



## Collins Hails Varmus as “Best Person on the Planet” to Lead the National Cancer Institute

By Nancy Parrish, Staff Writer

On July 12, Harold Varmus, M.D., was sworn in as the 14<sup>th</sup> director of the National Cancer Institute. At the town hall meeting to introduce Varmus, NIH Director Francis Collins, M.D., Ph.D., said Varmus is “the best person on the planet to take the reins of the National Cancer Institute at this propitious moment.”<sup>1</sup>

### No Stranger to NIH

Varmus was director of NIH from 1993 until 1999, during which time he was instrumental in an effort to double the NIH budget. But that wasn’t his first association with NIH. Shortly after receiving his medical degree from the Columbia University College of Physicians and Surgeons, he joined the laboratory of Ira Pastan, who established and is current chief of the Laboratory of Molecular Biology,

Center for Cancer Research, NCI. Varmus noted in his online autobiography that his work in Pastan’s laboratory “provided me with my first serious

exposure to laboratory science and to the excitement of experimental success.”<sup>2</sup>

Following his early experience at NIH, Varmus joined the faculty of the University of California, San Francisco, medical school, where he remained for 23 years before being appointed director of NIH by President Clinton. In 2000, he became president and CEO of Memorial Sloan-Kettering Cancer Center (MSKCC), representing yet another connection to NIH. MSKCC is an NCI-designated cancer center. Such facilities are, according to the NCI web site, “funded by competitive grants and are characterized by scientific excellence and the capability to integrate a diversity of research approaches to focus on the problem of cancer.”<sup>3</sup>



### Nobel Laureate and Recipient of Numerous High Honors, Top-Level Appointments

In 1989, Varmus was co-recipient, with J. Michael Bishop, M.D., of the Nobel Prize in Physiology or Medicine for their studies in the genetic basis of cancer. In his presentation speech, Professor Erling Norrby of the Karolinska Institute noted that the work of Varmus and Bishop “set in motion an avalanche of research on factors that govern the

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# Varmus Heads NCI

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normal growth of cells. This research has given us a new perspective on one of the most fundamental phenomena in biology and as a consequence also new insights into the complex group of diseases that we call cancer.”<sup>4</sup>

Most recently, Varmus was appointed co-chair of the President's Council of Advisors on Science and Technology. In addition, an article in the current issue of *News & Views* (Vol 16, p. 3) notes that Varmus “recently co-chaired an Institute of Medicine report, *The U.S. Commitment to Global Health*. He is a co-founder and Chairman of the Board of the Public Library of Science, a publisher of open access journals; chairs the Global Health Advisory Committee at the Bill and Melinda Gates Foundation; and is a

member of the U.S. National Academy of Sciences and the Institute of Medicine. As well as the Nobel Prize and other honors, he has received the National Medal of Science and the Vannevar Bush Award.”

## From Shakespeare to Science

Varmus grew up in Freeport, New York, and attended Amherst College in Amherst, Massachusetts. He anticipated pursuing pre-med studies, but in the end, he earned a degree in English literature and pursued postgraduate studies at Harvard University. He continued to be drawn to medicine, however, and after a year at Harvard, he entered medical school.<sup>2</sup>

## “A New Chapter for NCI”

During the swearing-in ceremony, Health and Human Services Secretary Kathleen Sebelius welcomed Varmus back into the fold. “It’s very exciting to have you back,” she said. “Today is the opening of a new chapter for NCI.”<sup>1</sup> ■

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3. [http://cancercenters.cancer.gov/cancer\\_centers/index.html](http://cancercenters.cancer.gov/cancer_centers/index.html)
4. Nobelprize.org. Accessed August 16, 2010. [http://nobelprize.org/nobel\\_prizes/medicine/laureates/1989/presentation-speech.html](http://nobelprize.org/nobel_prizes/medicine/laureates/1989/presentation-speech.html)



## Single-Molecule Sequencing Arriving at NCI

By James Cherry and Walter Hubert,  
Office of Scientific Operations, Guest Writers

The power of whole genome sequencing continues to transform many areas of biological research. Over the course of the last two decades, rapid advances in DNA sequencing have driven the development of genomics, fundamentally altered research approaches in, and our understanding of, life and medical sciences, and made possible the promise of truly personalized medicine.

Since the completion of the Human Genome Project in 2003 less than a decade ago, the cost of sequencing genomes has decreased more than a 1,000-fold. More recently, next-generation (second-generation or 2G) sequencing technologies have contributed to significant cost reductions by replacing the methods used in the Human Genome Project and opening up entirely new venues of research. Lowering the cost to less than \$1,000 per genome promises to revolutionize medicine by enabling doctors to tailor strategies for disease prevention, diagnosis, and treatment to specific genetic alterations and polymorphisms found in a patient's personal genome. Moreover, low-cost genome sequencing will fundamentally impact basic research, too, by providing detailed, transformative information about the genetic structure of individuals, populations, and cancers, just to name a few important areas.

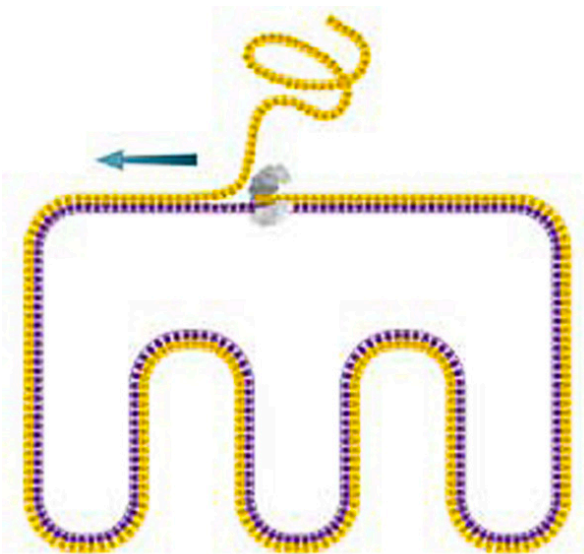
Breakthroughs in technology are promising yet a third generation (3G) of sequencers, which are largely still in development or pre-development. One of the technology leaders, Pacific Biosciences (PacBio), is deploying 10 limited production release 3G systems in preeminent sequencing and bioscience centers around the country as part of their PacBio Pioneer program. Because of the

extensive efforts of Timothy Harris, Ph.D., David Munroe, Ph.D., and Michael Smith, Ph.D., of SAIC-Frederick, the National Cancer Institute was also chosen to participate. This fall, the Sequencing Facility and the Laboratory of Molecular Technology, both part of SAIC-Frederick's Advanced Technology Program, will begin to operate a PacBio single-molecule, real-time (SMRT) sequencer at NCI's Advanced Technology Center in Gaithersburg.

The acquisition of this novel technology is a fine example of how the Federally Funded Research and Development Center at NCI-Frederick adds unique and mission-critical capabilities to the NCI's research and development portfolio. NCI provides an excellent environment, where ground-breaking research is performed on the widest variety of samples. These critical aspects likely contributed to PacBio's selection of NCI as a Pioneer partner for deploying its emerging SMRT sequencer technology.

PacBio's SMRT system is a significant leap forward in DNA sequencing, since it can perform long-reads (on the order of 1,000 base pairs) on single molecules and determine sequence data in real time. Another major advantage of single-molecule analysis is the ability to identify allele-specific changes within a genome, providing a powerful tool for assessing tumor heterogeneity. The ease of sample preparation, short run-times, and the high accuracy of redundant, circular consensus sequencing (see figure) on the PacBio system will be a great enabler.

Translational, clinical, and basic research will benefit soon from this new 3G sequencing technology. Molecular diagnostics for assessing



Circular consensus sequencing (image from Pacific Biosciences™). A strand-displacing enzyme on a circular template generates multiple, independent reads. The quality score increases linearly with the number of times the molecule is sequenced. (Figure courtesy of Dr. James Cherry, OSO)

disease susceptibility or the selection of a therapeutic regimen will truly become a cornerstone of personalized medicine. Allele-specific determinations of single nucleotide polymorphisms, insertions/deletions, and complex structural elements will aid in advancing epidemiology and tumor biology. Monitoring pathogen evolution and the course of multi-pathogen infections will also become more sophisticated. Finally, PacBio has already shown proof-of-concept for single-molecule analysis of DNA methylation, which promises to add a new dimension to the study of epigenetics, i.e., another root cause of why humans differ so widely in disease susceptibility and response to medical therapy.

NCI will contribute to these incredible advances in biomedical research from the outset. All this talent and dedication of folks from SAIC-Frederick and the Intramural Research Program, make NCI truly an amazing place to work. ■

# Advanced Technology Research Facility

## ATRF Construction Progress



The administration wing currently looks as if several walls are missing. In fact, this part of the building will be primarily glass, which is scheduled to be installed starting in mid-September.



Large windows will look out between the laboratory wings. Shown above are the frames for one set of these windows.

### Watch the Construction

Follow the construction of the Advanced Technology Research Facility in real time on the Matan web cam, at the following link:

[http://camera.mataninc.com:45452/view/viewer\\_index.shtml?id=1028](http://camera.mataninc.com:45452/view/viewer_index.shtml?id=1028)

*Note: Please be patient when accessing the web cam. It is set up to handle 20 users at a time.*



The laboratory wings have lots of windows, to provide maximum natural light. Shown here is a wall of Wing D, which will house the Center for Cancer Research laboratories as well as those of the Imaging and Nanotechnology Group of the Advanced Technology Program. Construction for the interior space (known as the fit-out) of the laboratory wings has been tentatively moved to December.

*Photos courtesy of Hoyt Matthai, July 7, 2010.*

## Sufficient Levels of IL2R $\gamma_c$ Given to SCID-X1 Patients May Improve Immune System Function

By Ashley DeVine, Staff Writer



Selinda Orr, Ph.D., Visiting Fellow, Cancer and Inflammation Program, Center for Cancer Research, NCI-Frederick

X-linked severe combined immunodeficiency (SCID-X1) is an inherited immune system disorder caused by mutations in the IL2R $\gamma_c$  gene. SCID-X1 patients lack important immune cells such as T and natural killer (NK) cells, and, therefore, are extremely vulnerable to infections. These patients require bone marrow transplants or gene therapies to survive.

Selinda Orr, Ph.D., and colleagues in the Cancer and Inflammation Program, Center for Cancer Research (CCR), NCI-Frederick, have shown that in a mouse model of SCID-X1, mice reconstituted with low levels of the IL2R $\gamma_c$  gene developed and maintained a significant T-cell population, but could not maintain a normal number of NK cells.

“This finding is important for patients undergoing IL2R $\gamma_c$  gene therapy because

the level of IL2R $\gamma_c$  delivered to the cells must be of a sufficient quantity to facilitate the maintenance of an NK cell population in these patients so their immune systems can mount appropriate anti-viral responses and perform immunosurveillance to prevent cancer development,” Orr said.

Based on this research, future clinical trials for SCID-X1 patients need to focus on delivering the appropriate level of IL2R $\gamma_c$  to these patients to promote the development of healthy NK cell populations. If the right level of IL2R $\gamma_c$  is achieved, patients should have improved anti-viral and antitumor immunity.

Orr is a visiting fellow in the Cancer and Inflammation Program, CCR. She received her doctorate in immunology from the Queen’s University Belfast in Northern Ireland. ■

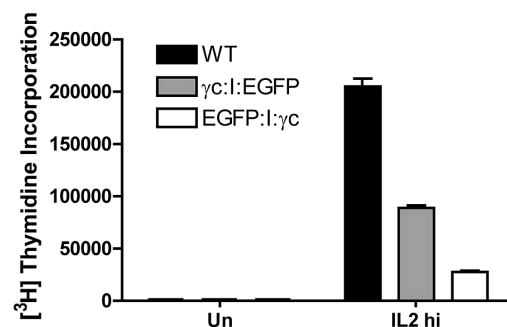
## Implications for Gene Therapy-Limiting Expression of IL-2R $\gamma_c$ Delineate Differences in Signaling Thresholds Required for Lymphocyte Development and Maintenance

Orr SJ, Roessler S, Quigley L, Chan T, Ford JW, O’Connor GM, McVicar DW  
*J Immunol* 185(3):1393–1403, 2010.

X-linked SCID patients are deficient in functional IL-2R $\gamma_c$  leading to the loss of IL-2/IL-4/IL-7/IL-9/IL-15/IL-21 signaling and a lack of NK and mature T cells. Patients treated with IL-2R $\gamma_c$  gene therapy have T cells develop; however, their NK cell numbers remain low, suggesting antiviral responses may be compromised. Similarly, IL-2R $\gamma_c^{-/-}$  mice reconstituted with IL-2R $\gamma_c$  developed few NK cells, and reconstituted T cells exhibited defective proliferative responses, suggesting incomplete recovery of IL-2R $\gamma_c$  signaling. Given the shift toward self-inactivating long terminal repeats with weaker promoters to control the risk of leukemia, we assessed NK and T cell numbers and function in IL-2R $\gamma_c^{-/-}$  mice reconstituted with limiting amounts of IL-2R $\gamma_c$ .

Reconstitution resulted in lower IL-2/-15-mediated STAT5 phosphorylation and proliferation in NK and T cells. However, TCR costimulation restored cytokine-driven T-cell proliferation to wild-type levels. Vector modifications that improved IL-2R $\gamma_c$  levels increased cytokine-induced STAT5 phosphorylation in both populations and increased NK cell proliferation, demonstrating that IL-2R $\gamma_c$  levels are limiting. In addition, although the half-lives of both NK and T cells expressing intermediate levels of IL-2R $\gamma_c$  are reduced compared with wild-type cells, the reduction in NK cell half-life is much more severe than in T cells. Collectively, these data indicate different IL-2R $\gamma_c$  signaling thresholds for lymphocyte development and proliferation, making functional

monitoring imperative during gene therapy. Further, our findings suggest that IL-2R $\gamma_c$  reconstituted T cells may persist more efficiently than NK cells, due to compensation for suboptimal IL-2R $\gamma_c$  signaling by the TCR. ■



Proliferation of WT-(high  $\gamma_c$ ),  $\gamma_c$ :I:EGFP-(int  $\gamma_c$ ), and EGFP:I: $\gamma_c$ -(low  $\gamma_c$ ) expressing NK cells correlates with the level of  $\gamma_c$  expression.

The following 30 articles have been selected from 13 of the most prestigious science journals published during the past quarter.

## Biochemistry and Biophysics

**Zhang Y, Li Q, Rodriguez LG, Gildersleeve JC.** An array-based method to identify multivalent inhibitors. *J Am Chem Soc* 2010.

## Cell, Tumor, and Stem Cell Biology

**Cao L, Yu Y, Bilke S, Walker RL, Mayeenuddin LH, Azorsa DO, Yang F, Pineda M, Helman LJ, Meltzer PS.** Genome-wide identification of PAX3-FKHR binding sites in Rhabdomyosarcoma reveals candidate target genes important for development and cancer. *Cancer Res* 2010.

**Matsumoto K, Irie F, Mackem S, Yamaguchi Y.** A mouse model of chondrocyte-specific somatic mutation reveals a role for Ext1 loss of heterozygosity in multiple hereditary exostoses. *Proc Natl Acad Sci USA* 107(24):10932–10937, 2010.

**Miller Y, Ma BY, Nussinov R.** Zinc ions promote Alzheimer A beta aggregation via population shift of polymorphic states. *Proc Natl Acad Sci USA* 107(21):9490–9495, 2010.

**Salcedo R, Worschech A, Cardone M, Jones Y, Gyulai Z, Dai RM, Wang E, Ma W, Haines D, O’Huigin C, Marincola FM, Trinchieri G.** MyD88-mediated signaling prevents development of adenocarcinomas of the colon: role of interleukin 18. *J Exp Med* 2010.

**Tokar EJ, Qu W, Liu J, Liu W, Webber MM, Phang JM, Waalkes MP.** Arsenic-specific stem cell selection during malignant transformation. *J Natl Cancer Inst* 102(9):638–649, 2010.

**Yan XD, Yin J, Yao HY, Mao N, Yang YL, Pan LY.** Increased expression of annexin A3 is a mechanism of platinum resistance in ovarian cancer. *Cancer Res* 70(4):1616–1624, 2010.

## Cellular Immunology and Immune Regulation

**Chen X, Hamano R, Subleski JJ, Hurwitz AA, Howard OMZ, Oppenheim JJ.** Expression of costimulatory TNFR2 induces resistance of CD4(+)FoxP3(-) conventional T cells to suppression by CD4(+) FoxP3(+) regulatory T cells. *J Immunol* 185(1):174–182, 2010.

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**Li P, Burke S, Wang JX, Chen XF, Ortiz M, Lee SC, Lu D, Campos L, Goulding D, Ng BL, Dougan G, Huntly B, Gottgens B, Jenkins NA, Copeland NG, Colucci F, Liu PT.** Reprogramming of T cells to natural killer-like cells upon Bcl11b deletion. *Science* 329(5987):85–89, 2010.

**Orr SJ, Roessler S, Quigley L, Chan T, Ford JW, O’Connor GM, McVicar DW.** Implications for gene therapy-limiting expression of IL-2R{gamma} delineates differences in signaling thresholds required for lymphocyte development and maintenance. *J Immunol* 185(3):1393–1403, 2010.

**Rohrl J, Yang D, Oppenheim JJ, Hehlhans T.** Human beta-Defensin 2 and 3 and their mouse orthologs induce chemotaxis through interaction with CCR2. *J Immunol* 184(12):6688–6694, 2010.

## Developmental Biology

**Kim MS, Yoon SK, Bollig F, Kitagaki J, Hur W, Whye NJ, Wu YP, Rivera MN, Park JY, Kim HS, Malik K, Bell DW, Englert C, Perantoni AO, Lee SB.** A novel Wilms tumor 1 (WT1) target gene negatively regulates the WNT signaling pathway. *J Biol Chem* 285(19):14585–14593, 2010.

## DNA Dynamics and Chromosome Structure

**Lee S, Shuman JD, Guszczynski T, Sakchaisri K, Sebastian T, Copeland TD, Miller M, Cohen MS, Taunton J, Smart RC, Xiao Z, Yu LR, Veenstra TD, Johnson PF.** RSK-mediated phosphorylation in the C/EBP beta Leucine zipper regulates DNA binding, dimerization, and growth arrest activity. *Mol Cell Biol* 30(11):2621–2635, 2010.

**Pawar SA, Sarkar TR, Balamurugan K, Sharan S, Wang J, Zhang YH, Dowdy SF, Huang AM, Sterneck E.** C/EBP{delta} targets cyclin D1 for proteasome-mediated degradation via induction of CDC27/APC3 expression. *Proc Natl Acad Sci USA* 107(20):9210–9215, 2010.

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## HIV

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## Immunobiology

**Dowdell KC, Niemela JE, Price S, Davis J, Hornung RL, Oliveira JB, Puck JM, Jaffe ES, Pittaluga S, Cohen JI, Fleisher TA, Rao VK.** Somatic FAS mutations are common in patients with genetically undefined autoimmune lymphoproliferative syndrome. *Blood* 115(25):5164–5169, 2010.

**Li H, Ji M, Klarmann KD, Keller JR.** Repression of Id2 expression by Gfi-1 is required for B-cell and myeloid development. *Blood* 116(7):1060–1069, 2010.

**Satyanarayana A, Gudmundsson KO, Chen X, Coppola V, Tessarollo L, Keller JR, Hou SX.** RapGEF2 is essential for embryonic hematopoiesis but dispensable for adult hematopoiesis. *Blood* doi 10.1182/blood-2010-01-262964, Jul 2010.

## Lymphoid Neoplasia

**Wang SS, Abdou AM, Morton LM, Thomas R, Cerhan JR, Gao XJ, Cozen W, Rothman N, Davis S, Severson RK, Bernstein L, Hartge P, Carrington M.** Human leukocyte antigen class I and II alleles in non-Hodgkin lymphoma etiology. *Blood* 115(23):4820–4823, 2010.

## Oncogenes

**Liu W, Zahirnyk O, Wang H, Shiao YH, Nickerson ML, Khalil S, Anderson LM, Perantoni AO, Phang JM.** miR-23b\* targets proline oxidase, a novel tumor suppressor protein in renal cancer. *Oncogene* doi: 10.1038/onc.2010.237, June 2010.

continued on page 7

## DCTD Gets New Building

By Debbie Dobbe, Facilities Maintenance and Engineering, Contributing Writer

What's old again is new again. First, it was Building 470, then it was a parking lot. Now part of that parking lot has become another building—a 6,000-square-foot, two-story leased laboratory/administrative building for the Division of Cancer Treatment and Diagnosis.

As we go to press, the new Building 425 is scheduled for occupancy in mid-September. The facility will provide office space and laboratories for 29 occupants providing coordinated, multidisciplinary support of translational initiatives to bridge the gap between basic scientific investigation and clinical research.

The laboratories include Molecular Pharmacology, Cell Culture, QIFA/Histo Pyrosequencing, Specimen and Prep Assay Set-up, a polymerase chain reaction room, a microscopy suite, and an internal quality control/analytical batch release area. The facility will also be equipped with an emergency power generator to provide uninterrupted service to critical scientific equipment.



Lockard Construction, the contractor for Building 310, is responsible for the design, fabrication, and installation of the modular building, including foundation systems, utilities from point-of-use to point-of-connection (domestic water, steam, chilled water, sewer, and electrical), and interior fit-out.

Once the installation and fit-out of the facility are completed, Facilities Maintenance and Engineering (FME) will provide landscaping, LAN/telephone service, cardkey wiring, and fire alarm transmitters; and will coordinate with the Fort Detrick Fire Department and Environment, Health, and Safety.

Building 425 is the fourth modular structure FME has installed. ■

continued from page 6

**Santhanam AN, Baker AR, Hegamyer G, Kirschmann DA, Colburn NH.** Pdc4 repression of lysyl oxidase inhibits hypoxia-induced breast cancer cell invasion. *Oncogene* 29(27):3921–3932, 2010.

### **Phagocytes, Granulocytes, and Myelopoiesis**

**Tewary P, Yang D, de la Rosa G, Li Y, Finn MW, Krensky AM, Clayberger C, Oppenheim JJ.** Granulysin activates antigen-presenting cells through TLR4 and acts as an immune alarmin. *Blood* doi:10.1182/blood-2010-03-273953, July 2010.

### **Protein Function, Structure, and Folding**

**Li C, Pazgier M, Li J, Li CQ, Liu M, Zou GZ, Li ZY, Chen JD, Tarasov SG, Lu WY.** Limitations of peptide retro-inverso isomerization in molecular mimicry. *J Biol Chem* 285(25):19572–19581, 2010.

**Miller Y, Ma B, Tsai CJ, Nussinov R.** Hollow core of Alzheimer's A $\beta$ <sub>42</sub> amyloid observed by cryoEM is relevant at physiological pH. *Proc Natl Acad Sci USA* 2010.

**Pletneva NV, Pletnev VZ, Lukyanov KA, Gurskaya NG, Goryacheva EA, Martynov VI, Wlodawer A, Dauter Z, Pletnev**

**S.** Structural evidence for a dehydrated intermediate in green fluorescent protein chromophore biosynthesis. *J Biol Chem* 285(21):15978–15984, 2010.

### **Signal Transduction**

**Watanabe T, Asano N, Fichtner-Feigl S, Gorelick PL, Tsuji Y, Matsumoto Y, Chiba T, Fuss IJ, Kitani A, Strober W.** NOD1 contributes to mouse host defense against *Helicobacter pylori* via induction of type I IFN and activation of the ISGF3 signaling pathway. *J Clin Invest* 120(5):1645–1662, 2010. ■

# Take Your Child To Work Day



## TYCTWD 2010: Fun for Kids and Adults

*By Ashley DeVine, Staff Writer*

More than 300 children participated in 13 HUB activities, 27 programs, and 10 indoor activities during Take Your Child to Work Day 2010 on July 21.

“TYCTWD 2010 at NCI-Frederick and Fort Detrick was a great success, thanks to all of the program sponsors and volunteers,” said Barbara Birnman, public affairs specialist, NCI-Frederick.

Children had a chance to experiment with a mega magnet, have their faces painted, pet snakes and cats, learn about recycling, make slime, launch rockets, hold a real brain, learn to use a microscope, extract DNA from mouse cells, make fleece bears for underprivileged children, watch a chemical magic show, and much more.

“As far as we could determine, the adults had as good a time as the children in the programs they visited, which is a bonus,” Birnman said. ■





# Play and Learning Station

## Pastries and Paintings Raise Funds for PALS

By Nancy Parrish, Staff Writer

The Play and Learning Station (PALS) had another successful art auction and bake sale on July 13. Parents donated the bake sale items, and the children created the impressive display of artwork in the show. Each class also created a masterpiece to be auctioned off. Proceeds from the event will be used to provide additional fresh fruits and vegetables for the children, as well as purchase new or replacement items for the PALS classrooms, as needed. Winners of the art are shown with the artists and their teachers. ■



L to R: Joyce Kaempf, Barbara Birnman (winner), and Judy Burrier, with the toddlers.



L to R: Debbie Crawford, Lara Wilson, and Shalini Oberdoerffer (winner), with the infants.



L to R: Lilly Henderson and Carrie McCracken (winner), with the two-year-olds.



Dee Miller (seated with children), Aylen Molina (standing), and Karen Lau (center, winner), with the pre-schoolers.

# Spring Research Festival

## Winners Announced for SRF Posters

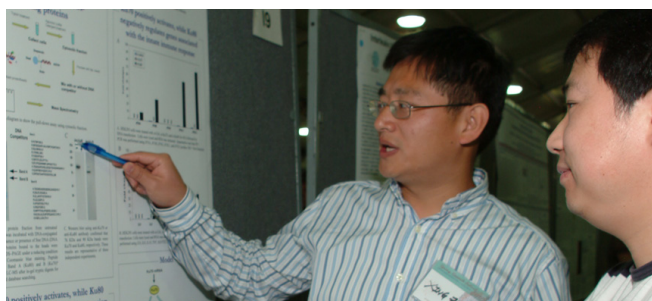
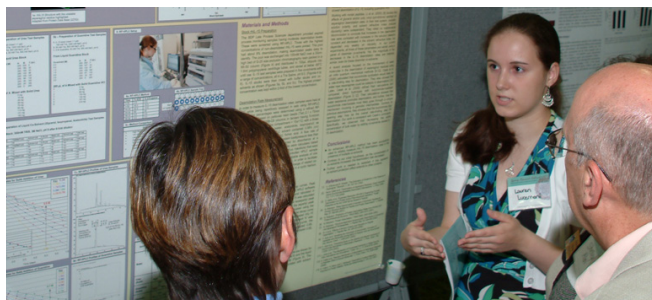
By Jo Anne Barb, Office of Scientific Operations, Guest Writer

This spring marked the 14<sup>th</sup> annual Spring Research Festival, jointly presented by NCI-Frederick and Fort Detrick, with the support of the Technical Sales Association and the Armed Forces Communications and Electronics Association.

Other collaborators in the event included the National Biodefense Analysis and Countermeasures Center, Department of Homeland Security; the United States Department of Agriculture's Foreign Disease Weed Science Research Unit; the Centers for Disease Control and Prevention; the U.S. Army Medical Research Institute of Infectious Disease (USAMRIID); the Navy Medical Biodefense Research Laboratory; and the National Institute of Allergy and Infectious Diseases' Integrated Research Facility.

The winning categories included biochemistry, biodefense, cancer biology, detection and diagnostics, developmental and cell biology, immunology, infectious pathogens, molecular biology, new technology, structural biology and chemistry, therapeutics and drug delivery, and vaccines and gene therapy.

*Pictures show the diversity of posters presented.*



### Biochemistry

#### Students

[Lauren Lucernoni](#), Biopharmaceutical Development Program, SAIC-Frederick

### Biodefense

#### Laboratory Technician/Technical Support

[Virginia Livingston](#), USAMRIID

### Cancer Biology

#### Postdoctoral Scientists

[Balamurugan Kuppasamy](#), [Ju-Ming Wang](#), [Shikha Sharan](#), [Miriam Anver](#), [Robert Leighty](#), [Esta Sterneck](#), Laboratory of Cell and Developmental Signaling, Center for Cancer Research (CCR)

[Kajal Biswas](#), Mouse Cancer Genetics Program (MCGP), CCR  
[Suhwan Chang](#), MCGP, CCR

#### Students

[Jessica Van Schaick](#), MCGP, CCR

### Detection and Diagnostics

#### Students

[Brian Healy](#), Protein Expression Laboratory, NCI Office of the Director

### Developmental and Cell Biology

#### Postdoctoral Scientists

[Rieko Ajima](#), Cancer and Developmental Biology Laboratory, CCR

[Matthew Anderson](#), Cancer and Developmental Biology Laboratory, CCR

[Ravindra Chalamalasetty](#), Cancer and Developmental Biology Laboratory, CCR

### Immunology

#### Postdoctoral Scientists

[Cristina Bergamaschi](#), Vaccine Branch, CCR

[Brunda Ganneru](#), Vaccine Branch, CCR

[Qun Jiang](#), Laboratory of Experimental Immunology, CCR

[Jacob Minang](#), AIDS and Cancer Virus Program, CCR

[Anil Shanker](#), Laboratory of Experimental Immunology, CCR

[Xing Zhang](#), Laboratory of Human Retrovirology, SAIC-Frederick

[Ziqiang Zhu](#), Laboratory of Experimental Immunology, CCR

### Infectious Pathogens

#### Laboratory Technicians/Technical Support

[Sgt Raymond Mann](#), USAMRIID

#### Students

[Brooke Van-Derpoel](#), [Nazzarena Labo](#), AIDS and Cancer Virus Program, OD

# Spring Research Festival

## Molecular Biology

### Postdoctoral Scientists

[Bor-Ruei Lin](#), Laboratory of Molecular Cell Biology, SAIC-Frederick

[Neeraj Sharma](#), Laboratory of Experimental Immunology, CCR

[Yongguang Tao](#), Laboratory of Cancer Prevention, CCR

[Jun Wang](#), Laboratory of Cell and Developmental Signaling, CCR

### Laboratory Technicians/Technical Support

[Sujatha Gowda](#), Gene Regulation and Chromosome Biology Laboratory, CCR

[Jim Sawitzke](#), Gene Regulation and Chromosome Biology Laboratory, CCR

[Vanessa Wall](#), Cloning Optimization Group, Protein Expression Laboratory, SAIC-Frederick

### Students

[Bjorg Gudmundsdottir](#), Laboratory of Cancer Prevention, CCR

[Stephen Lavanier](#), Laboratory of Cancer Prevention, CCR

## New Technology

### Laboratory Technicians/Technical Support

[Sarah Skoczen](#), Nanotechnology Characterization Laboratory, SAIC-Frederick

## Structural Biology and Chemistry

### Postdoctoral Scientists

[Medhanit Bahta](#), Chemical Biology Laboratory, CCR

[Taejin Kim](#), Nanobiology Laboratory, CCR

### Students

[Joanna Yeh](#), Laboratory of Experimental Immunology, CCR

## Therapeutics and Drug Delivery

### Postdoctoral Scientists

[Amichai Yavlovich](#), Nanobiology Program, CCR

### Laboratory Technicians/Technical Support

[Hortense Momo](#), [Dale Ruby](#), [Feri Abedinpour](#), Process Analytics Laboratory, SAIC-Frederick

### Students

[Brandon Smith](#), Nanobiology Program, CCR

## Vaccines and Gene Therapy

### Postdoctoral Scientists

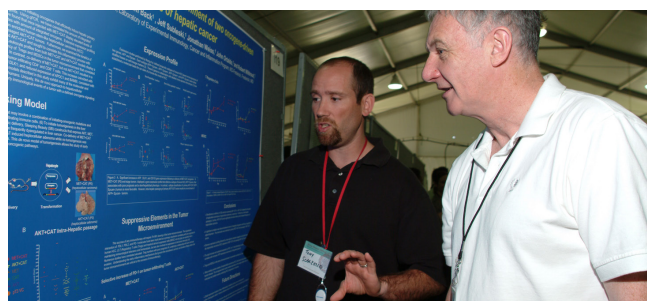
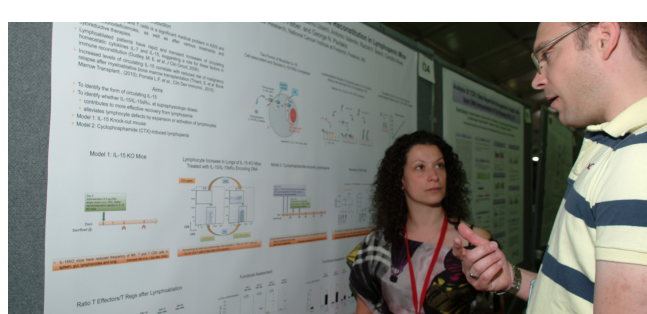
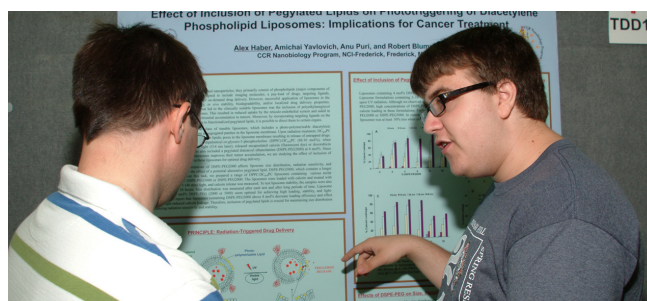
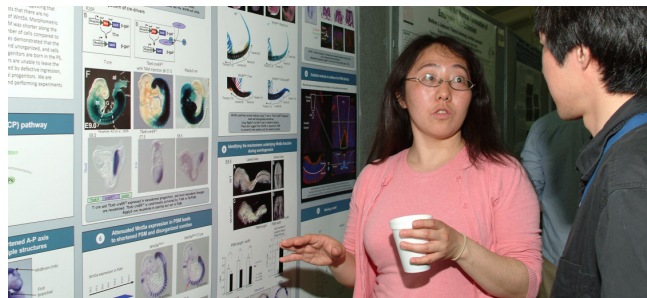
[Raymond Briñas](#), Chemical Biology Laboratory, CCR

[Christopher Campbell](#), Cancer and Developmental Biology Laboratory, CCR

[Viraj Kulkarni](#), Vaccine Branch, CCR

[Mary Rhodes-Selser](#), Biopharmaceutical Development Program, SAIC-Frederick

[Ashish Singh](#), Vaccine Branch, CCR ■



# Farmers' Market



## Market Open Through October; Seasonal Markets Scheduled

*By Barbara Birnman, Contributing Writer*

Farmers' Market kept us brimming all summer with fresh fruits and vegetables, canned goods, marinades, mixes, sauces, mustards, honey and honey products, baked goods, skin care products, fresh coffee, flowers, eggs, crafts, gifts, and more.

And here's the good news: The 2010 market season is open through October 26. It is held on Tuesdays, between 11:00 a.m. and 1:30 p.m., in front of Building 549.

In keeping with tradition, two Special Holiday Markets have been scheduled. The first will be on Tuesday, November 23, just in time for Thanksgiving; the second will be on Tuesday, December 21, for those last-minute gifts or food items.

In addition to most of our regular vendors, a number of artisans and crafters are expected to be on hand to help you with your holiday shopping and meals. Advance orders via e-mail will be available for some items, including Judy's baked goods, which are always very popular. Star Industries will also be taking advance orders for holiday wreaths and centerpieces. Reminders and flyers will be distributed, so watch your e-mail and bulletin boards. ■



## IB Express Provides Office Supplies and Employs the Disabled

By Ashley DeVine, Staff Writer

Did you know that Fort Detrick has a full-service office supply store right here on base? IB Express, a division of Industries for the Blind, Inc., offers tactical gear, office supplies, and technology products to federal employees. These products were on display during the store's vendor fair in June.

IB Express is part of the AbilityOne Program, a federal initiative established to assist disabled individuals in finding employment by working for nonprofit groups that sell products and/or services to the U.S. government, according to [http://abilityone.org/about\\_us/index.html](http://abilityone.org/about_us/index.html).

"We provide work for these individuals and they also manufacture products for us so it enhances their lives and it empowers them because they can get out in the workforce," said Tim Selby, IB Express store manager.

Selby said some of the benefits of shopping at IB Express are reliable and quick service, and reasonable pricing. By purchasing supplies at this store, customers are supporting job creation for disabled individuals who might not otherwise be employed.

Anyone at Fort Detrick can shop at IB Express, as long as they have a government IMPAC card; the store does not handle cash. To set up an account or place an order, you can visit



IB Express employees (from left) Brian McKinney, Stacey Goff, and Karen Brake, with Store Manager Tim Selby.

the store, go to <https://www.ibmilw.com/index/base>, call 301-228-2107, fax 301-228-2108, or send an e-mail to [detrick@basesupplystores.com](mailto:detrick@basesupplystores.com).

The average time in which orders are received is the next business day. "If I get notification of an item that you need by three o'clock the day before, I can have it here by mid- to late morning the next day," Selby said.

The store employs six people, including Selby, two of whom are legally blind. "There are no disadvantages to having visually impaired employees. As a matter of fact, it's been a benefit because it's been an inspiration to us," Selby said. One employee who was recently hired had never had a job before and was so happy to receive a paycheck for the first time at 42 years of age, Selby said. "If that doesn't pick you up every day, I don't know what will."

IB Express is located at 1453 Campus Drive, and is open from 8 a.m. to 4 p.m. each day. Free delivery services are available. ■



Elizabeth Ramsburg:

### It All Started with a Frog

By Nancy Parrish, Staff Writer

Elizabeth Ramsburg, Ph.D., knew she wanted to be a scientist from the moment she dissected a frog in sixth grade. “I like how living things work, and that was the first time I had really gotten to see something like that. I just thought, ‘Wow, that’s what’s inside a frog!’” And that child-like amazement has remained with her throughout her career.

In a recent visit to NCI-Frederick, Ramsburg, a former Werner H. Kirsten student intern, spoke to the incoming interns, giving them sound advice from someone who’s

“been there, done that.” She said she began her internship wanting to be a nuclear engineer, but changed her mind when she realized how much math was needed to succeed in that field. During her internship with mentor Scott Durum, Ph.D., Laboratory of Molecular Immunoregulation, she became fascinated by immunology. “I realized that immunology was

really amazing and fascinating, and 20 years later, it’s still amazing and fascinating,” she said. “It never gets old.”

### Now a Laboratory Director at Duke

Today Ramsburg, a viral immunologist, is director of the Laboratory of Vaccine Vector Immunology at the Duke Human Vaccine Institute, Duke University School of Medicine, where she and her colleagues use viral vectors derived from attenuated recombinant vesicular stomatitis virus to study how viruses

interact with the immune system. While her laboratory is involved in generating a universal flu vaccine (meaning it does not have to be administered annually), Ramsburg said they are also interested in emerging viral pathogens, such as West Nile and Rift Valley fever viruses. Their goal is to “make a vaccine quickly and safely.”

### One of Seven Interns in the Program

When Ramsburg started her internship in 1990, she was one of

only seven students in the program. A 1991 Liganore High School graduate, she majored in biochemistry at North Carolina State University while spending summers working in Durum’s laboratory.

Following graduation, she worked for a year as a laboratory technician, an experience she strongly recommends for students interested in research. “It gives you a feeling for what being a scientist is

really like,” she said. She also had time to consider postgraduate options. Ultimately she chose to study immunology at Yale University, where she earned her Ph.D. and worked for three years as a postdoc. By then she was ready for an independent lab and was drawn to Duke University not only because it has an excellent vaccine development program, but also because she wanted to return to North Carolina.

She has lived in North Carolina for the past five years, and when she’s not in the lab, you might find her tending a



Ramsburg with Durum before her talk to current interns in July. She later described her work in a presentation entitled “rVSV Vaccines for Emerging Infections,” given to a general audience.

communal garden, which she and her partner Kristi share with friends and neighbors, or working on their nearly 100-year-old house. When you live in an old house, she noted, “you’re never short of projects.”

### Being Smart Is Not Enough

While her memories of her internship include “exploding” a centrifuge and donning protective gear to open the autoclave, Ramsburg

attributes her career path almost entirely to her experience at NCI-Frederick. “There’s no doubt that that’s why I got into immunology,” she said. “[The internship] gave me quite an advantage certainly when I got to graduate school.... Being smart is important, but being good with your hands and knowing how to make things work is possibly even more important to being successful. What I learned really quickly here is that you don’t have to be worried if you don’t know something. You just find someone who knows it and they’ll teach you.... You just learn problem solving and you’re not intimidated.”

### “You Won’t Be Bored. Ever.”

Ramsburg believes that to be successful in science, you need to understand that “people are really your best resource.” Her advice to current students is to avoid specializing too early. “You want to know as much as you can about as many things as possible and talk to as many different people as you can because it gives you better perspective. And you won’t be bored. Ever.” ■



Ramsburg during her internship days, with mentor Scott Durum standing on steps outside of their laboratory in Building 560. Photo courtesy of Scott Durum.

### Jennifer Brown: Looking Back at 35 Years at NCI-Frederick

By Ashley DeVine, Staff Writer

Although Jennifer Brown, senior illustrator, Scientific Publications, Graphics & Media (SPGM), SAIC-Frederick, will celebrate 35 years at NCI-Frederick this year, her ties to Fort Detrick can be traced back even further than that.

She said it was “a family thing” for her to work at NCI-Frederick. Both of her parents worked on base, as well as two of her brothers and a sister-in-law. She also attended nursery school and kindergarten at the facility.

#### The Early Days of NCI-Frederick

Brown arrived to work at NCI-Frederick in November 1975, just a few years after Fort Detrick was converted from a biological warfare facility to the Frederick Cancer Research and Development Center. She had been working at Bechtel, doing electrical schematics for nuclear power plants, when she saw a job available in Frederick and applied.

Brown was one of two graphic designers/illustrators in SPGM (then called the Technical Information Center). Back then, illustrators and photographers were in different buildings—illustrators in Building 426 and photographers in Building 322. The two groups met twice a week to discuss projects. “We had a print shop with a press—across the hall from where the illustrators were. We didn’t have one big room, it was all little rooms,” Brown said.

#### Working before Computers

Before computers became widely available, graphics and composites of photos and text were produced by hand. “We had large drafting boards and the scientists would bring over mockups of charts, graphs, and drawings,” Brown

said. “We used rapidographs (a type of ink pen) and drew on vellum, which had a plastic coating so the ink would adhere to it.” Text was adhered to the vellum in strips after being typed on a typesetter. Composites were created in layers. “You would photograph the text and make it on a clear film, and that would be laid over the photograph, and then the



Jennifer Brown, Senior Illustrator, Scientific Publications, Graphics & Media, Information Systems Program, SAIC-Frederick, Inc.

photographers would photograph the whole composite,” Brown said. Now, computer software allows illustrators to put text and photos together on one layer and to enhance images.

Also before computers, Brown had more face-to-face contact with researchers because phone and e-mail were not used for proofing projects. She liked getting to know scientists by working with them in person. Now that customers send work to SPGM mainly through e-mail or the department’s filedrop system, most interactions with customers can be completed electronically.

In 1978, the illustrators moved to Building 322 to be housed with the photographers, according to the

November/December 1978 edition of the *Focus* newsletter. Ten years later, the entire department moved to Building 362, which is the current home of SPGM. “When we moved to this building in ’88, in one room we had six illustrators with six drafting tables, and it was a little crowded but it worked,” Brown said. Soon, the drafting tables were replaced with desks and computers.

#### Favorite Projects

One of Brown’s favorite projects is designing the SAIC-Frederick newsletter *News & Views*, which she has done for about eight years. “With the *News & Views*, it’s a very important publication to have out there, not just for all the people here, but for those outside NCI-Frederick to see all the extraordinary science and research that’s being accomplished here,” she said.

Brown also enjoys working on the designs for the Spring Research Festival each year. With the help of other SPGM staff members, she designs logos, T-shirts, signs, posters, give-away items, and more. “Coming up with the themes

every year is a fun thing; to get the scientists thinking about it,” Brown said. “It’s kind of a nice way in the spring to see a lot of faces you don’t normally see and to talk about the department.”

#### Training and Experience

Brown attended the York Academy of Art for three years, where she took courses in lettering, photography, sculpture, window display, commercial art with graphic design, and others. After graduating from the art school, Brown worked at several places in Frederick, took some college classes, and then worked for Bechtel. “I think all the experience helped in the finesse of what I needed to do when I started here with the rapidographs,” Brown said. ■

# Poster Puzzler



**Congratulations to the June 2010 Poster Puzzler winner! Mike Schildtknecht, Telecommunications Mechanic/Group Leader, Facilities Maintenance and Engineering, SAIC-Frederick, is pictured, right, with Paul Miller, Executive Editor of the *Poster*.**

## ***The Poster Puzzler:***

### **Lighting the Way**

*By Ashley DeVine, Staff Writer, and Rocky Follin, Facilities Maintenance and Engineering, Contributing Writer*

The June 2010 Poster Puzzler is an outdoor bollard light near the southwest corner of Building 459.

A bollard, according to Merriam-Webster's online dictionary, is a wood or metal post where ships are tied at a dock or wharf. Outdoor bollard lights have a shape that is similar to these posts. This particular light illuminates the sidewalk along the front of Building 459, as well as the access stairs leading to the mechanical penthouse. It is one of multiple outdoor lights around this building that are activated at night. Outdoor bollard lights were installed when Building 459 was renovated for the Biopharmaceutical Development Program in 1996. ■



### **Puzzler**



### ***Lighting the Way***





## Poster Puzzler

### What is it?

### Where is it?

Your challenge, should you decide to accept it, is to correctly identify the item and its location from the picture to the right. Clue: It's somewhere at Fort Detrick/NCI-Frederick. Win a framed photograph of the Poster Puzzler and an NCI-Frederick tee shirt by e-mailing your guess, along with your name, e-mail address, and daytime phone number, to Poster Puzzler at [poster@ncifcrf.gov](mailto:poster@ncifcrf.gov). Alternatively, you can send us your guess, along with your name and daytime phone number, on one of the *Poster* forms found on the front of the *Poster* stands in the lobbies of Buildings 426 and 549. All entries must be received by **Friday, October 15, 2010**, and the winner will be drawn from all correct answers received by that date.

Good luck and good hunting! ■



## Have Poster, Will Travel

### Have Poster, Will Travel... to Alabama

*By Maritta Perry Grau, Staff Writer*

The *Poster* has traveled to military bases beyond Fort Detrick. Last fall Geoffrey Seidel, Clinical Monitoring Research Program, and his wife traveled with their son to the Redstone Arsenal, Huntsville, Alabama. Their son, who had just graduated from U.S. Army Basic Combat Training in Fort Jackson, South Carolina, was preparing to take the next level of training at Redstone Arsenal. Since March, he has been stationed with the Second Stryker Brigade, where he is an armorer, trained to do small arms and artillery repair. In May, he deployed with his Brigade to Kandahar Air Base (Afghanistan), where he will be stationed for 12 months.

“We are proud of our son and all the men and women serving in uniform to protect our freedoms,” Seidel said in an e-mail.

*(Photo courtesy of Geoffrey Seidel)*



The *Poster*, NCI-Frederick's newsletter, is making its way around the world, as readers grab the latest issue to take with them and read on the plane or train. Next time you're at a conference, have someone snap a digital of you with a copy of the *Poster*, and send it to us. You might just be featured in the next newsletter. ■

# Theresa Wiltrout: Researcher to Teacher

## Former NCI-Frederick Researcher Named Distinguished Teacher

By Ashley DeVine, Staff Writer

Theresa Wiltrout, a former NCI-Frederick researcher and wife of Center for Cancer Research Director Robert Wiltrout, Ph.D., was honored with the Charles E. Tressler Distinguished Teacher Award in May.

This award is presented annually and recognizes a Frederick County Public School teacher who has significantly impacted young people. The name of the award comes from a “former member of the Hood College faculty who encouraged young people to enter the profession of teaching,” according to the FCPS web site (<http://fcps.schoolwires.com/15291082913121217/site/default.asp?15291082913121217Nav=|&NodeID=469>).

### Working at NCI-Frederick

Theresa Wiltrout worked at NCI-Frederick for nearly 17 years before leaving in 2000 to work on a graduate degree in education. Over the years, she worked in laboratories conducting basic cancer and HIV research. Prior to leaving the facility, she was a senior research associate with SAIC-Frederick.

“During my almost 17 years at NCI, I had the opportunity to mentor many high school and college-age students who were working as interns in our labs,” Wiltrout said. “I thoroughly enjoyed these interactions and decided that I wanted to have the ability to work with young people on a more regular basis.” Wiltrout wanted to share her love of science with more students than she could through her work at NCI-Frederick.

### The Nomination for Distinguished Teacher

Now a science teacher at Linganore High School, Wiltrout was nominated for the Charles E. Tressler Distinguished Teacher Award by her boss, Linganore

High School principal Dave Kehne. The award required Wiltrout to write essays on several topics, including her philosophy of teaching, her contributions and accomplishments in education, her community involvement, her professional biography, and educational issues and trends. After a panel made up of FCPS staff and people from the community reviewed all the essays submitted, Wiltrout was informed that she was one of the top three candidates for the award, which meant she would be interviewed by the panel.

April 27 was the day Wiltrout found out she was the recipient of this award. “My principal made up a story to get me to accompany him to the auditorium. When I arrived, the [high school] band was playing, and all members of our administration, along with my relatives, were seated on the stage. It was surreal,” she said. Among the audience were all of Wiltrout’s students and her husband and sister. After finding out she had received the award, Wiltrout said she felt “incredibly flattered, excited, happy, and nervous.” The Frederick County Board of Education honored Wiltrout at their May 19 meeting, and she officially received the award at the Hood College master’s commencement on May 22.

### The Transition from Researcher to Teacher

After earning her master’s degree in education from Mount St. Mary’s University, Wiltrout began teaching at Linganore High School in the fall of 2003. The transition from researcher to teacher was not easy. “I could not believe the demands on my time and literally worked 70 hours a week that first year,” Wiltrout said. “But the second year was much easier, and before I knew it, I totally fell in love with the job.”

When she is not teaching a class, Wiltrout might be meeting with students who need extra help, setting up or taking down labs, talking

to parents, grading papers, or getting details finalized for her daily lessons. In the evenings and on weekends, Wiltrout spends time grading papers, researching materials, writing and gathering information for new lesson plans, and electronically communicating with students. She describes teaching as being “on stage” because “... no matter what might be going on in my life on any given day, I need to be happy, approachable, patient, focused, organized, and energetic so that my students get the most out of their lesson.”

Although Wiltrout says she misses friends at NCI and the non-structured atmosphere, “when I see the ‘light bulb’ go on in a student’s understanding of science, or when a former student chooses medical school because of my class, I know that I made the right decision to go into teaching.” ■



Theresa Wiltrout, a science teacher at Linganore High School, was awarded the Charles E. Tressler Distinguished Teacher Award in May. She worked at NCI-Frederick for almost 17 years before leaving to pursue a graduate degree and career in education.

## NCI Staff Wins National FLC Awards

By Charles Salahuddin, Technology Transfer Center, Guest Writer

Several NCI employees received national recognition at the Federal Laboratory Consortium (FLC) for Technology Transfer's annual meeting in April. Out of the hundreds of federal laboratories, research centers, and facilities represented by FLC, only a few are recognized at the prestigious national meeting.

"The Sky's the Limit," the theme for the 2010 FLC meeting in Albuquerque, New Mexico, aptly describes NCI laboratory activities. Fittingly, NCI was extremely well represented at the awards ceremony on April 29. Numerous NCI employees

were recognized and NCI technologies were the subject of three Excellence in Technology Transfer Awards.

Dr. Donald Court and Ms. Nina Costantino of the Center for Cancer Research (CCR) Gene Regulation and Chromosome Biology Laboratory were recognized for their work in the development of a recombination-mediated genetic engineering, or recombineering, technology. They had also been recognized for this work at FLC's September 2009 Mid-Atlantic regional meeting

(see the December 2009 *Poster*; <http://web.ncifcrf.gov/ThePoster/archive/>

[Dec09\\_POSTER.pdf](#)).

This technology has revolutionized the manner in which researchers alter DNA and has become the standard for a variety of genetic engineering techniques. More than 1,100 non-profit researchers have received the technology, and 18 commercial entities have signed licenses with NCI.

Drs. Frederic Kaye, Adi Gazdar, John Minna, and Bruce Johnson, formerly of the Genetics Branch, were recognized for their contributions in developing approximately 439 cell lines, derived from a variety of human tumors. Valuable research tools for identifying compounds with therapeutic potential against many types of cancer, these cell lines have been the subject of more licenses than any other biological material at NCI and

have been used by researchers around the world to screen thousands of compounds for anti-cancer activity. Dr. Kaye was also recognized for this work at the September 2009 regional meeting.

In addition, Dr. Jeffrey Schlom received an award for his work in the development of Prosvac, a new therapeutic vaccine to treat prostate cancer. Numerous clinical trials have shown that the vaccine has a very good safety profile and appears to be an effective option to treat prostate cancer. This technology was

transferred using a variety of strategies, including exclusive and non-exclusive

licensing and through development under a Cooperative Research and Development Agreement (CRADA) with BN ImmunoTherapeutics (BNIT), a small U.S.-based vaccine company. CRADAs allow the federal government to accelerate development of a particular technology by entering into collaborative relationships with outside entities.

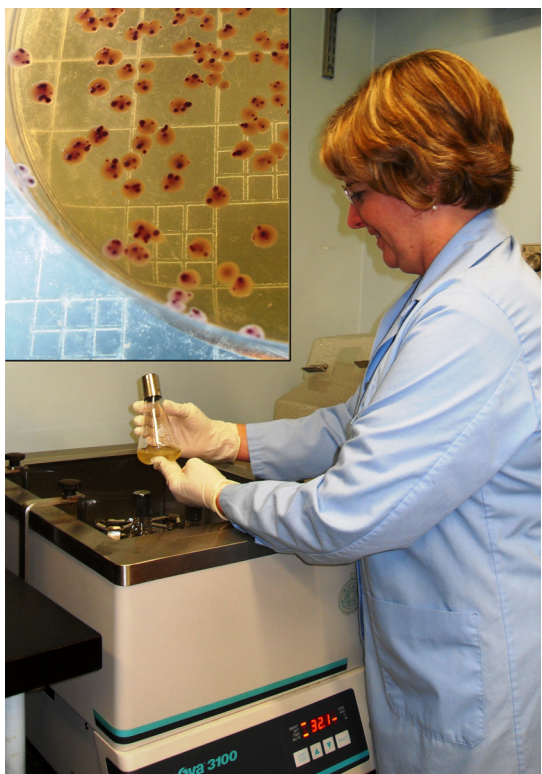
At the awards ceremony, Dr. Robert Wiltout, Director of NCI's CCR, was awarded Laboratory Director of the Year (an award also given at the Mid-Atlantic regional meeting; see the December 2009 *Poster*) for his efforts in creating numerous initiatives designed to foster strong partnerships between NCI and both the public

and private sector. In FY 2008, CCR had more than 275 active clinical trials, more than 120 active CRADAs, and 120 new commercial licenses.

NCI scientists are involved in a wide variety of research activities and are constantly developing innovative technologies that have the potential to significantly improve public health. Strong leadership is required to develop relationships with all sectors of the scientific community to maximize the impact of these technologies. FLC, a nationwide network of federal laboratories, ensures that the public receives maximum benefit from technology developed in federal laboratories. NCI's success at the FLC awards is a reflection of the institute's dedication to scientific excellence in both the development and the transfer of cutting-edge technologies. ■



Dr. Robert Wiltout



Nina Costantino was one of many NCI scientists recognized at the national 2010 FLC Excellence in Technology Transfer Awards. Costantino and Dr. Donald Court (not pictured) won awards for their work in the development of a recombination-mediated genetic engineering, or recombineering, technology.

## Elementary Outreach Program

### Inspire a Child to Pursue a Career that Supports Scientific Research

By Ashley DeVine, Staff Writer

Would you like to inspire a child to choose a career in science or one that supports science? That's exactly what you will accomplish by volunteering for the Elementary Outreach Program (EOP). The 2010–2011 EOP begins this October and it is never too late to become a volunteer.

"We want volunteers from all careers, not just scientific; our goal is to show the children that you can have a career in science even if you are not a scientist," said Barbara Birnman, public affairs specialist, NCI-Frederick.

You only have to commit to two full days of volunteering, and they do not have to be consecutive days. You can

choose which grade level you would like to teach (grades one through five). After grade-level teams have been established, the team leader for each team schedules a team training session.

#### A Day in the Life of an EOP Volunteer

Volunteers must arrive at their designated school at least a half-hour early to set up the lesson. The team leader is responsible for transporting supplies for the lesson.

Two or three one-hour lessons are scheduled for the day, depending on the size of the grade level at each particular school. When a grade-level team visits a school, they are committed to presenting their lesson to all the classes in that grade level. However, the same team volunteers do not have to go to that school on all the scheduled days. Volunteers work with

small groups of students, which could range from four to eight students. All lessons scheduled for the same day are presented in the same room and supplies are left at the school until all scheduled lessons have been completed. After the day's lessons are complete, volunteers return to NCI-Frederick.

All contractors at NCI-Frederick have been approved to participate in the EOP, as long as they have supervisory approval.

Ms. Birnman noted "how much fun it is to interact with the children, who are so eager to meet us and learn."

To learn or more about the EOP or to become a volunteer, contact Julie Hartman, EOP coordinator, at 301-846-7338 or [hartmanjb@mail.nih.gov](mailto:hartmanjb@mail.nih.gov). You can also visit the EOP web site, <http://web.ncifcrf.gov/campus/outreach/eop/default.asp>. ■

## Administrative Resource Office

### NCI-Frederick: A Unique Place to Work

By Codi Miller, Administrative Resource Office, Contributing Writer

NCI-Frederick is a distinctive place to work for many reasons. In the past 18 months, Emilie Lowery, administrative officer for NCI-Frederick, has been able to experience this firsthand and can attest to how her job at NCI-Frederick differs from a similar administrative position for NCI in Rockville.

Before taking her job as an administrative officer for NCI-Frederick, Lowery was an administrative officer for 3 1/2 years at the 6116 Administrative Resource Center (ARC) on Executive Boulevard. Even though both positions have the same title, they had different duties. In addition, the location greatly impacts each job.

In a recent interview, Lowery explained that NCI-Frederick has a much different atmosphere than her job at Executive

Boulevard. Her main duties with the 6116 ARC consisted of lending administrative support to the program areas in the NCI Office of the Director and the NCI Office of Management; for example, she maintained budgets and also complete full-time employee (FTE) personnel cases for these areas. She didn't get to experience working with laboratories.

In contrast, at NCI-Frederick, Lowery supports two laboratories, the Laboratory of Cell and Developmental Signaling and the Nanobiology Program. In her position here she works with a more complex budget and varied personnel processes. Lowery stated that she was happy to be working for "labs that conduct great scientific research" and she likes being close to the science, since she didn't experience that on Executive Boulevard. At NCI Frederick, the administrators and scientists have many opportunities to meet formally or informally, mainly because of the close proximity of laboratories and administrative offices.

Administrators at NCI-Frederick not only manage FTE cases, but also non-FTE cases, and learn a great deal about the visa process for foreign workers. Additionally, administrators must manage a dichotomous budget system at NCI-Frederick; not only is there spending through NIH to track but also a great deal of spending through the SAIC contract. Finally, Lowery explained that the NCI-Frederick ARC has a very strong notion of teams and encourages employees to participate in workgroups. In the past year and a half, Lowery has served on several workgroups that have assisted in clarifying and organizing administrative processes.

Lowery has enjoyed working in both positions and notes they both had interesting and challenging aspects. In her free time, Lowery enjoys traveling to different countries and spending time with family. She recently had her first child, Eva, and is happy to welcome her husband home from a six-month tour in Iraq. ■

## Mindfulness: Learning to Accept the Stress in Your Life

By Selden Cooper, Employee Assistance Program, OHS Business Health Solutions, Contributing Writer

There's an old saying, "If you don't mind, it doesn't matter." In a way, that simple statement encapsulates the "Mindfulness" and "Acceptance" models of human behavior and therapeutic intervention. These approaches have excited much interest in the field of behavioral medicine, counseling, and psychotherapy. This "Third-Wave" Cognitive-Behavioral Therapy includes Mindfulness-based Stress Reduction (MBSR); Mindfulness-based Cognitive Therapy (MBCT); Acceptance and Commitment Therapy (ACT); and Dialectical Behavior Therapy (DBT).

As a group, these therapies share a philosophy that physical or emotional pain is an inescapable aspect of life, coupled with an assumption that when you try to avoid or suppress that pain, anxiety, or depression, you simply make it worse.

Control is regarded as the problem, rather than the solution. Consistent with this orientation, "Third-Wave" approaches emphasize acceptance of life as it is, as opposed to how we might want it to be; development of tolerance for aversive internal states; and commitment to leading a vital, fulfilling, values-informed life, despite the inevitable distress, losses, and disappointment that living entails.

### Mindfulness: Living in the Moment

One of the most popular definitions of "mindfulness" is that of Jon Kabat-Zinn, Ph.D., University of Massachusetts Medical School, the originator of MBSR. Kabat-Zinn defines it as "paying attention in a particular way: on purpose, in the present moment, and non-judgmentally."

While practicing mindfulness confers many physiological benefits, its psychological rewards can be every bit as significant. The focus on the present moment, whatever that might be ("good" or "bad"), serves to anchor us in the now,

counteracting the all-too-human tendency either to ruminate about the past or to worry about the future (which may never happen). Acceptance, an integral aspect of the practice of mindfulness, functions as an inner source of serenity in a world that can be experienced as demanding, unfair, and, at times, overwhelming.

Together, an openness to immediate experience, in conjunction with acceptance of whatever that might be at the moment (without judgment), can serve to neutralize two major sources of human suffering: avoidance of distress, and automatic, reflexive, mindless reacting.

### Mindfulness: Embrace Fears and Nullify Their Hold

Mindfulness allows us to regard feelings, thoughts, and sensations as only feelings, thoughts, and sensations, which naturally (if allowed) come and go, and to distinguish ourselves from fusion with the content of our experience. The outcome is enhanced psychological flexibility and an ability to live more fully in the present moment.

### Mindfulness: Breathe in, Breathe out

You can adopt a mindful orientation through formal meditative practice or just by taking a more reflective, less reactive posture toward everyday life—whether you're breathing, eating, drinking, walking, reading, listening to music, working, playing, talking (and listening), or learning. Mindfulness helps you experience the beauty of all that is and of being in connection with another.

For example, as a simple meditation, breathe slowly and say, "As I breathe in, I calm my body," and "As I breathe out, I calm my mind." One important thing to keep in mind is that mindfulness is not intended as a control or repair mechanism; it works best when practiced as an end in itself; alleviation of distress



Selden Cooper, LCSW-C, has more than 25 years of experience in employee assistance and has provided services to NCI-Frederick for nine years.

is a by-product of the practice.

The Harvard psychology professor, Ellen Langer, suggests that our most important task is to decide what we want to be mindful about; we don't have to be mindful about everything, because not everything is equally important at a given moment. It is, after all, about freedom to choose, unencumbered by either automatic avoidance or mindless reflexivity.

*(For a list of helpful references on mindfulness, see the insert in this issue.)*

### Employee Assistance Program

Selden Cooper, LCSW-C

Building 372

Tuesday, Wednesday

7:00 a.m.–6:00 p.m.

Friday

7:00–11:00 a.m.

301-846-1308

## Should You Get a Mammogram?

By Marla Mullen, Occupational Health Services, Contributing Writer; and Maritta Perry Grau, Staff Writer

Last November, the U.S. Preventive Services Task Force (USPSTF), an independent group of health care providers, shocked the world with recommendations against mammography for women aged 40–49 years.

In December, USPSTF changed its recommendation somewhat, stating that women under 50 and in their 40s should speak with their physicians to make an informed decision about when mammography is appropriate for them, based on family history, general health, and personal values. USPSTF “conducts scientific evidence reviews of a broad range of clinical preventive health care services (such as screening, counseling, and preventive medications) and develops recommendations for primary care clinicians and health systems,” according to its web site (<http://www.ahrq.gov/clinic/uspstfix.htm>).

USPSTF also questioned the effectiveness of the breast self-exam. Many health care providers disagreed with USPSTF that the self-exam may be not effective and is thus unnecessary. The American Cancer Society continues to recommend annual screening using mammography and clinical breast exams for all women, beginning at age 40.

NCI reaffirmed its own position in favor of mammograms while acknowledging the USPSTF’s more recent message: “NCI appreciates the U.S. Preventive Task Force’s careful review and analysis of the evidence regarding breast cancer screening for women at average risk. The take-away message is that each woman needs to consider her individual benefits and risks and discuss them with her health care provider before making a decision on when to start screening mammography and how often to get one” ([www.nci.nih.gov/search/breast](http://www.nci.nih.gov/search/breast)).

Mammograms, a kind of X-ray of breast tissue, can often reveal a breast lump before it can be felt.

Like other routine X-rays, the mammogram uses very small doses of radiation. While the risk of any harm is very slight, talk with your health care provider about the need for any X-ray and ask for shields to protect parts of your body that are not in the picture.

## October: Breast Cancer Awareness Month

For some years, October has been designated as Breast Cancer Awareness Month. NCI has long been in the forefront of breast cancer research (“CCR Explores New Approaches to Breast Cancer Research,” the *Poster*, 3:1–2, 2009). The NCI Community Cancer Centers Program is now in its fourth year (“NCI Expands Community Cancer Centers,” *News & Views*, 16[3]:8, 2010).

According to the NCI Cancer Control Program web site, qualified patients at selected hospitals and other centers now “have easier access to NCI-sponsored treatment trials for five common cancer types, including breast, colon/rectum, kidney, lung, and non-Hodgkin lymphoma. Their participation provides researchers [with] a larger, more diverse cohort of patients to test new approaches, helping to speed the delivery of new cancer drugs to the public” (see [http://ncccp.cancer.gov/2009\\_Newsletter.pdf](http://ncccp.cancer.gov/2009_Newsletter.pdf)).



## Do You Know Your Personal Risk Factors for Developing Breast Cancer?

Not only your ethnic background, but also your age and health history can affect your risk of developing breast cancer: Breast cancer is the most common cause of cancer death in Hispanic women and the second most common cause of cancer death in white, black, Asian/Pacific Islander, and American Indian/Alaska Native women, according to the Centers for Disease Control and Prevention.

Anything that increases your chance of getting a disease is called a risk factor. Risk factors for breast cancer include the following:

- Age 60 or greater
- Menstruating before age 11
- Older age when you first give birth or never having given birth
- A personal history of breast cancer or benign (noncancerous) breast disease
- A mother or sister with breast cancer
- Treatment with radiation therapy to the breast/chest
- Breast tissue that appears dense on a mammogram
- Taking hormones such as estrogen and progesterone
- Drinking alcoholic beverages
- Being Caucasian

## FMH Offers Special Screenings in October

As they did last year, health officials at Frederick Memorial Hospital will be marking October’s Breast Cancer Awareness Month with “ladies nights” special screenings.

“During October, we will be offering one day per week for appointments, with an Open House for those who are not in need of a mammogram. We will again have refreshments and complimentary massages from our Wellness Center. We will have a drawing for those who participate; prizes will include Wellness services and the famous ‘VOLT’ gift cards,” noted Cassandra Daigneault,

*continued on page 23*

# Fitness Challenge 2010

## It's Never Too Late to Take Care of Yourself

By Nancy Parrish, Staff Writer

The Fitness Challenge, managed by Occupational Health Services, is a year-long program that challenges you to take care of yourself by eating right and exercising. Each month winners are named for excelling in five categories: number of miles walked, run, or biked; number of hours spent in other fitness activities; and number of pounds lost.

It's never too late to join. For information, contact Will Sheffield, Fitness Challenge coordinator, 301-846-1096, or [sheffieldwg@mail.nih.gov](mailto:sheffieldwg@mail.nih.gov).



### Congratulations to the Recent Fitness Challenge Winners

**Most Miles Walked**  
John Maciolek (May)  
Deena Wisner (June)  
Chelsea Yasenchak (July)

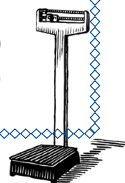
**Most Miles Run**  
Stephen Dobson (May)  
Amy Cutshall (June)  
Abigail Lara (July)

**Most Miles Biked**  
David Wells (May)  
Bethanie Morrison (June)  
Mark Gunnell (July)

### Most Hours Spent in Other Fitness Activities

Tammy Ford (May)  
Bethanie Morrison (June)  
Abigail Lara (July)

**Most Weight Lost**  
Jeffrey Jones Jr. (May)  
Bethanie Morrison (June)  
Chelsea Yasenchak (July)



### "Health" Topics To Be Presented This Fall



The 2010 Fitness Challenge is sponsoring Lunch and Learn sessions this fall on a variety of healthy topics. Watch your e-mails and bulletin boards for more details. All sessions are held on Tuesdays, from noon until 1:00 p.m. You are encouraged to bring your lunch, relax, and learn!

**October 12:**  
Breast cancer/Breast care awareness

**November 9:**  
How to Eat Healthy during the Holidays

**December 14:**  
Facing the Holiday Blues ■



continued from page 22

radiology supervisor in the Frederick Memorial Healthcare System.

Mark your calendar for the following dates, 4:30–7:00 p.m.:

- Tuesday, October 5 at FMH Rose Hill
- Wednesday, October 13, Open House at FMH Crestwood
- Thursday, October 21 at FMH Rose Hill
- Monday, October 25 at FMH Crestwood

As we went to press, Dagneault was unsure whether additional evenings would be offered. "That depends on whether we are fully booked," she said.

You can call to set up an appointment or to ask about additional openings at 240-215-1455. ■

### Breast Cancer Awareness

This article was based on the following cancer information web sites. Please visit these sites for further information.

<http://www.cancernet.gov/cancertopics/wyntk/breast/page5>

<http://www.cancer.gov/cancertopics/pdq/treatment/breast/patient>

<http://www.cdc.gov/cancer/breast/statistics/>

[http://ncccp.cancer.gov/2009\\_Newsletter.pdf](http://ncccp.cancer.gov/2009_Newsletter.pdf)

<http://www.hopkinsbreastcenter.org>

<http://www.nlm.nih.gov/medlineplus/breastcancer.html>

# NCI-Frederick Employee Diversity Team

## Diversity Round-up

By Maritta Perry Grau, Staff Writer

### Lunch and a Movie at the Diversity Café

You can watch movies—with a diversity theme—at the Diversity Café. Check the EDT web page (<http://diversity.ncifcrf.gov/>) for a list of current showings. Then bring your lunch and enjoy a free movie, usually in the Executive Board Room between 12:00 p.m. and 2:00 p.m. After the showing, the movies are available through the Scientific Library for you to check out and share with your family at home.

September is Hispanic American Heritage Month. To help celebrate, we will be showing the movie *Real Women Have Curves*, starring America Ferrera and Lupe Ontiveros as our September Diversity movie selection.

According to Amazon.com's reviewer, Jeff Shannon (<http://www.amazon.com/Real-Women-Curves-America-Ferrera/dp/B000AM4P90>), *Real Women Have Curves* is a comedic drama that "takes a familiar subject—a bright teenager struggling to define her identity—and turns it into an authentic celebration of feminine empowerment. Eighteen-year-old Ana (Ferrera) has scholarship potential, her first boyfriend, and a chubby figure that her similarly overweight mother (Ontiveros, perfectly cast) won't stop harping about. Mom insists that Ana work in her sister's dressmaking sweatshop, continuing a family tradition that can only break her spirit. How Ana defies this fate—and how director Patricia Cardoso captures the proud tenacity of several full-figured seamstresses—is what makes this film (adapted from a play by Josefina Lopez) so uniquely refreshing."

The movie will be shown at 12:00 p.m. on Thursday, September 16, in the Building 549 Conference Center, Room "A," and on Friday, September 17, in 549's Executive Board Room. ■

## Thought for the Quarter

*"If you shut the door to all errors, truth will be shut out."*

-Rabindranath Tagore, poet  
(1861-1941)

Source:

<http://www.brainyquote.com/quotes/quotes/r/rabindrana163999.html>

## Third Annual Halloween Picture Contest

Remember to submit your **photos of your pets and children** and their great Halloween costumes! Watch for the global e-mail in October. We'll announce winners in our December issue.

## Win Tickets to the Movies!

Congratulations to Michele G. Atha (Building 434) and Holly Morris (Building 539), the winners of free movie tickets from the NCI-Frederick Employee Diversity Team! Atha's and Morris's answer sheets were the first two drawn with the correct answers to our Women's Month Observance exhibit.

The tickets, with no expiration date, are good for movies at local Regal theatres.

## Diversity Display Case

Where do you come from? Were you born in the United States or in another country? When did your grandparents, great-grandparents, or others emigrate to the U.S.? The Diversity Team is planning a "Who Are We" exhibit in the Diversity Display Case, located in the main lobby of Building 549, across from the Scientific Library.

Do you have photos, certificates, or other memorabilia from the past that show something about your family? Please share your memorabilia with NCI-Frederick. It could be anything: a photograph, a shoe or jewelry that an ancestor wore, an old passport, or emigration papers. Check out those shoeboxes in the basement—chances are, you'll find something interesting.

Watch the Display Case for our next exhibit as we celebrate Fall Harvest observances. ■

THE PANAMA CANAL  
EXECUTIVE OFFICE

EMPLOYEE'S IDENTIFICATION CERTIFICATE

BALBOA HEIGHTS, C. Z.,  
July 15, 1918.

No. 4024.

TO WHOM IT MAY CONCERN:

I, C. A. Melvaine, Executive Secretary of The Panama Canal, do hereby certify that Bonnet Novick, whose photograph and signature appear hereon, is employed by {The Panama Canal / The Panama Railroad Company} on the Isthmus of Panama as Carpenter in the Building Division, and is leaving the Isthmus on account of reduction of force, on or about July 24, 1918.

DESCRIPTIVE LIST

Born Aug. 1, 1865, in Russia Marital condition single  
Color white Height 5 ft. 5-1/2 in. Weight 164 pounds.  
Color of hair black Color of eyes brown

The following minor children accompany the employee to whom this certificate is issued, adult members of family being provided with separate Identification Certificates:

Name	Relationship	Years	Age	Months
None.				

(This space for foreign born citizens of the United States only)  
The bearer, Bonnet Novick, claims U. S. citizenship through naturalization, having obtained his final papers in Cheyenne, Wyoming, on July 1, 1912.

This certificate is not a passport or certificate of citizenship, and expires on Aug. 31, 1918.

Bonnet Novick  
Executive Secretary.



## Fire Prevention Week

### Smoke Alarms: Up, Down, and All Around

By Tim Rowe, Environment, Health, and Safety, Guest Writer

[Editor's note: The following article was adapted from a sample news release published on the NFPA Fire Prevention Week web site, [www.firepreventionweek.org](http://www.firepreventionweek.org). ©2010 NFPA.]

The nonprofit National Fire Protection Association (NFPA) is promoting "Smoke Alarms: A Sound You Can Live With!" as the theme for this year's Fire Prevention Week campaign, October 3–9, which NCI-Frederick supports locally. NFPA has been the official sponsor of Fire Prevention Week for 88 years.

"Most people have a sense of complacency about smoke alarms because they already have one in their homes," said Judy Comoletti, division manager for NFPA public education, in the NFPA web site article. "We want this year's campaign to serve as a call to action for households nationwide to inspect their homes to ensure that their families have the full smoke alarm protection that's recommended."

#### Keep Smoke Alarms on All Levels of Your Home—and Make Sure They Work

Smoke alarms can mean the difference between life and death in a fire. NFPA statistics show that working smoke alarms cut the chance of dying in a fire nearly in half. But they must be working properly to do so. The association's data show that many homes have smoke alarms that aren't working or maintained properly. Roughly two-thirds of all home fire deaths result from fires in homes with no smoke alarms or no working smoke alarms.



"Reproduced from NFPA's Fire Prevention Week Web site, [www.firepreventionweek.org](http://www.firepreventionweek.org). ©2010 NFPA."

Many homes may not have any smoke alarms, not enough smoke alarms, alarms that are too old, or alarms that are not working. The importance of working smoke alarms cannot be stressed enough: they should be in every home, on every level, including the basement, outside each sleeping area, and inside each bedroom. And, if a smoke alarm is more than 10 years old, it needs to be replaced.

#### See the Latest Technology during Fire Prevention Week

EHS is hosting a display in Building 549 throughout Fire Prevention Week to promote "Smoke Alarms: A Sound You Can Live With!" and NFPA's smoke alarm recommendations. Stop by to learn about the power of smoke alarms, newer options for installing and maintaining them properly, and ultimately, how to better protect your loved ones from fire.

NFPA recommends interconnected smoke alarms because they offer the best protection; when one sounds, they all do. This is particularly important in larger or multi-story homes, where the sound from distant smoke alarms may not be loud enough to provide proper warning, especially for sleeping individuals.

To find out more about Fire Prevention Week programs and activities, visit NFPA's web site at [www.firepreventionweek.org](http://www.firepreventionweek.org). ■

#### Sound the Alarm (At Least Once a Month)

EHS offers the following tips for making sure smoke alarms are maintained and working properly:

- Test smoke alarms at least once a month using the test button, and make sure everyone in your home knows their sound.
- If an alarm "chirps," warning the battery is low, replace the battery right away.
- Replace all smoke alarms, including alarms that use 10-year batteries and hard-wired alarms, when they're 10 years old (or sooner) if they do not respond properly when tested.
- Never remove or disable a smoke alarm.

## Recycling Plastics at NCI-Frederick: Q&A

By Paul Stokely, Environment, Health, and Safety, Guest Writer

It seems like nothing is easy, and even something as simple as recycling an empty container is more complicated than seems warranted. NCI-Frederick, like laboratories everywhere, has to balance safety and health concerns with environmental efforts. Here are two easy-to-follow rules meant to simplify the process, while still protecting your coworkers:

Don't place hazardous materials (including residues) in recycling bags or bins, and if you aren't sure, call Waste Management at 301-846-5718.

Rinse out nonhazardous containers (such as those used for media buffer or food) before placing them in recycling bags or bins.

### What Can I Recycle at NCI-Frederick?

Four types of consumer plastic or resin, identifiable by number inside the triangular arrow recycling symbol, are recyclable at NCI-Frederick:



Polyethylene terephthalate (PETE) is commonly used in bottled water and sports drinks, and packaged buffer solutions.

PETE is a dense polymer, and the Army Department of Infrastructure Services (DIS) reports that more than 27,000 pounds of it were recycled on post last year.



High-density polyethylene (HDPE) is used in many dry chemical containers, plastic buckets, and consumer

items, such as milk jugs, detergent, and shampoo bottles. Keep in mind, however, that you should not pour out lab chemicals just to recycle a container. Call Waste Management for chemical pickup. The DIS reported more than 11,400 pounds recycled in 2009.



Low-density polyethylene (LDPE) is commonly used in "bladder" containers, newspaper and grocery bags, and motor oil bottles. Fort Detrick recycled nearly 5,700 pounds last year.



Polypropylene (PP) is used in trays for disposable pipette tips and also in yogurt containers and deli trays. NCI-Frederick recycled more than 16,000 pounds of PP in 2009—almost all of it from pipette tip boxes. Remember that when you recycle yogurt containers, please rinse them out first.

Fort Detrick is currently unable to recycle plastics made with #3 (polyvinyl chloride); #6 (polystyrene); or #7 (mixed polymer).



PVC



PS



OTHER

### What Happens to the Plastics after They Leave the Facility?

Good question! Recycled plastics are commodities, and their value goes up and down, similar to the price of paper or gasoline. A glut of recycled materials means some of it is simply tossed out rather than re-used. Also, some manufactured items have a higher tolerance for contamination, while others require much time and labor to make sure the recycled material contains no other plastics whatsoever. These kinds of considerations affect the price. Products made with recycled PETE include carpets, fiberfill insulation in garments and sleeping bags, bottles, containers, scouring pads, auto parts, and geotextile fabric, such as landfill liners. According to Wellman, Inc., the manufacturer of EcoSpun fibers, one square foot of polyester carpet nap can be made from five 2-liter soda bottles. Recycled PETE is also used to make T-shirts and

fleecewear—and was even used to make a 60-foot sailboat (the *Plastiki*) that sailed across the Pacific Ocean.

Recycled LDPE is used to make more flexible plastics, such as garment bags, grocery and trash bags, squeezable bottles, and toys. It also can be made into pallets and composite lumber for decks, and is used in composting containers.

Recycled HDPE is made into pipes, plastic buckets, motor oil bottles, and detergent containers.

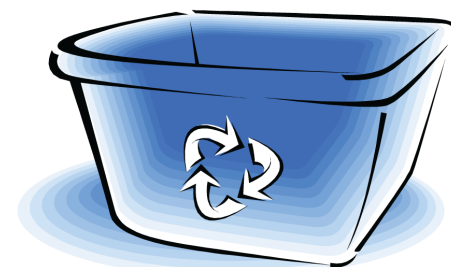
### How Do I Do This? What Happens if I Mix Plastics?

First, remember to rinse out any food containers before recycling. If you are unsure of the type of plastic your laboratory uses, place your items in the recycling bins for collection anyway. The Army DIS will sort plastics by type, but sorting will add to the costs. That's because the most expensive part of recycling is the labor required for sorting plastics from one another or sorting plastic from trash.

While many laboratories do not have space for different recycling bins and sorting your plastics takes a little extra time, any sorting that can be done at the source will save time and money later on in the process.

### What if I Still Have Questions?

For more information, or to find out how you can obtain recycling containers, call Waste Management, 301-846-5718 or e-mail at [ncichemwaste@mail.nih.gov](mailto:ncichemwaste@mail.nih.gov). You can also visit the web site, <http://home.ncicrf.gov/ehs/ehs.asp?id=66>, for information on waste management and recycling of a variety of materials. ■



## Green Tips

### Remember to "Think Green"

*Michele Gula Atha and Howard Young, Guest Writers, and Nancy Parrish, Staff Writer*

Here are some tips from the NCI-Frederick Green Team that you can put into practice right away:

**Does your laboratory use Corning 15- or 50-ml. conical tubes?** If so, the Styrofoam™ racks that those tubes come in can be recycled into material that is made into picture frames and architectural moldings. Contact Green Team member Michele Gula Atha, [gulam@mail.nih.gov](mailto:gulam@mail.nih.gov), for free return labels to send them back to Corning for reuse.

**Check with your child's school to see if it has a recycling program.** Find out how you can help set up recycling activities or support an existing program. Lead by example, to encourage your own children to reduce, reuse, and recycle at school and at home.

**Let your children put "old" office paper to new use.** Take home office paper that contains non-sensitive information for your children to use as coloring paper, or cut it into smaller sections they can use as note paper. When they're finished with it, you can recycle it.

**Plant something new this fall.** Fall is a great time for planting because the plant has the entire winter to take root, and it isn't trying to establish itself in summer heat. Remember, though, new plants still need to be watered during the season to ensure that their roots take hold.

**Collect water in a rain barrel.** This is a great way to save on water and nourish your new plants, and the old ones, too. You can learn about rain barrels and where to find them in Frederick County at <http://www.frederick.umd.edu/mg/Rainbarrels.cfm>.

**Use organic, slow-release fertilizers.** Now's the time to fertilize because, with less precipitation in the fall, there's less chance that fertilizers will wash off your lawn or garden. Organic, slow-release fertilizers reduce the amount of pollution that may run off.

**Mulch your leaves or at least mow them into your lawn.** They will provide nutrients to the grass and reduce the use (and expense) of lawn and leaf bags.

**Warm up your hot water heater.** If you insulate your hot water heater, you'll keep the water hot longer and save money on your energy bill. If possible, install a timer so that it is only on when hot water is needed. When replacing your hot water heater, consider a solar or instant hot water heater.

### Have a Tip for the Green Team?

Send it to the NCI-Frederick Green Team representatives Michele Gula Atha, [gualm@mail.nih.gov](mailto:gualm@mail.nih.gov), or Howard Young, [younghow@mail.nih.gov](mailto:younghow@mail.nih.gov); or to the SAIC-Frederick Green Tip coordinator, Lori Smith, [smithlori@mail.nih.gov](mailto:smithlori@mail.nih.gov). ■

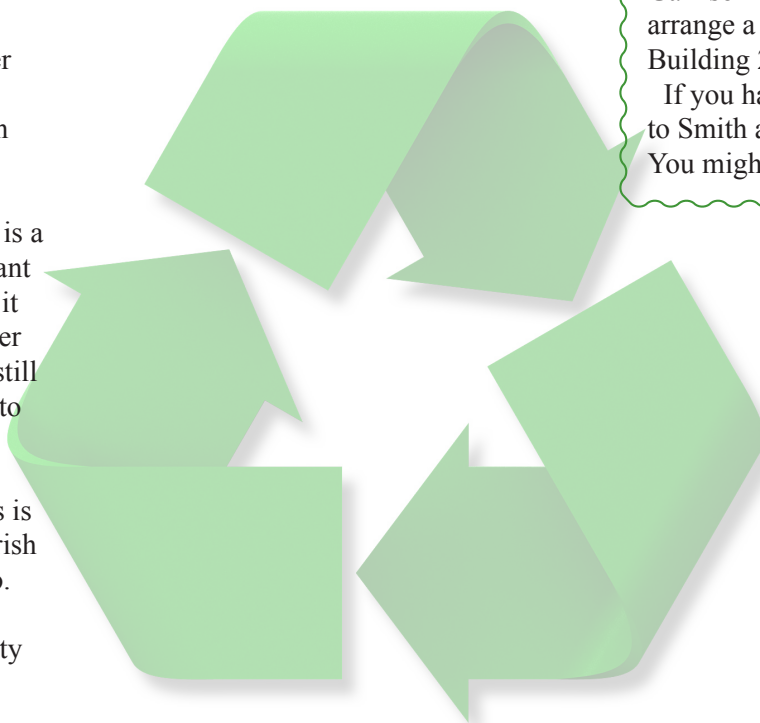
### New Green Thinkers Announced

*By Nancy Parrish, Staff Writer*

Lori Smith, coordinator of the "Think Green" program at SAIC-Frederick, recently announced the winners of the "I'm a Green Thinker" tee shirts, for their suggestions on how to reduce, reuse, and recycle.

According to Smith, Frederick City Alderman Kelly Russell stopped by the Green Thinkers' Booth at the Spring Research Festival in May and offered a tip that was so useful, she was named the May winner. Her tip is to use Styrofoam™ peanuts in the bottom of flower pots to conserve soil and re-use the peanuts. **Robin Wright**, NCI, is the winner for June, for her tip of purchasing refillable pens and pencils, and **David Westcott**, AIDS and Cancer Virus Program, is July's winner for his tip of working to establish a recycling program for Styrofoam peanuts through existing vendors. As a result, Michele Gula, NCI-Frederick Green Team, contacted the Army Garrison Environmental Team to arrange a recycling program through Building 243 on post.

If you have a "Green Tip," send it to Smith at [smithlori@mail.nih.gov](mailto:smithlori@mail.nih.gov). You might just be the next winner!



## New Faces at NCI-Frederick

One-hundred and sixty-two people joined our facility in April, May, and June 2010.

### The National Cancer Institute welcomes...

Tanvi Acharya ■ Laura Adamovicz ■ Anthony Adson ■ Quentin Aknin ■ Juan Alvarez ■ Agostinho Antunes ■ Konstantinos Apostolakis ■ Daniel Barrera ■ Andrew Boddicker ■ Caitlin Briske ■ Mikhail Bubunenko ■ Hannah Buckley ■ Mohammad Bukhari ■ Cherie Butts ■ William Calvert ■ Maria Castano ■ Michael Cato ■ James Cherry ■ Rachel Ciliberti ■ Stephen Davis ■ Krishna Prasad Devkota ■ Allison Diviney ■ Valentyna Fesenkova ■ Alexander Filatov ■ Lisa Finkelstein ■ Anthony Fox ■ Thaidra Gaufin ■ Vicky George ■ Lisa Gross ■ William Gu ■ Xiuchan Guo ■ Janice Guynn ■ Elena Hadjimichael ■ Steven Hatch ■ Raejean Hermansen ■ John Hirt ■ Bau-Lin Huang ■ Yoo-Seok Hwang ■ Christina Johnson ■ Randall Johnson ■ Kellie Jurado ■ David Kaiser-Jones ■ Jason Kinser ■ Nobuaki Kobayashi ■ Alexander Komin ■ Sagar Kudchodkar ■ Guillaume Leboucher ■ Yuhang Liu ■ Xiuyun Lu ■ Vanessa Mackley ■ Ronit Malka ■ Laura Mancuso ■ Stephanie Marcum ■ Adriana Paola ■ Martin Morales ■ Brian McCray ■ Natalie McLister ■ Mohammed Mohiuddin ■ Nosheen Moosvi ■ Smita Nair ■ Christopher Nelling ■ Isabella Newton ■ Samantha Norris ■ Anne Pace ■ Catherine Peluso ■ Bo Peng ■ Wendy Poppowell ■ Remington Poulin ■ Anne Powell ■ Renee Qian ■ Jacqueline Razzaghy ■ Sarah Ritz ■ Charles Salahuddin ■ Caroline Salter ■ Kate Santullo ■ Luca Sardo ■ Joseph Sarhan ■ Johannes Schwerk ■ Erica Senseney ■ Randi Shand ■ Cynthia Shank ■ Bojan Shutinoski ■ Tyler Snoots ■ Alexander Song ■ Avantika Srivastava ■ Qian Sun ■ Tulsi Thakore ■ Lynn Thomason ■ Jennifer Troyer ■ Alexandra Turano ■ Ashley Villatoro ■ Chunhui Wang ■ David Wells ■ Yizhou Wu ■ Zuoxiang Xiao ■ Yu Xu ■ Xiaohong Yao ■ Chuanhe Yu ■ Charles Zink



Daniel Barrera



Latasha Clements

### Data Management Services welcomes...

Amy Blumhardt ■ Richard Clipp ■ Andrew Culler ■ Aaron Huegel ■ Pardeep Kumar ■ Mary Leatherman ■ Ryan Sanders ■ Tim Siford ■ Eric Slagle ■ Greg Wolfe



An Vu



Chelsea Yasenchak

### WISCO welcomes...

Lorraine Covell ■ Andrea Turner



Michael Pamment



James Cherry



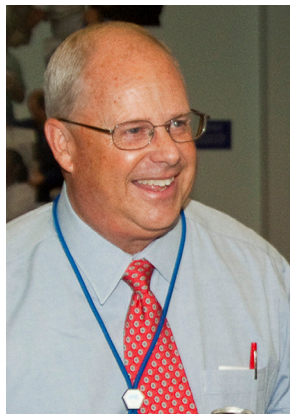
Joseph Sarhan

### SAIC-Frederick welcomes...

Nancy Becker ■ Nia Billings ■ Zhao Cao ■ Latasha Clements ■ Brianna Creighton ■ Michelle Eby ■ Mykola Geletin ■ Kris Ghimire ■ Jane Gore ■ Stefanie Grenzel ■ Qyanna Grey ■ Charles Hadry ■ Joseph Hall ■ Haroun Hebron ■ Adrienne Horner ■ Thomas Jakubowski ■ Andy Jean Baptiste ■ Jennifer Jurell ■ Anil Kamaraju ■ Donna Ketchum ■ Alyssa LaRegina ■ Shawn Lease ■ Kenneth Low Hockeong ■ Mandi Miller ■ Leonie Misquitta ■ Devon Moore ■ Benjamin Orsburn ■ Padma Ramya Packirisamy ■ Michael Pamment ■ Valentina Perepnikhatka ■ Brian Peyser ■ Michael Rippeon ■ Vali Sevastita ■ Terri Shoul ■ Anna Smith ■ Mindy Smith ■ Danielle Smith ■ Elaine Smoot ■ Kenneth Tercyak Jr. ■ Mei Chen Tseng ■ Julio Tun Xocop ■ William Updike ■ An Vu ■ Paul Warfield ■ Carla Williams ■ Paul Williams ■ Carrie Williams ■ Penelope Williams ■ Lihua Yang ■ Chelsea Yasenchak ■ Emnet Yitbarek ■

## SAIC CEO Speaks to Staff during Visit to SAIC-Frederick

By Ashley DeVine, Staff Writer



SAIC Corporate Chief Executive Officer Walt Havenstein visited the construction site of the Advanced Technology Research Facility, met

with key staff and directors, and held a “town-hall” style meeting for staff when he visited SAIC-Frederick on August 19.

Havenstein began his presentation with four principles he believes in as a leader: partnerships, trusting and empowering people, fact-based management, and continuous improvement. “Those are the four simple things I focus on; I know they seem pretty macro, but that’s how a marine masquerading as a CEO tends to operate,” he said.

Havenstein then went on to tell staff members what they could expect from him as CEO. “I’ll work every bit as hard as you do and I know you work hard. I also know that what you do is very, very important,” he said.

Near the end of Havenstein’s presentation, he addressed the recent reorganization of SAIC. The Information Technology and Network Solutions Group, which SAIC-Frederick falls under, has been combined with the Infrastructure, Logistics, and Product Solutions Group to form the Infrastructure, Energy, Health, and Product Solutions Group, under the leadership of Joe Craver. Havenstein explained that the reorganization was in response to SAIC’s decision to place more emphasis on national security, IT-related technologies and capabilities, energy, health, and cybersecurity. ■

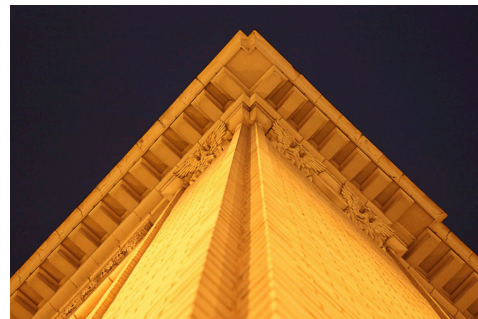
## Bill Adkins Takes a Closer Look at Market Street

By Ashley DeVine, Staff Writer

Facilities Maintenance and Engineering employee and photographer Bill Adkins has made it his personal mission to take a picture on Market Street every day for a year. According to his blog, <http://ayearonmarket.com>, Adkins has defined Market Street as running from Mount Olivet Cemetery at the south end to the old Coca-Cola plant near Thomas Johnson High School at the north end.

“A Year on Market” began April 1, and so far Adkins’ photos range from building facades, store and restaurant fronts with workers getting ready for the day or closing up for the night, and Carroll Creek buzzing with people, to workers hauling boxes and maintaining the roads and sidewalks, close-ups of hydrangeas and black-eyed Susans, and scenes of people strolling the street at night.

See the photos for yourself at Adkins’ blog. For the full story on “A Year on Market,” check out the next issue of *News & Views*, which comes out October 15. ■



## Locals Win SAIC Corporate Technology Prize

By Ashley DeVine, Staff Writer

Three SAIC-Frederick scientists working in the Optical Microscopy and Analysis Laboratory, Advanced Technology Program, were honored in August with an SAIC Technical Fellows Council Publication Award for their paper titled “Automatic Nuclei Segmentation and Spatial FISH Analysis for Cancer Detection,” which was published in the 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society in 2009.

SAIC Chief Executive Officer Walt Havenstein presented awards to Prabhakar (Reddy) Gudla, Ph.D., scientist II; Kaustav Nandy, M.S., scientist I; and Stephen Lockett, Ph.D., principal scientist and lab head.

The paper describes a novel procedure for breast cancer detection using fluorescent in-situ hybridization (FISH) labeling to measure the spatial positions of genes. Spatial analysis of gene localization relies on the accurate segmentation of cell nuclei and FISH signals in tissue sections. Since accurate nuclei segmentation is a time-consuming and subjective process when completed manually, Nandy et al., in collaboration with Tom Misteli, Ph.D., and Karen Meaburn, Ph.D. (Center for Cancer Research, Bethesda), came up with a method to automatically analyze FISH signal locations within individual cell nuclei in biopsy sections. The authors believe this method will be a more cost-effective, timely, and accurate way to detect breast cancer, which will improve the chances for successful treatment. ■

## Students Compete against the “Clickers” in the Fourth Annual Student Jeopardy Tournament

By Robin Meckley, WISCO, Contributing Writer

“My clicker isn’t working!” “I knew that answer!” “How much should I bet?” These questions and more were heard by more than 70 people attending the fourth annual NCI-Frederick/Scientific Library Student Science Jeopardy Tournament on July 15. Twenty high school and college interns working at NCI-Frederick during the summer formed nine teams of two students each, plus a two-student alternate team, to compete against each other, and the “clickers,” for prizes and bragging rights. Preliminary rounds held in the morning narrowed the field to three teams, who competed in the finals at 12:30 p.m. The first-place winners were Jennifer Reid, a sophomore at the University of Pittsburgh, and David Kaiser-Jones, a freshman at the University of Pennsylvania; second-place winners were Emily Pritt, a senior who is homeschooled, and Amy Zheng, a freshman at the University of Maryland; and third-place winners were Walkersville High School seniors Caitlin Briske and Rebecca Pollak. Kaiser-Jones has the distinction of being a multi-year first-place finisher; he was part of the 2009 winning team.

All students took home participation certificates and prizes provided by vendors, contractors, and the government. The top three winning teams were also awarded gift cards to local bookstores, courtesy of WISCO.

The Scientific Library staff appreciates the enthusiasm and courage of the students who participated in this year’s event. The staff would like to thank the judges: Howard Young, Ph.D., chief, Cellular and Molecular Immunology Section, Laboratory of Experimental Immunology; Dina Sigano, Ph.D., technical laboratory manager, Chemical Biology Laboratory; and Cheryl Parrott, director of Communications. Parrott shared some of her experiences with the students as a recent contestant on the TV show “Jeopardy!”.

The library staff would also like to thank the groups that provided prizes: Miltenyi Biotec, Essen BioScience, Rules-Based Medicine, COMSTAR Federal Credit Union, Occupational Health Services, SAIC-Frederick, NCI, the Employee Diversity Team, and WISCO. A special thanks goes to the staff of the Conference Center, whose technical expertise helped make this a smooth-functioning Jeopardy Tournament. Final thanks goes to the NCI-Frederick employees who took the time to watch the Jeopardy Tournament and support the students. ■



## Two More Reasons to Visit the Scientific Library

By Robin Meckley, WISCO, Contributing Writer

Now there are two new reasons to visit the Scientific Library in Building 549: the quiet study room and the relaxation room.

Are you looking for a quiet place to study or complete work without interruptions? The Scientific Library can help with its new quiet study room. Located in the former microfilm room, the quiet study room is equipped with a table, chairs, and a small desk. The room also offers door blinds for privacy and wireless Internet access for laptop use.

The other specialized area of the library is the relaxation room. This room is part of the Center for Health Information, a collaborative effort between the library and Occupational Health Services. The relaxation room is named for its sole purpose of promoting rest and relaxation, enabling you to be in top form when you resume working. The room is equipped with comfortable seating, a massage/heating pad, a TV/VCR/DVD unit, relaxation exercise DVDs, dimmed lighting, and available floor space for resting. Door and window blinds are available for privacy.

Both of these rooms are available for use during regular library hours. They can be reserved in advance, or used on the spur of the moment, if available. If you are interested in using the quiet study room and/or the relaxation room, call 301-846-1682 or visit the library in Building 549. ■

## Now, How Shall I Put This?

By Ken Michaels, Staff Writer

In the first of this two-part series, I introduced the classic continuous loop communication model (shown at right).

Starting on the left, a sender encodes a message, sends it through some medium (e-mail, telephone line, radio transmitter, etc.) to a receiver, who decodes the message, and (ideally) understands it. The receiver then becomes the sender and encodes a reply, sends it back through some medium (the same one or a different one) to the original sender, who is now the receiver, who decodes the reply and (ideally) understands it. And thus, communication has occurred.

The first article emphasized that a reply to the original message, in proper context, is vital for accurate communication to have, in fact, occurred. It also considered the impact the transmittal medium can have on the effectiveness of communication.

### Accurate Encoding Reduces Inaccurate Decoding

Now I'd like to turn attention to the matter of encoding and decoding messages.

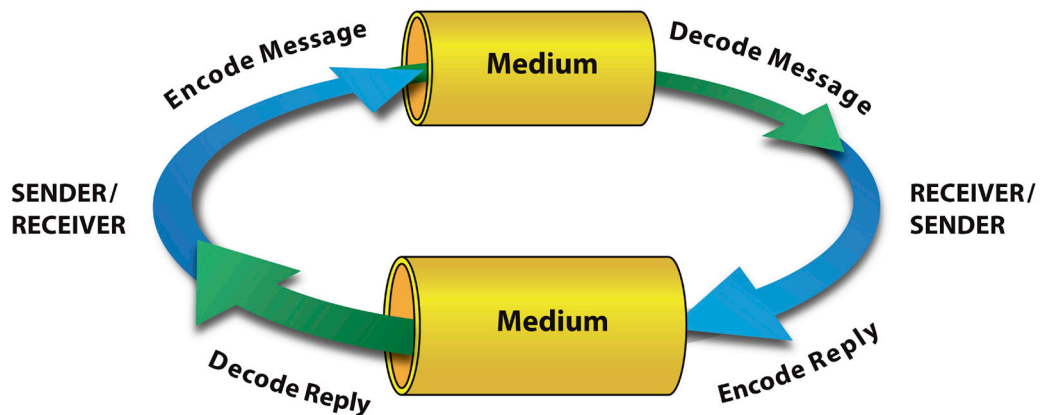
One approach is to avoid words altogether, such as with international symbols that use simple drawings, rather than words, to convey concepts. Once we understand that a red circle with a heavy diagonal line running from upper left to lower right superimposed over



a drawing of an object or activity (a lit cigarette, for example) means that whatever is depicted is forbidden, then the only challenge to understanding the

message is to correctly interpret what the depicted object or activity is.

For messages expressed in words, there's first the choice of language. For



non-native speakers of English, encoding the message often begins with getting it into English before crafting the message can even start. Even when everyone is fluent in the same language, differences in dialects, regional expressions, and generational vernacular can interfere with accurate communication and lead to misunderstandings.

### Survey Language Can Be Open to Misinterpretation

Surveys represent an area in which messages can be decoded in ways that are not intended. For example, lately there has been a great deal of emphasis on employee “engagement.” The essential idea behind the buzzword “engagement” is the premise that the more connected to the organization employees feel, the more comfortable and secure they are at work; this, in turn, leads to a more productive workforce, characterized by high morale and greater dedication to the mission. The Gallup surveys that many organizations use often seek to measure employee engagement.

One aspect of engagement that the survey attempts to measure is whether the employees feel that they have a co-worker to whom they can go with problems, or to simply let off steam in times of stress. Do employees feel that a trusted co-worker is looking out for their best interests—“watching their back,” speaking up on their behalf when

they're not around, and so on? Consider how the Gallup Poll encodes this message: it asks, “Do you have a best friend at work?”

“Best friend” is an expression that has different meanings to different people. When I first encountered this question on the Gallup Poll, I replied “No” because I know who my best friend is, and she doesn't work here. Now that it has been explained to me how the Gallup people wanted me to decode this particular message, my answer is different.

### Think about Your “Decoder”

I think the business of encoding—and decoding—messages is where failures to communicate most often occur. When encoding an important message, it will pay to pause for a moment and consider “How will the receiver be most likely to decode what I'm saying?”

An excellent practice to aspire to is one I've adapted from advice offered by former President William Howard Taft: *Don't say it so it can be understood; say it so it cannot be misunderstood.*<sup>1</sup> ■

<sup>1</sup><http://www.brainyquote.com/quotes/quotes/w/williamhow385396.html>

## Upcoming Events and Dates to Note

### Farmers' Market

Every Tuesday through October 26  
11 a.m.–1:30 p.m., in front of Building 549

### October 11

Columbus Day: NCI-Frederick closed

### October 15

Poster Puzzler entries due

### November 11

Veterans Day: NCI-Frederick closed

### November 25

Thanksgiving Day: NCI-Frederick closed

### December 24

Christmas Holiday: NCI-Frederick closed

### December 31

New Year's Day Holiday: NCI-Frederick closed

## Employment Opportunities

Please contact the individual contractor's human resources representatives or go to the contractor's web site for up-to-date, detailed information about jobs or research and training opportunities and requirements.

Charles River Laboratories  
[www.criver.com](http://www.criver.com)

Data Management Services  
[css.ncifcrf.gov/services](http://css.ncifcrf.gov/services)

National Cancer Institute at Frederick  
[www.training.nih.gov](http://www.training.nih.gov)

SAIC-Frederick, Inc.  
[www.saic-frederick.com](http://www.saic-frederick.com)

Wilson Information Services Corporation  
[www-library.ncifcrf.gov](http://www-library.ncifcrf.gov)

## NCI-Frederick Programs

NCI-Frederick/Ft. Detrick Fitness Challenge 2010  
[saic.ncifcrf.gov/fitnesschallenge/](http://saic.ncifcrf.gov/fitnesschallenge/)

NCI-Frederick Suggestion Committees  
[web.ncifcrf.gov/campus/committees/](http://web.ncifcrf.gov/campus/committees/)

NCI-Frederick Advanced Technologies to Support Research  
[web.ncifcrf.gov/research-technologies/default.asp](http://web.ncifcrf.gov/research-technologies/default.asp)

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Reminder: When you have a change in staff, be sure to change the information in the NCI-Frederick database. You can do this online by logging on to [web.ncifcrf.gov/campus/phonebook/](http://web.ncifcrf.gov/campus/phonebook/), or by contacting your human resources representative. For more information, you may refer to the inside front cover of the NCI-Frederick *Telephone & Services Directory*.

Comments or suggestions for *The Poster* may be directed to [poster@ncifcrf.gov](mailto:poster@ncifcrf.gov).

Need a large-print format of the *Poster*? Call 301-846-1055.

[web.ncifcrf.gov/ThePoster](http://web.ncifcrf.gov/ThePoster)

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# Calling All Volunteer Photographers!

*By Ken Michaels, Staff Writer*

Monday, October 18<sup>th</sup>, will mark the 39<sup>th</sup> anniversary of the presidential declaration that dedicated Fort Detrick to biomedical research. And we'd like **you—contract employee or government worker—**to photograph “A Day in the Life of NCI-Frederick.”

Throughout the NCI-Frederick campus and its offsite facilities, volunteers like you will be photographing our life here, beginning at 12:00 a.m. on October 18 and continuing until 12:00 a.m. on October 19.

Contact Colin Celaya, Conference Manager, [celayac@mail.nih.gov](mailto:celayac@mail.nih.gov), 301-846-1995. And watch for global e-mails with more information that will be coming out shortly. ■

### Web Sites of Note

*By Ashley DeVine, Staff Writer*

Throughout our newsletter, you'll find web sites that provide you with more information than we can put in our articles. In addition, many days, weeks, and months are devoted to the recognition of particular health care issues. We've selected a few dates that seem most pertinent to NCI-Frederick.

#### September

National HIV/AIDS and Aging Awareness Day, September 18: [http://www.theaidsinstitute.org/asp/ai\\_events.asp?ms=4&ss=55](http://www.theaidsinstitute.org/asp/ai_events.asp?ms=4&ss=55)

World Heart Day, September 26: <http://www.world-heart-federation.org/what-we-do/world-heart-day/>

Prostate Cancer Awareness Month: <http://www.zerocancer.org/index.html>

National Immunization Awareness Month: <http://www.cdc.gov/vaccines/events/niam/default.htm>

Ovarian Cancer Awareness Month: <http://www.ovariancancerawareness.org/home.aspx>

#### October

Metastatic Breast Cancer Awareness Day, October 13:

[http://www.mbcnetwork.org/page.aspx?nm=mbc\\_awareness\\_day](http://www.mbcnetwork.org/page.aspx?nm=mbc_awareness_day)

National Breast Cancer Awareness Month: <http://www.nbcam.org> and <http://www.nationalbreastcancer.org/>

Children's Health Month: <http://yosemite.epa.gov/ochp/ochpweb.nsf/content/chm2010.htm>

#### November

American Diabetes Month: <http://www.diabetes.org/in-my-community/programs/american-diabetes-month/>

Lung Cancer Awareness Month: [http://www.lungcanceralliance.org/involved/lcam\\_month.html](http://www.lungcanceralliance.org/involved/lcam_month.html)

Pancreatic Cancer Awareness Month: [http://www.pancan.org/section\\_get\\_involved/pancan\\_awareness\\_month/](http://www.pancan.org/section_get_involved/pancan_awareness_month/)

#### December

World AIDS Day, December 1: <http://www.worldaidscampaign.org/>

National Handwashing Awareness Week, December 5–11: <http://www.henrythehand.com>

### Flu Season Has Arrived

By Nancy Parrish, Staff Writer

Occupational Health Services (OHS) has begun its seasonal influenza campaign and will offer all NCI-Frederick employees the flu vaccine throughout the influenza season.

Watch your e-mail and bulletin boards for the dates and times for vaccination in OHS. No appointments are required, and there is no charge. For questions, contact OHS at 301-846-1096. ■



continued from page 21

### Books to Improve Your "Mindfulness"

If you're interested in mindfulness, you might want to read some of the following books.

Albers, Susan (2008). *Eat, Drink, and Be Mindful: How to End Your Struggle with Mindless Eating, and Start Savoring Food with Intention and Joy*. New Harbinger.

Bays, Jan Chosen (2009). *Mindful Eating: A Guide to Rediscovering a Healthy and Joyful Relationship with Food*. Shambhala.

Brach, Tara (2003). *Radical Acceptance: Embracing Your Life with the Heart of a Buddha*. Bantam.

Brantley, Jeffery (2003). *Calming Your Anxious Mind: How Mindfulness and Compassion Can Free You from Anxiety, Fear, and Panic*. New Harbinger.

Fralich, Terry (2007). *Cultivating Lasting Happiness: A 7-Step Guide to Mindfulness*. PESI.

Gardner-Nix, Jackie (2009). *The Mindfulness Solution to Pain*. New Harbinger.

Germer, Christopher (2009). *The Mindful Path to Self-Compassion: Freeing Yourself from Destructive*

*Thoughts and Emotions*. Guilford.

Goldstein, Joseph and Jack Kornfield (1987). *Seeking the Heart of Wisdom: The Path of Insight Meditation*. Shambhala Classics.

Hanh, Thich Nhat (1976). *The Miracle of Mindfulness; An Introduction to the Practice of Meditation*. Beacon Press.

Hayes, Steven C. (2005). *Get Out of Your Mind and Into Your Life: The New Acceptance and Commitment Therapy*. New Harbinger.

Kabat-Zinn, Jon (1990; 2005). *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness*. Delta.

Kabat-Zinn, Jon (1994; 2005). *Wherever You Go, There You Are; Mindfulness Meditation in Everyday Life*. Hyperion.

Langer, Ellen (1989). *Mindfulness*. Da Capo.

Langer, Ellen (1997). *The Power of Mindful Learning*. Perseus.

Marra, Thomas (2004). *Depressed and Anxious: The Dialectical Behavior Therapy Workbook for Overcoming Depression and Anxiety*. New Harbinger.

Roberts, Thomas (2009). *The Mindfulness Workbook: A Beginner's Guide to Overcoming Fear and*

*Embracing Compassion*. New Harbinger.

Siegel, Daniel J. (2007). *The Mindful Brain: Reflection and Attunement in the Cultivation of Well-Being*. Norton.

Siegel, Daniel J. (2010). *Mindsight: The New Science of Personal Transformation*. Bantam.

Siegel, Ronald D. (2010). *The Mindfulness Solution: Everyday Practices for Everyday Problems*. Guilford.

Stahl, Bob and Elisha Goldstein (2010). *A Mindfulness-based Stress Reduction Workbook*. New Harbinger.

Strosahl, Kirk D. and Patricia Robinson (2008). *The Mindfulness and Acceptance Workbook for Depression: Using Acceptance as Commitment Therapy to Move Through Depression and Create a Life Worth Living*. New Harbinger.

Williams, Mark, John Teasdale, Zindel Segal, and Jon Kabat-Zinn (2007). *The Mindful Way through Depression: Freeing Yourself from Chronic Unhappiness*. Guilford.

Wilson, Kelly G. and Troy Dufrene (2010). *Things Might Go Terribly, Horribly Wrong: A Guide to Life Liberated from Anxiety*. New Harbinger. ■