



Office of Education, Division of Intramural Research  
National Heart, Lung, and Blood Institute  
**FELLOWS NEWSLETTER**

The Fellows Newsletter is published monthly by the Office of Education, Division of Intramural Research, National Heart, Lung, and Blood Institute and distributed to NHLBI DIR members to promote the interest of DIR Fellows.

**Office of Education, DIR, NHLBI**

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***From the Director of the Office of Education***

Last month, I pointed out that Spring was not far behind, and the last few days have certainly reinforced that impression. Springtime brings the NHLBI DIR Retreat, now open to all DIR scientists. The deadline for abstract submission is this Friday, March 12th. We encourage all fellows and Staff Scientists to submit and abstract. Abstracts will be judged and prizes will be awarded to those judged "best" on the basis of both scientific content and presentation. In addition, a limited number of abstracts will be chosen by the Fellows Advisory Committee for oral presentation. I hope to see you all there.

The Office of Education is dedicated to providing career resources for all of our fellows. As such, we have initiated opportunities for NHLBI-funded rotations for fellows who want to try something different than laboratory research. The newest opportunity, described more fully below, is the NHLBI-FASEB Public Policy Fellows Program. This gives an opportunity for NHLBI fellows to spend up to six months at FASEB actively participating in public policy activities. This fellowship program is open to all NHLBI fellows - both US and Foreign nationals. Please contact the Office of Education if you are interested in this exciting opportunity.

Finally, the Office has moved. Come visit us in our new home - Bldg. 10, 6N248.

**8th Annual NHLBI DIR Scientific Retreat**

**Featuring:**

- Bob Kocher, M.D., Keynote Speaker**
- Gerald Shulman, Ph.D., M.D., Scientific Speaker**
- Peter Walter, Ph.D., Scientific Speaker**

**April 14-16, 2010**

**The Baltimore Tremonts  
Baltimore, MD**

**Registration and abstract submission  
Deadline is MARCH 12.**

<http://dir-intranet.nhlbi.nih.gov/oe/retreat/>



## **The FASEB Public Policy Fellows Program for NHLBI Fellows**

The Office of Public Affairs (OPA) of the Federation of American Societies for Experimental Biology (FASEB) has a staff of eight full-time employees dedicated to promoting progress and education in biological and biomedical sciences through service to our member societies and collaborative advocacy. Major OPA [activities](#) include policy development, government liaison, policy research, communications, coalition building, and public outreach. We have on-going projects on research funding, employment and training, biosecurity, animal research, research information technology, peer review, and clinical research.

For postdoctoral fellows at NHLBI-seeking an introduction to public policy, OPA can provide a unique vantage point. Our accomplishments have been recognized by many groups, and we have received awards from Research!America and the National Postdoctoral Association. Other organizations call upon our expertise, and senior OPA staffers serve on advisory boards and committees of National Institutes of Health, American Association for the Advancement of Science, Association for Women in Science, National Postdoctoral Association, and Commission on Professionals in Science and Technology.

### Opportunities

The NHLBI-OPA policy fellow will receive an introduction to issues and perspectives in biomedical research policy by working with the leadership and staff of the Federation and its 23 member societies. They may also in-

teract with federal agencies, Congress, other scientific associations, and advocates for research such as the Association of American Medical Colleges, Association of American Universities, and the Association of Public Land-grant Universities.

On a weekly basis, policy fellows will participate in the FASEB public affairs staff meetings during which they will be exposed to a wide range of policy issues, perspectives, and strategies. Monthly conference calls of the FASEB Science Policy Committee (the fourth Tuesday of each month at 4:15) and the Board of Directors (the first Tuesday of each month at 2:00) will expose fellows to the policy development and review process used by a successful policy organization.

### Expectations

We expect that each program participant will make meaningful contributions to at least one major project that will serve as a demonstration of his or her contributions to the OPA mission. The idea project will be one that is consistent with current OPA agenda and matches the fellow's interests, experience, and career goals. This will be work of a non-confidential nature so that it can be shared with individuals outside of the FASEB community.

Program participants will meet with the OPA Director to identify goals and expectations and to reach agreement on an appropriate project. The FASEB individual development plan ([IDP](#)) for postdocs can serve as a model and be used to guide evaluations at the midpoint and completion of the program period.

As participants in the early stages of policy development, policy fellows will be exposed to open and frank discussions of individual and group

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## **Are there too many scientists?**

By Herbert M. Geller

In a provocative draft article on the *Scientific American* web site (<http://www.scientificamerican.com/article.cfm?id=does-the-us-produce-too-m&offset=6>), Beryl Lieff Benderly, a columnist for Science magazine, argues that the US educational system actually produces too many scientists. Her main thesis is that the laws of supply-and-demand for scientists in the US have been distorted by the US funding system, because research is funded on a project-by-project basis, which offers no long-term stability for the researchers other than the tenured investigator in charge of the project. The consequence of this research funding system is that there are many temporary lab research positions at the graduate student and postdoctoral level, but many fewer permanent positions as academic researchers.

Another part of her argument is that this funding system reduces the incentives for the smartest Americans to go into a scientific career, since other career paths for smart people (medicine, law) are more stable and lucrative. At the same time, the need to staff labs to get the research done has been satisfied by the importation of foreign graduate students and post-docs on temporary visas, who have a different motivation for taking the position – the desire for a life in this country.

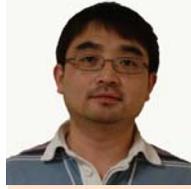
The underlying basis of her article, which bears some scrutiny, is that Americans go to graduate school with the expectation that they will become faculty members in a University, and that any other career path is therefore a disappointment. She asserts that the excess of PhDs keeps salaries

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## New NHLBI Fellows



**Gi Soo Kang, Ph.D.**, is a Visiting Fellow in the Translational Medicine Branch under Dr. Joel Moss. Dr. Kang earned her Ph.D. in Environmental Medicine from New York University. She won the Best Student Abstract Award with her work in the Inhalation and Respiratory Specialty Section. Dr. Kang's initial research project is to investigate the roles of ARD 1 in EGFR metabolism.



**Yu Wang, Ph.D.**, is a Visiting Fellow in the Biochemistry and Biophysics Center under Dr. Nico Tjandra. Dr. Wang earned his Ph.D. in Biochemistry and Biophysics from the University of Kansas. He won the Newmark Award from the University of Kansas. Dr. Wang is currently working on characterizing protein-protein interaction using NMR spectroscopy.

## New Principal Investigator



**Dr. Hong Xu, Ph.D.**, is a new Principal Investigator in the Genetics and Developmental Biology Center. Dr. Xu earned his Ph.D. from Johns Hopkins University School of Medicine. He served as a post doc at UCSF under Dr. Patrick O' Farrell researching Mitochondrial DNA Genetics in *Drosophila*. Dr. Xu also won the 2007 Larry L Hillblom Postdoctoral Fellowship.

perspectives. These are confidential communications, and should not be shared with outside individuals or groups. Similarly, privileged information about the participant's home organization will not be solicited by FASEB staff.

Most policy documents prepared by OPA are collaborative statements, developed by committees, and approved by the FASEB Board. With the exception of the transmittal letters signed by the FASEB president, they do not carry individual authorship. It is appropriate, however, for individuals to list contributions to collective projects on curriculum vitae.

### Projects

OPA staffers are engaged in a wide range of activities, and there are many opportunities for new and expanded initiatives. Examples of on-going or proposed projects that might benefit from the contributions of a postdoctoral fellow include:

- A briefing for congressional staffers. Possible topics include the role of basic research in the search for cures, increasing the participation of under-represented minorities in science, the contributions of animal research
- A conference/workshop for scientists. Possible topics include the role of basic scientists in clinical/translational research, international perspectives on combating animal rights extremism, laboratory management, and fostering innovation in science.
- Tools and resources for the community. Possible topics include developing a clearinghouse of FASEB society K-12 education programs or exploring way to make the FASEB directory a more useful resource.

This program is now active and if you are interested in taking advantage of a rotation at FASEB, supported by NHLBI, please contact the NHLBI Office of Education.

## ATTENTION: 2010 NHLBI DIR Retreat Attendees

Please make sure you have an **approved travel order** prior to attending the retreat.

\*Travel orders are generated by your lab admin personnel

**THE SCIENCE BEAT***By Nisha Narayan, Ph.D.*

**Lundqvist, A., Su, S., Rao, S., & Childs, R. (2010).** Cutting Edge: Bortezomib-Treated Tumors Sensitized to NK Cell Apoptosis Paradoxically Acquire Resistance to Antigen-Specific T Cells. *J. Immunol.* 184, 1139-1142.

Bortezomib is one of the first drugs to be tested in the treatment of multiple myelomas in humans. The treatment provided by the drug relies on its being a proteasome inhibitor that will prevent degradation of pro-apoptotic factors, permitting the activation of apoptosis in tumor cells dependent upon suppression of pro-apoptotic pathways. The authors and others in the field have previously shown that Bortezomib up-regulates death receptor and caspase-8 activity in both human and murine tumors, sensitizing the tumors to NK (Natural Killer) cell killing. Since CTL (Cytotoxic T Lymphocytes) also utilize the same pathways as NK cells, the authors hypothesized that the drug could serve as a sensitizing agent to neoplastic cell killing by both the innate and the adaptive immunity.

In the study, Lundqvist et al show that exposure of cells to Bortezomib causes disparate effects on NK cell and T cell antitumor immunity. They used a melanoma cell line 624mel and tested it for sensitivity to lysis by NK cells and T cells post-treatment with Bortezomib. An increase in NK cell cytotoxicity was observed against the treated tumors, but surprisingly T cell cytotoxicity decreased against the same treated tumors when compared to untreated control tumors. Bortezomib also affected the susceptibility of target cells to recognition and killing by viral Antigens and minor histocompatibility Antigen-specific T cells - both IFN- production and cytotoxicity reduced compared with untreated controls when EBV-lymphoblastoid cell line targets were exposed to Borte-

zomib. Next, they used bioluminescent imaging to show that tumor outgrowth assays in SCID mice showed that tumors grew significantly slower in mice receiving cocultures of bortezomib-treated human tumors and NK cells compared with recipients of untreated tumor, NK cell cocultures or bortezomib-treated tumors alone. In contrast, tumor growth was accelerated in mice receiving cocultures of Bortezomib-treated human tumors and tumor-reactive T cells compared with mice receiving untreated tumor/T cell cocultures. Though prior studies have shown that Bortezomib can indirectly reduce T cell alloreactivity by inhibiting dendritic cell (DC) maturation, phagocytosis, and IL-12 production, they contrastingly show that the reduction in T cell immunity against tumor cells observed in their studies occurred as a direct effect of Bortezomib on tumor cells because tumors were extensively washed precluding Bortezomib-induced suppression of effector cells.

During the course of this study, they may have also found an alternative mechanism to explain how Bortezomib prevents Graft versus Host Disease (GVHD) after Allogeneic Hematopoietic Stem cell transplantation. The reduction of T-cell recognition of targets as a direct consequence of Bortezomib altering proteasomal processing and presentation of Antigens, including minor histocompatibility Antigens, may reasonably explain the reduction in GVHD when the drug is administered after allogeneic transplantation.

To conclude, they find that Bortezomib-treated tumors sensitized to NK cell cytotoxicity simultaneously acquire resistance to Antigen-specific T cell effector responses. Based on these observations, the use of Bortezomib in conjunction with therapies aimed at bolstering Antigen-specific T cell immunity against neoplastic disease should be approached with concern.

**Recent Publications by NHLBI Fellows**

**Lundqvist, A., Su, S., Rao, S., & Childs, R. (2010).** Cutting Edge: Bortezomib-Treated Tumors Sensitized to NK Cell Apoptosis Paradoxically Acquire Resistance to Antigen-Specific T Cells. *J. Immunol.* 184, 1139-1142.

**Tang, Y., Desierto, M. J., Chen, J. C., & Young, N. S. (2010).** The role of the Th1 transcription factor T-bet in a mouse model of immune-mediated bone-marrow failure. *Blood* 115, 541-548.

**Tchapyjnikov, D., Li, Y. D., Pisitkun, T., Hoffert, J. D., Yu, M. J., & Knepper, M. A. (2010).** Proteomic profiling of nuclei from native renal inner medullary collecting duct cells using LC-MS/MS. *Physiol. Genomics* 40, 167-183.

**You, Z., Cao, X. H., Taylor, A. B., Hart, P. J., & Levine, R. L. (2010).** Characterization of a Covalent Polysulfane Bridge in Copper-Zinc Superoxide Dismutase. *Biochem.* 49, 1191-1198.

## The Office of Education has relocated! 6th floor of Building 10, 6N248

down and leads many Americans to be disappointed when they don't get an academic position.

While this analysis may have some basis in reality, the fact is that we have very few unemployed PhDs in this country, both foreign and American born. Our experience at NHLBI is that there are very few postdocs who do not obtain a position after their experience here, and those situations are normally due to reasons unrelated to their research training. Moreover, as apparent from our own recent recruit-

ments for outstanding scientists for tenure-track positions, most of these are going to scientists who are not natural-born citizens, suggesting that the ability to provide opportunities for foreigners is making American science stronger, not weaker.

The NHLBI Office of Education has set up several opportunities for fellows to do rotations both in the Federal Government and in private industry, which has helped place many fellows (please see the announcement for Science Policy Opportunities at

FASEB). Of course, we are now experiencing a recession, and this has resulted in many fewer opportunities for our fellows, but we are still not seeing fellows leave here with no job.

Because most of our NHLBI fellows are not US citizens, I would be most interested in hearing your responses to the proposals in this article, which would vastly limit our ability to provide opportunities for those of you without citizenship or permanent residency.

### ***Meredith Foster wins the AHA's Jerimiah and Rose Stamler Research Award for New Investigators***



Meredith with her advisor Dr. Caroline Fox

Congratulations to Ms. Meredith Foster, a graduate student in the Center for Population Sciences in Framingham under the mentorship of Dr. Caroline Fox for winning the American Heart Association's award for new investigators. Meredith is enrolled in a D.Sc. program in the Harvard School of Public Health. The award is given by the AHA Council on Epidemiology and Prevention at their Annual Meeting based on a presentation made by a young investigator. This award is named for the Stamlers in appreciation of their seminal contributions to cardiovascular disease epidemiology. The award recognizes and stimulates excellence in research by investigators in training.