



Care for the Community
STARTS WITH RESEARCH

NIH BRAD GRANT AWARDED TO PC

Presbyterian College was awarded its first National Institute of Health grant in May 2013. The Biomedical/Behavioral Research Administration Development grant is a five-year grant for \$440,000 to help fund the development of a formal office of sponsored projects and office of research. Dr. Cliff Fuhrman, Dr. Sarah Sweitzer and Ms. Geneva Kelly are co-investigators on the grant. The goal of this grant is to build a self-sustaining centralized Office of Sponsored Projects that serves both the graduate and undergraduate campus faculty effectively and efficiently, and ultimately will serve as a model for other small institutions. This includes: 1) implementing a formal administrative structure for grants management and reporting (from pre-proposal through post-award management), and 2) developing a research initiative to assist faculty in finding grant funding opportunities, developing proposals and providing post-award mentorship.

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VOLUME 1 | ISSUE 1
NOVEMBER 2013

307 North Broad Street
Clinton, South Carolina 29325

spor@presby.edu

SPONSORED PROJECTS

Genevra Kelly, MPH
Director

Walter Ridgely
Grants Financial Admin

RESEARCH

Sarah Sweitzer, Ph.D.
Director

Alfonso Romero-Sandoval, M.D., Ph.D.
Assistant Director

ADMINISTRATION

L. Clifton Fuhrman, Ph.D., R.Ph.
Dean, School of Pharmacy

Donald R. Raber II, Ph.D.
Provost

Claude C. Lilly, Ph.D.
President

PCSP RESEARCHERS FUNDED TO STUDY CANCER AND MALE INFERTILITY

Cancer is the second leading cause of death in the U.S., with an estimated 580,350 American deaths in 2013. The five-year survival rate for all cancers combined is approximately 68 percent. Thus, there is a clear need for the development of new chemotherapeutic agents. Dr. Giuseppe Gumina, Associate Professor of Pharmaceutical and Administrative Sciences, was funded to develop new chemotherapy medications in his study titled “Synthetic Studies Toward Novel Anticancer Peptidyl Nucleosides.”

Human Papilloma Virus infection is a common viral infection, but in some women it can progress to cause life-threatening cervical cancer. Over the last 10 years it has become clear that only certain HPV types increase the risk for cervical cancer. Not all women with these higher risk types of virus, however, develop cervical cancer. Dr. Amy Messersmith, Assistant Professor of Pharmaceutical and Administrative Sciences,

was funded to study how the immune response to HPV infection may predict which women develop cervical cancer. Her study is titled “Validation of the Proximity Ligation Assay for Quantitation of Cytokines in Human Cervical Mucus.”

More than 60,000 babies annually are conceived and delivered through assisted reproductive technologies in the United States. For couples who struggle to conceive, male factors play a role in infertility more than half of the time. Dr. Nancy Pedigo, Associate Professor of Pharmaceutical and Administrative Sciences, is researching the mechanisms that produce male infertility and ways to prevent or reverse infertility. Her study is titled “Molecular Mechanism of Zinc Mitigation of Cobalt Reproductive Toxicity in Male Mice.”

The studies are funded by Small Pharmacy Awards for Research and Collaboration.



Dr. Gumina



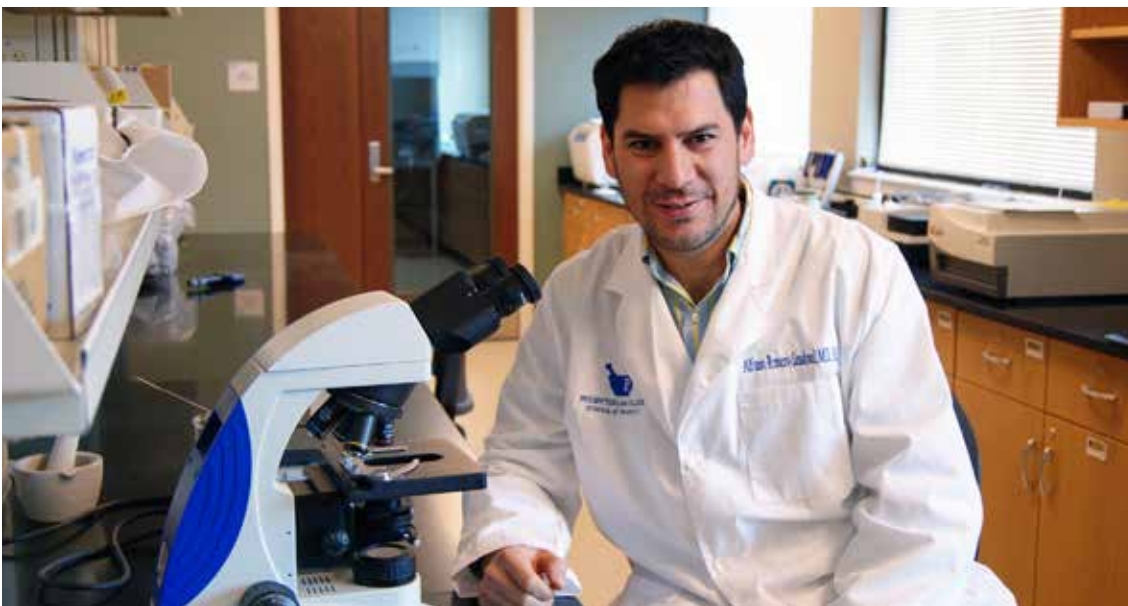
Dr. Messersmith



Dr. Pedigo

RECENT RESEARCH TRAINING COMPLETED

- **Drs. Sarah Sweitzer and Alfonso Romero-Sandoval** completed a 40-hour clinical research training program at the Medical University of South Carolina through the South Carolina Translational Research Center. If you are interested in learning about the training program or would like for Drs. Sweitzer or Romero-Sandoval to share what they learned, drop them an email at ssweitzer@presby.edu or asandoval@presby.edu.
- **Dr. Nancy Pedigo** attended the Public Responsibility in Medicine and Research regional meeting in May. She completed the IRB Administrator 101, Informed Consent and IRB 201 trainings. PRIM&R advances the highest ethical standards in the conduct of biomedical and social science/behavioral science.
- **Genevra Kelly**, PC's BRAD grant Extramural Associate, completed a month-long BRAD grant residency program at NIH in Bethesda, Maryland in May.
- **Walter Ridgely** completed “Training in Research Administration” at Clemson University.



Alfonso Romero-Sandoval, M.D., Ph.D.

PCSP RESEARCHER DISCOVERING WAYS TO PREVENT CHRONIC PAIN AFTER SURGERY

Five years after her mastectomy for breast cancer, Mary still suffers from pain that started when she awoke from surgery. She takes multiple medications every day to try to control the pain, but some days she doesn't get out of bed because the touch of her shirt causes immense pain. Mary is not alone. An estimated one-third of mastectomy patients still experience pain five years after their surgery.

Dr. Alfonso Romero-Sandoval, Associate Professor and Assistant Director of Research at PCSP, is interested in understanding why some patients recover from pain after surgery and why others, like Mary, go on to suffer from chronic pain. His laboratory is exploring the involvement of a protein called mitogen-activated protein kinase phosphatase-3 (MKP-3) in the resolution of pain after surgery. His recent findings suggest that increased production of MKP-3 is associated with recovery from pain, while lower levels of MKP-3 are associated with persistence of pain. These findings will be published in the journal, *Neuroscience*, in a manuscript titled "Spinal Mitogen-Activated Protein Kinase Phosphatase-3 (MKP-3) is Necessary for the Normal Resolution of Mechanical Allodynia in a Mouse Model of Acute Postoperative Pain."



Dr. Romero-Sandoval's laboratory is currently working on techniques for increasing MKP-3 expression after surgery, with the hope of preventing the transition to chronic pain in mastectomy patients. His laboratory will also soon be analyzing MKP-3 expression in surgical patients to identify patients at high risk of developing chronic pain. He was recently awarded a competitive three-year grant through the Scholars in Pain Program from the Rita Allen Foundation to study "Spinal Cord Mechanisms in the Resolution of Postoperative Pain." The Rita Allen Foundation provides funding for pain researchers and provides latitude so that the researchers' findings can be translated from "bench to bedside."

SUMMER RESEARCH AT PRESBYTERIAN COLLEGE

Last summer, 17 students and 11 faculty engaged in research and scholarship through the Presbyterian College Summer Fellows program. Additionally, the Pharmacy School launched the Pharmacy Research Summer Internship, with five students mentored by five faculty. Students and faculty shared lunchtime workshops, and at the end of the summer the students presented their projects at the Research Colloquium.

Thank you to all of the wonderful faculty mentors for making this a fabulous experience for our students. Special thanks go to Bob Freymeyer and Latha Gearheart for directing the Summer Fellows program and to Alfonso Romero-Sandoval and Sarah Sweitzer for directing the PRSI program.

Be on the lookout in January for next summer's applications for these programs.



As part of the PCSP PRSI program, Evan Bryson, a pre-pharmacy student from Tri County Technical College in Pendleton, researched the transdermal penetration of pain gels with Dr. Scott Asbill (at left). Read more about Evan's experience at http://www.tctc.edu/About_TCTC/Media/News_Releases/evan_bryson.xml



Arathi Pillay (P2 Student, left photo) researched the integration of human papillomavirus 16 into cervical cancer with Dr. Amy Messersmith.

Marina Lean (P2 Student) uses the microscope to research the use of nanoparticles in the prevention of chronic post surgical pain with Candler Paige (on right)



INSTITUTIONAL REVIEW BOARD UPDATES

The IRB has been working over the past year to bring PC into federal compliance. The last step of this initiative is to implement the Collaborative Institutional Training Initiative program for all faculty and students involved in human subjects

research. IRB committee members will complete the training program this fall, while training for faculty and students is anticipated for the spring term. Details are forthcoming.

IRB proposal submission dates for 2013-2014:

August 14, 2013	October 17, 2013
December 18, 2013	April 23, 2014

Contact IRB:

irb@presby.edu
www.presby.edu/ir/irb/

WHY ARE IRBS IMPORTANT?

A Spring Lake, N.C. high school science teacher recently lost her job because she allowed her students to conduct an experiment on blood typing using a lab kit with seven lancets. WRAL.com reported that “she allowed students to use the lancing needles to prick their own fingers. After using the needles, the students wiped them with alcohol swabs so the next class could use them.”

An IRB review of the lab would have recognized the violation of blood born pathogen procedures and prevented this occurrence. For the full story go to:

- www.wral.com/blood-experiment-costs-harnett-teacher-her-job/13047542/

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

The IACUC meets to review animal use protocols during the last week of September, January, and May. Find information at www.presby.edu/biology/animal-care-concerns/. Contact Dr. Ron Zimmerman at rzim@presby.edu with questions or concerns.

2013-14 IRB Members

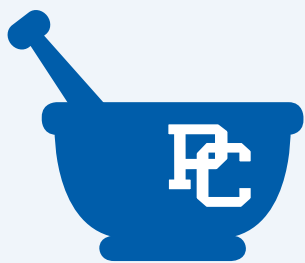
Dr. Troy Nash (Co-Chair)	A&S
Dr. Nancy Pedigo (Co-Chair)	PCSP
Dr. Meg Franklin	PCSP
Dr. Kathryn Freeland	PCSP
Dr. Bob Freymeyer	A&S
Dr. Eddie Grace	PCSP
Dr. Erin McAdams	A&S
Dr. Jay Michaels	A&S

Ms. Brenda Schrantz

Community Representative
 Dr. Sarah Sweitzer (Ex Officio)
 Director of Research, PCSP
 Ms. Geneva Kelly (Ex Officio)
 Director of Grants, PCSP

2013-14 IACUC Members

Dr. Ron Zimmerman (Chair)
 Biology Department
 Dr. Alicia Askew
 Psychology Department
 Dr. Jerry Slice
 Economics Department
 Dr. Sarah Sweitzer
 Director of Research, PSPC
 Dr. Jennifer Dixon
 Veterinarian
 Ms. Ruth Green
 Community Representative



UPCOMING EVENTS

Second Annual PC Faculty Research Retreat

Monday, Dec. 16, 2013 2-4 p.m.

Pharmacy School Lecture Hall 104

RSVP: ssweitzer@presby.edu, asandoval@presby.edu

2013 FACULTY PUBLICATIONS

Our faculty and students are conducting innovative and cutting-edge scholarship. Congratulations to the following faculty who have been published thus far this year:

BIOLOGY

- **Grim, J.M.**, E.A. Simonik, M.C. Semones, D.E. Kuhn, and E.L. Crockett. The glutathione-dependent system of antioxidant defenses is not modulated by temperature acclimation in muscle tissue from striped bass, *Morone saxatilis*. *Comparative Biochemistry and Physiology A*. 2013 164, 383-390.
- LaBar, T. Campbell, C., **Yang, S.** Albert, R., and Shea, K. Global versus local extinction in a network model of plant-pollinator communities. *Theoretical Ecology*.
- Russo, L. DeBarros, N., **Yang, S.**, Shea, K., and Mortenson, D. in press. Supporting crop pollinators with floral resources: Network-based phenological matching. *Ecology and Evolution* (In press).

PHARMACY, PHARMACEUTICAL AND ADMINISTRATIVE SCIENCES

- Arnold, J, **Asbill, C.S.** Effect of Formulation pH on transdermal penetration of antiemetics formulated in poloxamer lecithin organogel. *International Journal of Pharmaceutical Compounding*. 2013.
- Banister, CE, **Messersmith AR**, Chakraborty H, Wang Y, Spirya LB, Glover SH, Pirisi L, Creek KE. HPV prevalence at enrollment and baseline results from the Carolina Women's Care Study, a longitudinal study of HPV persistence in college-age women. *International Journal of Women's Health*. 2013, July 2;5:379-88.
- Franz, S. E., Watkins, R. R., Wright, L. A., Weaver, B. A., Hartage, R. C., Giviriga, I., **Gumina, G.** & Feske, B. D. Synthetic strategy toward g-keto nitriles and their biocatalytic conversion to asymmetric g-lactones. *Synthesis*. 2013;45:2171-2178.
- **Happe LE**, Walker D. Pharmacy students for an evolving health care delivery system through the use of Grey Literature. *Am J Pharm Educ*. 2013;44(7):1-7.
- He SQ, Yang F, Perez FM, Xu Q, Shechter R, Cheong YK, Chung CY, Carteret AF, Dong X, **Sweitzer SM**, Raja SN, Guan Y. Tolerance to the anti-allodynic effects of the peripherally acting opioid, loperamide hydrochloride, develops in nerve-injured rats. *PAIN*. 2013 (In press).

- Shull, AY, Clendenning, ML, Ghoshal-Gupta, S, **Farrell, CL**, Vangapandu, HV, Dudas, L, Buckhaults, PJ. Somatic Mutations, Allele Loss, and DNA Methylation of the Cub and Sushi Multiple Domains 1 (CSMD1) Gene reveals association with early age of diagnosis in colorectal cancer patients. PLOS ONE. 2013 Mar.
- Spry, C., Macuamule, C., **Virga, K.G.**, Lee, R.E., Strauss, E., and Saliba, K.J.; Pantothenamides are potent, on-target inhibitors of plasmodium falciparum growth when serum pantetheinase is inactivated. PLoS One. 2013;8(2):e54974. Epub 2013 Feb 6.

PHARMACY, PHARMACY PRACTICE

- Farrell, CL, **Pedigo, N**, **Messersmith, AR**. Application of Genomic Principles to Pharmacotherapy of Cancer, American Journal of Pharmacy Education. (Accepted 2013 Oct).
- **Freeland KN, Shealy KM**. Toolbox: Psychotropic use in pregnancy and lactation. Ment Health Clin. 2013; 3(2):100.
- **Fox J, Clements J**, Sarigianis A. Description and perspective of an academic learning experience for a pharmacy practice resident. Curr Pharm Teach Learn. 2013;5(5):483-489.
- Johnson M, **Clements J**. Four years of experiences of a joint school of pharmacy and school of education pharmacy residency teaching certificate program for affiliated residency programs. Curr Pharm Teach Learn. 2013;5(4):276-282.
- Saha M, Skopelja S, Martinez E, Alvarez DL, Liponis BS, **Romero-Sandoval EA**. Spinal Mitogen-Activated Protein Kinase Phosphatase-3 (MKP-3) is Necessary for the Normal Resolution of Mechanical Allodynia in a Mouse Model of Acute Postoperative Pain. J Neurosci. 2013 Oct 23;33(43):17182-7. doi: 10.1523/JNEUROSCI.5605-12.2013.
- **Romero-Sandoval EA**. Peripheral benzodiazepine receptors: are they potential biomarkers for glial activation in pain states? Eur J Pain. 2013 May;17(5):635-7. doi: 10.1002/j.1532-2149.2012.00283.x. Review. No abstract available.
- **Sease, J. M., Franklin, M., Moore, K. G**. Impact of pharmacist management on patients with diabetes enrolled in a rural free clinic. To appear in American Journal of Health-System Pharmacy (In press).
- **Sease JM, Franklin MA, Gerrald KR**. Impact of pharmacist management on patients with diabetes enrolled in a rural free clinic. Am J Health-Syst Pharm. 2013;70:48-52.
- **Sease JM, Cornell S, Shealy KM, Johnson JT**. Diabetes Mellitus. In: Chisholm-Burns MA, Kolesar JM, Malone PM, Schwinghammer TL, Wells BG, and DiPiro J, eds. Pharmacotherapy Principles and Practice. 3rd ed. New York: McGraw-Hill, 2013:757-786.

PSYCHOLOGY

- **Michaels JL**, Vallacher RR, Liebovitch LS. Volatile psychological dynamics in social interactions: Attitudes and emotions react asymmetrically to interaction shifts between agreement and disagreement. Social Psychological and Personality Science. 2013.
- Cooper, P.J., Pauletti, R.E., Tobin, D.D., Menon, M., Menon, M., **Spatta, B.C.**, Hodges, E.V.E., Perry, D.G. (2013). Gender Identity and the Mother Child Relationship. Sex Roles (In press).

Our apologies if you published and it is not included in this listing. Please be sure to send citations on publications to spor@presby.edu for inclusion in the next newsletter.



NEW GRANTS FUNDED IN 2013

We are proud of the research and scholarship that takes place at PC, not only in daily endeavors but also through funded grants totaling \$877,000. Please join us in congratulating the following faculty and staff on their funded grants:

- Drs. Scott Asbill and Sarah Sweitzer were awarded a \$10,000 grant from the International Academy of Compounding Pharmacists titled “Are Compounded Pain Gels Efficacious? The In Vivo Testing of Compounded Pain Gels Using PAMPA.” This grant will determine whether commonly compounded topical analgesics undergo transdermal penetration and reduce pain.
- Dr. Alfonso Romero-Sandoval was awarded a \$150,000 grant from the Rita Allen Foundation & American Pain Society titled “Spinal Cord Mechanisms in the Resolution of Postoperative Pain.” The goal of this grant is to identify whether peripheral mechanisms at the site of injury (surgery) determines spinal cord changes found in our model of persistent postoperative pain.
- Drs. Tiffany Threatt and Kayce Shealy were awarded a \$1,000 grant from the National Association of Chain Drug Stores titled “2013 Heart to Heart Community Health Fair Award.”
- Dr. Cliff Fuhrman, Dr. Sarah Sweitzer, and Ms. Geneva Kelly were awarded a \$440,000 grant from NIH titled “Developing an Office of Sponsored Projects at Presbyterian College.”
- Drs. Chris Farrell and Nancy Pedigo were awarded a \$10,000 grant from SC IDeA Networks of Biomedical Research Excellence for their pilot study, “Identification of Upregulated Genes in Breast Tumors with Overexpression of FGD1.” This study is looking at the upregulation of genes in the Cdc42 pathway using breast tumors that are overexpressing the Fgd1 protein.
- Dr. Suann Yang was awarded a \$155,000 grant from the National Science Foundation titled “Flying with IBIS: Integrated Biology and Inquiry Skills.” The goal of the grant is to implement a new, inquiry-based foundational biology course at Presbyterian College.
- PCSP was awarded two grants of \$48,000 and \$63,000 from the Self Regional Hospital Outreach Committee to provide pharmacy care for “Clinica Gratis,” a free medical clinic in Greenwood, South Carolina.

Please be sure to send information on funded grants to spor@presby.edu for inclusion in the next newsletter.

GRANTS SUBMITTED

No grants are funded without first being submitted, and we like to celebrate each proposal as an accomplishment. We are pleased to recognize the following individuals and their accompanying proposals requesting \$3,185,000:

- Drs. Tommy Johnson, Kate Moore, and Sarah Sweitzer submitted a grant titled “Closing the Gap in Healthcare Disparities through Dissemination and Implementation of Patient Centered Outcomes Research” to Agency for Healthcare Research & Quality for \$1.5 million.
- Dr. Chris Farrell submitted a grant titled “Loss of Methylation in the FGD1 Promoter Region of Breast Tumors” to American Association of Colleges of Pharmacy for \$10,000.
- Drs. Jim Wetzel, Alfonso Romero-Sandoval, and Sarah Sweitzer submitted a proposal to join SC INBRE for \$1.3 million.
- Dr. Giuseppe Gumina submitted an R15 AREA grant titled “Novel peptidic nucleosides as anticancer agents” to NIH for \$325,000.
- Dr. Alfonso Romero-Sandoval submitted an R15 AREA grant titled “Cell-Directed Therapy Using Nanotechnology for the Prevention of Chronic Postoperative Pain” to NIH for \$325,000.
- Dr. Anita Gustafson submitted a NETvue proposal titled “The PC Launch Program for Vocation, Leadership, and Service” to the Lilly Foundation for \$50,000.

Please be sure to file a Proposal Processing Form to the Office of Sponsored Projects for all grants prior to their respective due dates. This is required for federal compliance and will ensure your grant is included in the next newsletter. (If your submission does not appear in this newsletter, please contact us at spor@presby.edu.)

PC FACULTY DEVELOPMENT GRANT PROPOSAL DEADLINE CHANGE

The next deadline for Faculty Development Grant proposals is November 15 (this deadline has changed from previous years). Proposals should be submitted to the Office of the Provost. [Guidelines and proposal forms are available.](#)

UPCOMING GRANT OPPORTUNITIES

- **NIH: MARC Undergraduate Student Training in Academic Research (U-STAR) National Research Service Award (NRSA) Institutional Research Training Grant (T34)PAR-13-205** To assist undergraduate institutions to increase the number of well-prepared underrepresented (UR) students who, within three years of graduation, matriculate into competitive/research active Ph.D. or combined M.D.-Ph.D. programs in the biomedical and behavioral sciences, go on to research careers and will be available to participate in NIH-funded research. A full proposal is due by May 23, 2014. <http://grants.nih.gov/grants/guide/pa-files/PAR-13-205.html>

- NSF: Cyberinfrastructure Training, Education, Advancement, and Mentoring for Our 21st Century Workforce (CI-TEAM) 11-515** The Major Research Instrumentation Program (MRI) seeks to improve the quality and expand the scope of research and research training in science and engineering. Each MRI proposal may request support for the acquisition (Track 1) or development (Track 2) of a single research instrument for shared inter- and/or intra-organizational use; development efforts that leverage the strengths of private sector partners to build instrument development capacity at MRI submission-eligible organizations are encouraged. COST SHARING IS REQUIRED. A full proposal is due by January 23, 2014. <http://www.nsf.gov/pubs/2013/nsf13517/nsf13517.htm>
- NSF: Methodology, Measurement, and Statistics NSF 12-510** An interdisciplinary program in the Social, Behavioral, and Economic Sciences that supports the development of innovative analytical and statistical methods and models for those sciences, including: 1. Regular Research Awards 2. Mid-Career Research Fellowships 3. Doctoral Dissertation Research Improvement Grants 4. Research Experience for Undergraduates (REU) Supplement CFDA 47.075. A full proposal IS DUE by January 16, 2014. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5421
- NIH: NINDS Neuroscience Development for Advancing the Careers of a Diverse Research Workforce (R25)PAR-13-256** To support mission relevant development and/or implementation of programs to: (1) increase the pool of Ph.D.-level research scientists from diverse backgrounds underrepresented in biomedical research who are neuroscience researchers- participation is limited to graduate, post-doctoral and/or junior-faculty career levels only; and (2) facilitate career advancement/transition of the participants to the next step of their neuroscience careers. Letter of intent is due on December 9, 2013 and a full proposal is due by January 25, 2014. <http://grants.nih.gov/grants/guide/pa-files/PAR-13-256.html>
- DOE: Energy Frontier Research Center (DE-FOA-00001010)** To support fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels in order to provide the foundations for new energy technologies and to support DOE's mission emphases in energy, the environment, and national security. To bring together multiple investigators to enable fundamental research to enhance U.S. energy security and to meet the global need for abundant, clean, and economical energy. Letter of intent is due November 13, 2013 and a full proposal is due by January 9, 2014. <http://www.grants.gov/web/grants/view-opportunity.html?oppId=243953>
- NSF: Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP) NSF 11-550** To increase the number of students (U.S. citizens or permanent residents) receiving associate or baccalaureate degrees in established or emerging fields within science, technology,

