biology (FASEB):

- ✓ Numerous fact sheets, tutorials, and publications explaining how federal funds are directed towards biomedical research on a state-by-state basis, including sequestration fact sheets—great resources for congressional visits
- ✓ Visit: faseb.org/Policy-and-Government-Affairs.aspx

American Association for the Advancement of Science (AAAS):

- ✓ Information on how to effectively work with Congress visits to Capitol Hill, trackers to follow your representatives' votes
- ✓ Visit: aaas.org/gr/



Dollars & Sense

NIH K99/R00 Pathway to Independence Award

The primary purpose of this award is to 'increase and maintain a strong cohort of new and talented NIH-supported independent investigators. The program is design to facilitate a timely transition from a mentored postdoctoral research position to a stable independent research position with independent NIH or other independent research support at an earlier stage that is currently the norm.'—NIH PA-11-197

The K99/R00 award provides up to 5 years of support in two phases: the mentored (postdoc) K99 phase (1-2 years) and the independent R00 phase (up to 3 years) that is activated once the awardee secures a full-time faculty position.

Eligibility: At the time of submission (or resubmission), the applicant must have spent at least 2 years, but not more than 4 years, as a postdoc.

Application: The applicant must outline both the K99 phase research and the R00 phase research, in addition to career development goals and training that will occur during the K99 phase. A mentor(s) needs to be clearly identified and will need to provide a letter of support or mentoring statement.

Due dates: Standard NIH dates apply. New K99/R00 awards: Feb. 12, June 12, Oct. 12. Resubmissions: March 16, July 12, Nov. 12.

For more information: <http://grants.nih.gov/grants/guide/pa-files/PA-11-197.html>



Fellows Attend SBI 2013!

Each summer, the current class of First Award Fellows spends a week at NSBRI headquarters for the Summer Bioastronautics Institute (SBI).

This workshop covers career planning, grant writing, and strategies for effective scientific presentations. The week concludes with a tour of the NASA Johnson Space Center.

Fellows in attendance (from left to right): Anthony Lau, Catherine Davis, Brandon Macias, Frances Meredith, Ayako Ono, Michael Lee, & Shadab Rahman.

Meredith cont. from Page 5. My son Rick was born in South Africa; he is 22 and a senior studying computer information technology at Northern Arizona University in Flagstaff. My daughter Alex was born in Canada and we moved to Colorado when she was four. She is now a junior in High School and lives with a host family in San Jose so she can pursue her synchronized swimming dreams. She spends over 25 hours a week in the water for most of the year except when we manage to entice her to come home to hike, mountain climb, or ski. ■



Comments, Questions, & Suggestions

This is the first edition of our quarterly newsletter! We intend to publish four editions each year, one in January, April, July, and October. The current NSBRI Frist Award Fellows created this newsletter and participated in editorial duties.

If you have suggestions for future newsletter topics or know a First Award Fellow or other NSBRI researcher who you would like to see featured here, please let us know!

Send any comments, questions, or suggestions via email to Amanda Smith Hackler, Head of Career Development and Outreach at hackler@bcm.edu.

Space Fun: Scale of the Universe

An interactive website beginning at the quantum level and scaling up to include the entire universe. Clicking on an object provides more data about it.



Image: screenshot from Scale of the Universe: <http://htwins.net/scale2/>

Calendar of Events

December 2013

- HRP Investigators' Workshop Detailed Program Available on Meeting Website

January 14th 2014

- Deadline for HRP Meeting Advance Registration

February 11-13th 2014

- NASA HRP Investigators' Workshop at Moody Gardens Hotel and Convention Center, Galveston, TX
- Behavior, Health, and Performance Working Group meeting (Feb. 11th)
- NASA Space Radiation Investigators' Workshop (Feb. 11-13th)

