



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

September is an interesting month at NHLBI. In academics, September is the normal beginning of the academic year, and, in fact, many activities, such as seminars and journal clubs, that were suspended during the summer, resume. At the same time, it's the end of the fiscal year, so we are engaging in year-end spending.

We in the the Office of Education are mostly focused on the new year. There are several seminar series that will resume shortly. The Fellows Seminar Series will alternate with the Tenure-Track Seminar Series to bring exciting and important speakers to NHLBI. The first is hosted by Fellows, who are invited to nominate speakers that they feel will be of general interest to the NHLBI and also will help them in their career objectives. These speakers can be either from academics or industry. The second seires is hosted by our Tenure Track Investigators, but lunchtime with these speakers is reserved for Fellows. So if you are interested in meeting with a speaker, please contact our office.

The 2011 DIR Scientific Retreat is being planned for April 27-29 at the Hyatt Regency Chesapeake Bay. Our scientific speakers will be Dr. Donald Ingber from Harvard and Dr. Forest White from MIT. Watch the retreat web site for further information on speakers and the program as it becomes more complete.

The Fellows Advisory Committee is actively engaged in planning all these activities, and I would welcome your participation. Check inside the newsletter for further information.

***Team Science: To Engage
or Not Engage?***

By L. Michelle Bennett, Ph.D. and
Howard Gadlin, Ph.D.

We are often asked how engaging in team science will help someone along their chosen career path, especially post-docs who aspire to independent investigator positions in academic settings. At one level the answer is fairly straightforward: the skills and competencies required for team science are in many ways the very skills and competencies that are required to be an effective PI.

(cont'd on p.2)

**You're invited to...
the NHLBI Fellows
Potluck!**

Tuesday, September 28th
Noon-1:30 PM
Building 10, SE Patio (adjacent
to the patio
on the roof)

Please bring food or drink to share!

For more information, email
direducation@nhlbi.nih.gov



Congratulations to Dr. Maciej Olszewski! He received the Jakub Karol Parnas Award from the Polish Biochemical Society for the best experimental paper in biochemistry. His prize included a diploma, a monetary award and a lecture at the Society's Annual Meeting. Dr. Olszewski is a Visiting Fellow in the Laboratory of Cell Biology under Dr. Lois Greene.

From one perspective, a lab is a mini version of a collaboration in that it brings together people who vary in many ways such as their areas of specialized knowledge and techniques or their perspectives (cultural and scientific). To function effectively they must find a way to co-exist and support one another's work. Both the leaders and team-members, whether in a single lab or part of a complex collaboration, need to recognize differences in perspectives and sub-disciplines and bridge across those differences to reinforce connections within the team. It is best to develop those skills and awareness of one's own individual strengths before being thrust in a position of leadership.

Being involved with a highly integrated team to solve a complex scientific question provides opportunities for leadership development. You are not likely to direct an overall project at the outset, but there are typically many opportunities to take the lead on the related spin-off and sub-projects. Leading a smaller team effort to successful conclusion brings recognition not only to the scientific accomplishment, but to the role you played in bringing others together to create a common vision and achieve a common goal. It will also allow you to answer the questions: What skills do I need to have? What am I good at? What saps my energy? And what skills do I want to build further to effectively lead a scientific team?

Of course leading a team requires more than the development of individual skills. Team science requires scientific discussion, dynamic inquiry, and

sharing – resources, data, and credit. Learning to implement robust strategies and approaches for challenging scientific conversations and sharing early in your career will help you no matter where you find yourself 20 years from now.

It is very important for a team effort to make clear at the outset what each expects of each other and how they will work together. Some key principles include: establishing roles and responsibilities of each team member early; agreeing on which resources will be shared; developing processes for sharing data and credit; outlining steps to follow if a scientific problem arises; and deciding on processes for addressing conflicts and disagreements. Establishing a common understanding about how the research project will be conducted also helps to establish a level of trust that supports the research.

Trust is a major factor in research. While too much trust in techniques or reagents can impede progress, we have discovered over and over again, that many of the non-technical problems that arise in scientific settings stem from a lack of trust. Trust is the grease that permits the machine to run smoothly. Think of the cogs in that machine as open disagreement about research results, sharing credit for joint work, discussions about the next step of the research project, embracing the scientific discussions that will enhance the science while containing inter-personal conflict, and coming up with a shared vision for the research being performed.

In the same way that a scientific collaboration is built around explicit statements of expectations so too is a scientific career. Although science has changed considerably in the past decades, the universities and academic medical centers in which it occurs have not quite caught up. Specifically processes for hiring, retaining and tenuring researchers still employ criteria of evaluation designed to assess the strength of an individual's research, usually measured by the number of first or senior authored papers or dollars of grant support. Typically tenure committees do not know how to review and reward teamwork and collaboration in the context of existing criteria, nor do they know what value to assign to them. Consequently it is important that tenure-track scientists who collaborate a lot need to have explicit discussions with their department head about performance and evaluation expectations well before those evaluations are scheduled to occur. In fact, these discussions can be part of the negotiation process in considering a position so that there is a shared understanding and expectation as one embarks on a new chapter of one's career.

Regardless of whether you chose to head a laboratory of your own, work in industry, or pursue a career in communications, tech transfer or some other area, the ability to lead and work with people so you spend the majority of the time focused on the job at hand instead of on personnel and management issues will be valuable to you, your team, your co-workers and the institution at large.

Recent Publications by NHLBI Fellows

- Brooks, E. L., **Preis, S. R.**, Hwang, S. J., Murabito, J. M., Benjamin, E. J., Kelly-Hayes, M., Sorlie, P., & Levy, D. (2010). Health Insurance and Cardiovascular Disease Risk Factors. *Am. J. Med.* *123*, 741-747.
- Gan, Q. A., **Chepelev, I.**, Wei, G., Tarayrah, L., **Cui, K. R.**, Zhao, K. J., & Chen, X. (2010). Dynamic regulation of alternative splicing and chromatin structure in *Drosophila* gonads revealed by RNA-seq. *Cell Res.* *20*, 763-783.
- Fiammenghi, L., Ancarani, V., **Rosales, T.**, Knutson, J. R., Petrini, M., Granato, A. M., Pancisi, E., Ridolfi, L., Ridolfi, R., Riccobon, A., & Neyroz, P. (2010). FRET microscopy autologous tumor lysate processing in mature dendritic cell vaccine therapy. *J. Transl. Med.* *8*.
- Johnson, A. D.**, Yanek, L. R., Chen, M. H., Faraday, N., Larson, M. G., Tofler, G., Lin, S. J., Kraja, A. T., Province, M. A., Yang, Q. O., Becker, D. M., O'Donnell, C. J., & Becker, L. C. (2010). Genome-wide meta-analyses identifies seven loci associated with platelet aggregation in response to agonists. *Nat. Genet.* *42*, 608-U186.
- Kunin, M.**, Dmitrieva, N. I., **Gallazzini, M.**, Shen, R. F., **Wang, G. H.**, Burg, M. B., & Ferraris, J. D. (2010). Mediator of DNA Damage Checkpoint 1 (MDC1) Contributes to High NaCl-Induced Activation of the Osmoprotective Transcription Factor TonEBP/OREBP. *Plos One* *5*.
- Le, R. Q., Bevans, M., **Savani, B. N.**, Mitchell, S. A., Stringaris, K., Koklanaris, E., & Barrett, A. J. (2010). Favorable Outcomes in Patients Surviving 5 or More Years after Allogeneic Hematopoietic Stem Cell Transplantation for Hematologic Malignancies. *Biol. Blood Marrow Transplant.* *16*, 1162-1170.
- Masson, M. J.**, Collins, L. A., Carpenter, L. D., Graf, M. L., **Ryan, P. M.**, Bourdi, M., & Pohl, L. R. (2010). Pathologic role of stressed-induced glucocorticoids in drug-induced liver injury in mice. *Biochem. and Biophys. Res. Commun.* *397*, 453-458.
- Maunakea, A. K., **Chepelev, I.**, & Zhao, K. J. (2010). Epigenome Mapping in Normal and Disease States. *Circ. Res.* *107*, 327-339.
- Nouraie, M., Reading, N. S., Campbell, A., **Minniti, C. P.**, Rana, S. R., Luchtman-Jones, L., Kato, G. J., Gladwin, M. T., Castro, O. L., Prchal, J. T., & Gordeuk, V. R. (2010). Association of G6PD202A,376G with lower haemoglobin concentration but not increased haemolysis in patients with sickle cell anaemia. *Br. J. Haematol.* *150*, 218-225.
- Ong, D. S., **Anzinger, J. J.**, **Leyva, F. J.**, Rubin, N., Addadi, L., & Kruth, H. S. (2010). Extracellular cholesterol-rich microdomains generated by human macrophages and their potential function in reverse cholesterol transport. *J. Lipid Res.* *51*, 2303-2313.
- Phillips, D.**, Reilley, M. J., **Aponte, A. M.**, **Wang, G. H.**, Boja, E., Gucek, M., & Balaban, R. S. (2010). Stoichiometry of STAT3 and Mitochondrial Proteins Implications for the regulation of oxidative phosphorylation by protein-protein interactions. *J. Biol. Chem.* *285*, 23532-23536.
- Preis, S. R.**, Massaro, J. M., Hoffmann, U., D'Agostino, R. B., Levy, D., Robins, S. J., Meigs, J. B., Vasan, R. S., O'Donnell, C. J., & Fox, C. S. (2010). Neck Circumference as a Novel Measure of Cardiometabolic Risk: The Framingham Heart Study. *J. Clin. Endocrinol. Metab.* *95*, 3701-3710.
- Saybasili, H.**, Derbyshire, J. A., Kellman, P., Griswold, M. A., Ozturk, C., Lederman, R. J., & Seiberlich, N. (2010). RT-GROG: Parallelized Self-Calibrating GROG for Real-Time MRI. *Mag. Reson. Med.* *64*, 306-312.
- Sethi, A. A.**, Sampson, M., Warnick, R., Muniz, N., Vaisman, B., Nordestgaard, B. G., Tybjaerg-Hansen, A., & Remaley, A. T. (2010). High Pre-beta(1) HDL Concentrations and Low Lecithin: Cholesterol Acyltransferase Activities Are Strong Positive Risk Markers for Ischemic Heart Disease and Independent of HDL-Cholesterol. *Clin. Chem.* *56*, 1128-1137.
- Zhao, H.**, Kim, G., Liu, C. Y., & Levine, R. L. (2010). Transgenic mice overexpressing methionine sulfoxide reductase A: Characterization of embryonic fibroblasts. *Free Radical Biol. Med.* *49*, 641-648.
- Zwolak, A.**, **Fujiwara, I.**, Hammer, J. A., & Tjandra, N. (2010). Structural Basis for Capping Protein Sequestration by Myotrophin (V-1). *J. Biol. Chem.* *285*, 25767-25781.

Congratulations to the 2010 NHLBI FARE Award Winners!



(Left to Right): Berengere Vire, Susanta Sarkar, Yukako Nishimura, Nisha Narayan, Man Yu, Yingfan Zhang, and Mark Stevens
Not pictured: Ho Joong Sung, Natalie Porat Shilom

The Fellows Award for Research Excellence (FARE) provides recognition for outstanding scientific research performed by intramural fellows with less than five years total research experience at the NIH. FARE awardees at NHLBI receive recognition at the NHLBI DIR Scientific Retreat.

FARE Competition winners will present posters (marked by a blue ribbon) on their research during the NIH Research Festival. The FARE Subcommittee of FelCom thanks all participants and congratulates the winners of FARE.

We encourage all eligible intramural postdoctoral and clinical fellows to apply to the next FARE Competition in Spring 2011. For more information: <http://felcom.od.nih.gov/>.

THE SCIENCE BEAT

By Nisha Narayan, Ph.D.

Johnson AD, Yanek LR, Chen MH, Faraday N, Larson MG, Tofler G, Lin SJ, Kraja AT, Province MA, Yang Q, Becker DM, O'Donnell CJ, Becker LC. (2010) Genome-wide meta-analyses identifies seven loci associated with platelet aggregation in response to agonists. Nat Genet. Jul; 42(7):608-13.

Genome-wide association studies (GWAS) are an approach designed to rapidly scan markers across the complete genomes of many people to find genetic variations associated with a particular pathology. Once new genetic associations are identified, researchers can then use this information to develop better strategies to diagnose, cure and eventually prevent the disease. These studies are pivotal in finding genetic disparities that contribute to complex diseases, such as diabetes, cancer and heart disease.

The Framingham Heart Study (FHS) – an ongoing, longitudinal NHLBI cardiovascular study on the residents of the town of Framingham, Massachusetts since 1948 - first established the transmissibility of aggregation responses, along with the Genetic Study of Atherosclerosis Risk (GS). This meta-analysis study includes participants free of anti-platelet medication and of symptoms of coronary artery disease belonging to two European-ancestry populations from the FHS and the GS. They also conducted a duplication in an African-ancestry group (GS) with a higher mean BMI and higher prevalence of smoking, diabetes and hypertension - with the objective of discovering and reproducing

genome-wide significant loci associated with platelet aggregation thereby shedding new light on mechanisms of platelet aggregation as well as on their human variability. In this study, the authors have combined the results of two groups' GWAS, to investigate common genetic influences on platelet aggregation responses – which are a critical physiological response to vessel injury - to three shear-stress and/or receptor agonists – ADP, collagen and epinephrine.

By implementing a GWAS approach in large groups of relatively healthy people and by using similar platelet-rich plasma-derived aggregation phenotypes, they found strong associations for seven distinct loci with platelet aggregation and indicative evidence for many additional loci. Three regions were found to be genome-wide significant for association with ADP-induced aggregation for the alleles of PEAR1 (platelet endothelial aggregation receptor-1), MRV11 (murine retrovirus integration site 1) and SHH (sonic hedgehog homolog), with the PEAR1 minor allele being related to a decrease in aggregation response while the minor alleles of the two latter loci showed correlation with an increased response to aggregation. All three areas showed evidence for replication with significant P values in the African-ancestry sample, based on genotyped SNPs. Four regions showed up epinephrine-induced platelet aggregation – ADRA2A (Adrenergic Alpha 2A-) PEAR1, JMJD1C (Jumonji domain containing 1C) and PIK3CG (Phosphoinositide-3-kinase, gamma polypeptide), of which the first three showed consistent results in the African-ancestry sample as well. A unique region containing GP6 (Glycoprotein VI) was associated with response at a genome-wide level with collagen treatment. Since the three agonists employed in this

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New Investigator



Justin Taraska, Ph.D., is a new Investigator in the Laboratory of Molecular and Cellular Imaging in the Laboratory of Molecular Biophysics. Dr. Taraska earned his Ph.D. from Oregon Health and Science University. Dr. Taraska was a Postdoctoral Fellow in the Department of Physiology and Biophysics at the University of Washington under Dr. William Zagotta. He was the recipient of the 2009-2010 NIH K99/R00 Pathway to Independence Award.

study target some overlapping aspects of aggregation mechanisms, they checked for significantly associated loci that overlap across the agonists, and found four regions – PEAR1, MRV11, RGS18 and SVIL - that showed association in both the European and the African-ancestry samples and showed evidence for responses to ADP and epinephrine.

Blending this study with previous research, the seven loci containing PEAR1, MRV11, SHH, ADRA2A, PIK3CG, JMJD1C and GP6, are strongly incriminated in platelet aggregation. The known functions of the genes at these loci hint that in addition to glycoprotein receptors, proteins involved in signal transduction pathways and platelet homeostasis are also vital in maintaining aggregation reactions. This fundamental study paves way for further studies that will examine the clinical relevance of these targets in treating the various diseases in which platelet function plays a central role.

Fellows Advisory Committee



Top row (L to R): Mohit Kashyap, Mark McDermott, Mark Stevens, Allen Chang, Arianna Biesso, Julie Wu, Cory Lago, Attila Nagy, Hang Zhao
Bottom row (L to R): Yrina Rochman, Thomas Winkler, Aibing Wang, Yuan Le, Lu Wang, Zheng Yu
Not pictured: Ashvin George, Jonathan Lam, Katherine Wood, and Yingfan Zhang

The NHLBI DIR Fellows Advisory Committee (FAC) to the Office of Education is essential to improve the training experience of NHLBI fellows. The FAC is the focal point for solving problems and identifying issues that affect NHLBI Fellows. As such, the FAC seeks to have membership from every lab and branch at NHLBI.

The FAC is also actively engaged in organizing networking and career opportunity events, as well as social activities for NHLBI Fellows. The FAC has a large role in planning the Annual NHLBI DIR Scientific Retreat. Participation in the committee provides great leadership experience.

The FAC meets on the 2nd Monday of each month at 4pm. If you are interested, please e-mail direducation@nhlbi.nih.gov for more information.

New NHLBI Fellows



Bu Xiangning, Ph.D., is a Visiting Fellow in the Translational Medicine Branch under Dr. Joel Moss. Dr. Bu earned his Ph.D. in Neuroscience from Capital Medical University in China. He is a member of the Chinese Society for Neuroscience as well as the International Brain Research Organization. Dr. Bu's current research project involves ADP-ribosylation.



Pablo Sandoval, Ph.D., is a Visiting fellow the Laboratory of Kidney and Electrolyte Metabolism under Dr. Mark Knepper. Dr. Sandoval earned his Ph.D. in Molecular and Cellular Biology and Neurosciences from Universidad de Chile. He was granted a short term fellowship from EMBO in 2008. Dr. Sandoval's initial research project deals with translational control mechanisms.



Kang Le, M.D., Ph.D., is a Visiting Fellow in the Translational Medicine Branch under Dr. Martha Vaughan. Dr. Le received his M.D. and Ph.D. from Sun Yat-sen University, China, in Clinical Medicine and Cardiovascular Pharmacology, respectively. He participated in the Natural Science Foundation of Guangdong Province. Dr. Le's current research project deals with cardiac hypertrophy.