National Cancer Institute

Poster

The National Cancer Institute at Frederick — September 2011

TYCTWD 2011: Rewarding for Kids, Parents, and Volunteers

By Ashley DeVine, Staff Writer

"If someone doesn't know what fun is, they should come here"—that's what one child said to her father about this year's Take Your Child to Work Day (TYCTWD). Despite the hot weather, more children and volunteers participated this year than last.

Approximately 325 children participated in 31 programs and 24 hub activities, and more than 100 volunteers kept the event running smoothly.

"I believe this year was another success," said Julie Hartman, TYCTWD chairperson. "I am pleased to say that everyone took care of themselves in the heat."

Volunteers Reflect

It was the first year that Nancy Brandt, a project manager in DMS, participated in the program. She brought her alpacas as a hub activity. "My favorite part was to see the inquisitive nature and enthusiasm in all the kids," she said. "I think it is important for children to see where their parents go off to every day and also expose them to the nature of the work that goes on here—at their level of understanding."

Martha Summers, the hub activities coordinator and a document delivery technician in the Scientific Library, has been involved with TYCTWD since 2005. "The children keep me coming back. I love talking with them about the experiences throughout the day," she said. Summers noted that many of the hub volunteers are teenagers who attended TYCTWD as children. "Whether we realize it or not, there is a science to everything around us," she said. "Exposing young children to situations that will allow them to evaluate and reason based on evidence is a great life skill to have."

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From viewing fluorescence-labeled cells under a microscope to handling mice, Take Your Child to Work Day 2011 provided children with many hands-on learning opportunities.

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National Institutes of Health

Take Your Child to Work Day

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Summers wanted to thank everyone who contributed to making the day a success.

Christina Arnold, administrative assistant in the Office of Scientific Operations (OSO), NCI-Frederick, has been involved with TYCTWD for several years. This year, she was an escort and assisted with the program "Unlocking the Mysteries of the Brain."

"There were so many interesting programs and hub activities scheduled and it seemed that all of the kids who participated (and the parents, too!) had a great time," she said. Arnold believes the event is important so that children can spend the day with their parents and learn "how exciting and fun science can be."

Volunteering for his fifth year, Paul Miller, scientific program analyst in OSO, NCI-Frederick, and chairperson of the Employee Diversity Team, showed children how to write their names in Braille at the team's hub activity. What makes the day memorable for him is "the smiles on the kids' faces when they run their fingers over their Braille name tags," and "hearing them say 'This is the third [or fourth] year I've come to your table to make this.'"

Miller believes TYCTWD allows coworkers to see each other in a different role—as parents. "I think watching my coworkers become 'Mom' and 'Dad' as they interact and bond with their children is a very humanizing experience which, I think, helps us relate with each other," he said.

New Activities

In addition to activities such as holding a human brain, making slime, launching rockets, visiting the Army's water-monitoring research and aquaculture facility, and learning to use a microscope, some of the new activities children had a chance to experience were a mock trial, the basics of computer programming, poison prevention and remediation, forensic identification, and basic soldier first aid.

Also new this year was a special program at the end of the day, "Scales and Tales," which was presented by the Maryland Park Service. The program featured live birds of prey and reptiles, and described the "tales" of how these animals came to live at Cunningham Falls State Park. The environmental issues of habitat loss, pollution, and invasive species were also discussed. "It was nice to bring the children together at the end of day before heading to their parents' offices/labs or going to the pool," Hartman said. ■

Allosteric Drugs: Developing the Next Generation of Pharmaceutical Drugs

By Yuko Tsutsui, Structural Glycobiology Section, Guest Writer

Yuko Tsutsui, Ph.D.

Proteins binding to their interacting partners, or ligands, are important to maintaining normal cellular functions—blood coagulation, cell division, and firing neurons, to name just a few.

Studies of Protein–Ligand Interactions Advance Drug Development

Ruth Nussinov, Ph.D., head of the Computational Structural Biology Group, CCR Nanobiology Program, NCI-Frederick, and her group have been studying abnormal protein–ligand interactions that are associated with cancer and Alzheimer's disease for drug development. The many years of her work have been recognized by the Biophysical Society, which honored her with a 2011 Fellow of the Biophysical Society Award.

Pre-existing Equilibrium Theory—Protein in an Ensemble

Nussinov has been one of the pioneers in formulating the modern protein–ligand interaction theory, "the pre-existing equilibrium theory."

This theory postulates that a single protein exists in a collection of various conformations, called an ensemble. In this theory, a protein–ligand interaction involves selecting a specific protein shape within the ensemble of a single protein, and the binding causes the ensemble to populate the same specific structure with which the ligand chooses to interact.

In this way, like a water ripple effect, more ligands bind to the newly populating conformer. These different conformations of a single protein have a certain probability to populate, and a conformational change induced by ligand binding, described in other traditional protein–ligand interaction theories, is merely a result of changes in these probabilities.

Ruth Nussinov, Ph.D., has been recognized with a 2011 Fellow of the Biophysical Society Award for her work on abnormal protein–ligand interactions associated with cancer and Alzheimer's disease.

This theory is in stark contrast to the traditional theories where a single protein exists in only one conformation, and ligand binding induces a conformational change from one to the other.

Significant in Nussinov's theory in drug discovery is an assertion that a protein conformation relevant to ligand binding already exists in the ensemble without its ligand; thus, it is called "pre-existing." By studying an ensemble of protein conformations using computational approaches, conformations involved in a ligand interaction can be identified. The computational studies may also uncover an alternative ligand-binding site that can be targeted with a drug to activate or inactivate a protein linked to a disease.

Advantage of Drug-Targeting Strategy

This drug-targeting strategy offers an important advantage over conventional drugs, which are typically designed to fit into the same binding site as natural ligands. Since the conventional drugs "compete" with natural ligands for the same binding sites, the dose of the conventional drugs must be high enough to have an effect on protein functions.

However, there is no such heated competition between a natural ligand and a drug targeted to an alternative binding site, or an allosteric site, because they bind to different sites.

"High doses of conventional drugs can lead to side effects and toxicity. Allosteric drugs are less toxic, [and have] less side effects because of their lower dose," said Nussinov.

Conducting a Protein Orchestra

Like an orchestra, each protein forms an ensemble of many different shapes existing in harmony, dancing and twisting, and in this ensemble there is a key conformation that is important in normal protein function and drug discovery.

In this field of protein orchestra studies, Nussinov has been one of the prominent conductors, and her laboratory will continue to lead the way to study how abnormal ligand–protein interactions can lead to human diseases and how to treat them to restore the elegant protein ensemble. ■

Winners Announced for SRF Posters

By Ashley DeVine, Staff Writer

During the 15th annual Spring Research Festival (SRF), scientists, postdoctoral fellows, research technicians, and students presented 181 posters on current research discoveries. Of these presenters, 50 received awards in 14 categories for poster quality and presentation.

Next year's SRF will be held May 9 and 10 in a new location. The location is still in the discussion stage.

Pictures show the diversity of scientific communication that makes the Spring Research Festival so valuable.

Biodefense

Postdoctoral Fellows

Rebecca Vieira, Medicinal Chemistry Laboratory, United States Army Medical Research Institute for Infectious Diseases (USAMRIID)

Research Technicians

Shaun Mierzwa, Molecular Pathology Laboratory, USAMRIID

Students

Bethany Biron, Center for Aerobiological Science, USAMRIID

Thomas Brown, Bacteriology/Toxicology, USAMRIID

Cancer Biology

Postdoctoral Fellows

Stephanie Cabarcas, Laboratory of Cancer Prevention (LCP), NCI-Frederick

Chad Hancock, Laboratory of Comparative Carcinogenesis, NCI-Frederick

Scientists

Tommy Turbyville, Optical Microscopy and Analysis Laboratory, SAIC-Frederick

Research Associates

Alan Brooks, Laboratory of Experimental Immunology (LEI), NCI-Frederick

Students

Jessica Amlin Van Schaick, Mouse Cancer Genetics Program, NCI-Frederick

Richard Pompei, LEI, NCI-Frederick

Detection and Diagnostics

Research Technicians

Gerald Howe, Systems Development, USAMRIID

James Jaissle, USAMRIID

Students

Alexandra Turano, Protein Expression Laboratory, NCI-Frederick

Developmental and Cell Biology

Postdoctoral Fellows

Bau-Lin Huang, Cancer and Developmental Biology Laboratory (CDBL), NCI-Frederick

Students

Nicolas Homble, Laboratory of Cell and Developmental Signaling, NCI-Frederick

Maria Kaltcheva, CDBL, NCI-Frederick

Genetics and Epidemiology

Postdoctoral Fellows

Duncan Donohue, Advanced Biomedical Computing Center, SAIC-Frederick

Research Associates

Vickie Marshall, Viral Oncology Section/AIDS and Cancer Virus Program (ACVP), SAIC-Frederick

Students

Alex Ray, Viral Oncology Section/ACVP, SAIC-Frederick

Immunology

Postdoctoral Fellows

Keqiang Chen, Laboratory of Molecular Immunoregulation (LMI), NCI-Frederick

Miranda Hanson, LMI, NCI-Frederick

Ziqiang Zhu, LMI, NCI-Frederick

Research Associates

Qian Chen, Laboratory of Human Retrovirology, NCI-Frederick

Danielle Fink, Neutrophil Monitoring Laboratory (NML), SAIC-Frederick

Karen Lau, NML, SAIC-Frederick

Students
Vanessa Mackley, NML, NCI-Frederick

Infectious Pathogens

Scientists
Holly Bloomfield, Animal Studies Laboratory, USAMRIID

Informatics

Students
Greg Carter, Nanobiology Program, NCI-Frederick

Molecular Biology

Postdoctoral Fellows
Christopher Huggins, LCP, NCI-Frederick
Koreen Ramessar, Molecular Targets Laboratory (MTL), NCI-Frederick
Research Technicians
Deanna Gotte, Gene Regulation and Chromosome Biology Laboratory (GRCBL), NCI-Frederick
Students
Rachel Ciliberti, Nanotechnology Characterization Laboratory, NCI-Frederick
Ashley Denney, GRCBL, NCI-Frederick

New Technology

Postdoctoral Fellows
Hui Yang, GRCBL, NCI-Frederick
Students
Vinita Puri, Nanobiology Program, NCI-Frederick

Structural Biology and Chemistry

Postdoctoral Fellows
Kristie Adams, Chemical Biology Laboratory (CBL), NCI-Frederick
Yuhe Liang, Macromolecular Crystallography Laboratory (MCL), NCI-Frederick
George Lountos, MCL, NCI-Frederick
Wendy Popplewell, MTL, NCI-Frederick
Emily Whitson, MTL, NCI-Frederick
Students
Krista Duke, Natural Products Laboratory, NCI-Frederick
Emily Pritt, Biopharmaceutical Development Program, NCI-Frederick

Therapeutics and Drug Delivery

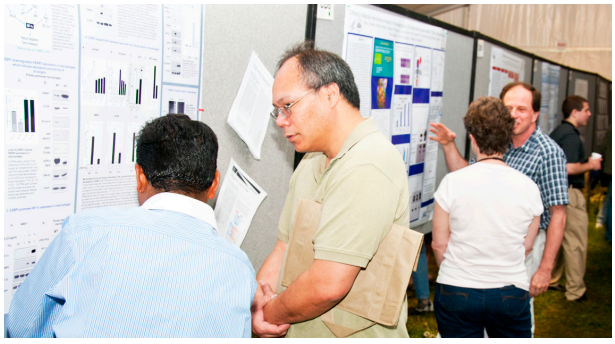
Postdoctoral Fellows
Amichai Yavlovich, Nanobiology Program, NCI-Frederick
Students
Mylinh Vu, Nanobiology Program, NCI-Frederick

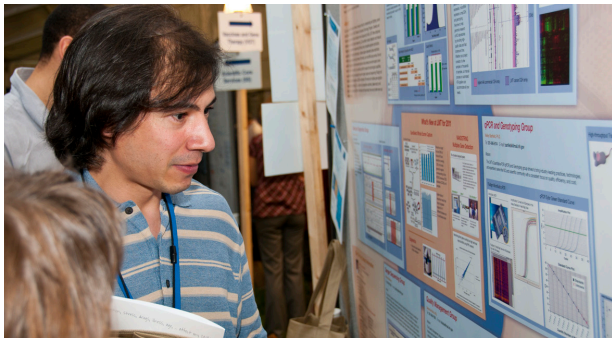
Vaccines and Gene Therapy

Postdoctoral Fellows
Christopher Campbell, CBL, NCI-Frederick
Research Associates
Emily Cisney, Department of Immunology, USAMRIID
Students
Sean Llewellyn, CBL, NCI-Frederick

Virology

Postdoctoral Fellows
Bor-Ruei Lin, Laboratory of Molecular Cell Biology, SAIC-Frederick
Tobias Paprotka, Retroviral Replication Laboratory (RRL), NCI-Frederick
Students
Nishani Kuruppu, RRL, NCI-Frederick ■





Understanding What Drives Immune Cell Activation in HIV

By Nancy Parrish, Staff Writer

A 2001 study by Kovacs et al. found that HIV infection is characterized by a rapidly increasing supply of immune cells known as CD4 and CD8 T lymphocytes (*J Exp Med* 194[12]:1731–1741, 2001). A study by Sharat Srinivasula of the Biostatistics Branch of the Clinical Monitoring Research Program, and colleagues, sheds new light on this immune cell activation.

"To our knowledge, this is the first study to utilize in vivo bromodeoxyuridine (BrdU) labeling in HIV-infected patients to characterize the proliferation of naïve, memory, and activated (HLA-DR$^+$/CD38$^+$) subpopulations of CD4 and CD8 T lymphocytes," said Srinivasula.

The study resulted in the novel observation that two forces differentially affect the proliferation of naïve and memory CD4 and CD8 T cells: HIV viral load drives the proliferation of CD4 and CD8 effector memory cells as well as CD8 naïve cells; naïve CD4 cell proliferation is driven by CD4 depletion and likely represents a homeostatic response.

In addition to these findings, the group showed that, contrary to current thinking, microbial translocation does not appear to be an important contributor to immune activation in the presence of HIV.

"There is a lot of debate into what drives this proliferation," Srinivasula noted. This study, he said, will provide a better understanding of the mechanisms of immune activation during HIV infection.

A graduate of Texas Tech University with a master's degree in mathematics, Srinivasula's primary research interests are focused on mathematical modeling of viral and cell dynamics, and noninvasive in vivo imaging of HIV pathogenesis.

Srinivasula said he is gratified to have participated in the first study to use in vivo BrdU labeling to demonstrate the factors leading to immune activation in T-cell subsets during HIV infection. "What makes me happy," he said, "is the chance to work in a novel area of multidisciplinary biomedical research of HIV pathogenesis." ■

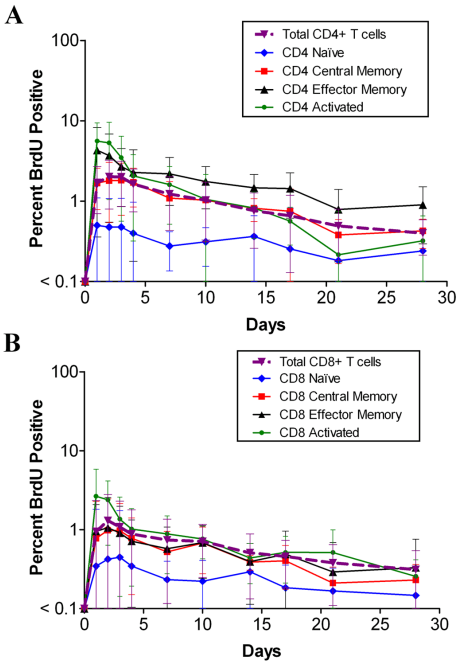
Sharat Srinivasula, Biostatistics Branch, Clinical Monitoring Research Program, NCI-Frederick

Differential Effects of HIV Viral Load and CD4 Counts on Proliferation of Naïve and Memory CD4 and CD8 T Lymphocytes

Sharat Srinivasula, Richard A. Lempicki, Joseph W. Adelsberger, Chiung-Yu Huang, Joshua Roark, Philip I. Lee, Adam Rupert, Randy Stevens, Irini Sereti, H. Clifford Lane, Michele Di Mascio, and Joseph A. Kovacs

Blood 118(2):262–270, 2011

We previously showed that HIV infection leads to expansion of a rapidly proliferating pool (s_1) of CD4 and CD8 T lymphocytes. In the current study, we used in vivo labeling with bromodeoxyuridine to characterize the kinetics of naïve, memory, and activated (HLA-DR$^+$/CD38$^+$) subpopulations of CD4 and CD8 T lymphocytes, and to examine the relationship between kinetic parameters and baseline CD4 counts, HIV viral load, potential markers of microbial translocation, and cytokine levels. Activated cells showed the highest proliferation rates, followed by effector and central memory cells, with naïve cells showing the lowest rates, for both CD4 and CD8 T cells. HIV viral load correlated with s_1 of CD4 and CD8 effector memory cells, as well as CD8 naïve cells, whereas CD4 cell counts correlated inversely with naïve CD4 s_1. Endotoxin levels showed a weak negative association with CD4 but not CD8 s_1. INF-γ and TNF-α were associated with s_1 for CD4 and CD8 cells, respectively. Thus, HIV is the primary driving force behind the activation and proliferation of most subsets of both CD4 and CD8 T lymphocytes, whereas naïve CD4 cell proliferation likely represents a homeostatic response. Microbial translocation does not appear to play an important role in this proliferation. ■



Kinetics of BrdU-labeled lymphocytes in blood. Total, naïve, central memory, effector memory, and activated subsets of CD4 (A) and CD8 (B) T cells are shown. Data represent the geometric mean ±SD.

Platinum Publications

The following 32 articles have been selected from 9 of the most prestigious science journals published during the past quarter.

Biomolecular Networks

Tarasov SG, Gaponenko V, Howard OM, Chen Y, Oppenheim JJ, Dyba MA, Subramaniam S, Lee Y, Michejda C, Tarasova NI. Structural plasticity of a transmembrane peptide allows self-assembly into biologically active nanoparticles. *Proc Natl Acad Sci USA* 108(24):9798–803, 2011.

Cell, Tumor, and Stem Cell Biology

Johmura Y, Soung NK, Park JE, Yu LR, Zhou M, Bang JK, Kim BY, Veenstra TD, Erikson RL, Lee KS. Regulation of microtubule-based microtubule nucleation by mammalian polo-like kinase 1. *Proc Natl Acad Sci USA* 108(28):11446–11451, 2011.

Sack U, Walther W, Scudiero D, Selby M, Kobelt D, Lemm M, Fichtner I, Schlag PM, Shoemaker RH, Stein U. Novel effect of antihelminthic niclosamide on S100A4-mediated metastatic progression in colon cancer. *J Natl Cancer Inst* 103(13): 1018–1036, doi: 10.1093/jnci/djr190, 2011.

Tu C, Zhou X, Tarasov SG, Tropea JE, Austin BP, Waugh DS, Court DL, Ji X. The Era GTPase recognizes the GAUCAC-CUCC sequence and binds helix 45 near the 3' end of 16S rRNA. *Proc Natl Acad Sci USA* 108(25):10156–10161, 2011.

Cellular Immunology and Immune Regulation

Matthews PC, Adland E, Listgarten J, Leslie A, Mkhwanazi N, Carlson JM, Harndahl M, Stryhn A, Payne RP, Ogwu A, Huang KHG, Frater J, Paioni P, Kloverpris H, Jooste P, Goedhals D, van Vuuren C, Steyn D, Riddell L, Chen F, Luzzi G, Balachandran T, Ndung'u T, Buus S, Carrington M, Shapiro R, Heckerman D, Goulder PJR. HLA-A*7401-mediated control of HIV viremia is independent of its linkage disequilibrium with HLA-B*5703. *J Immunol* 186(10):5675–5686, 2011.

O'Connor GM, Yamada E, Rampersaud A, Thomas R, Carrington M, McVicar DW. Analysis of binding of KIR3DS1*014 to HLA suggests distinct evolutionary history of KIR3DS1. *J Immunol*, doi: 10.4049/jimmunol.1002906; prepublished online July 29, 2011.

Clinical Trials and Observations

Uldrick TS, Polizzotto MN, Aleman K, O'Mahony D, Wyvill KM, Wang V, Marshall V, Pittaluga S, Steinberg SM, Tosato G, Whitby D, Little RF, Yarchoan R. High-dose zidovudine plus valganciclovir for Kaposi sarcoma herpesvirus-associated multicentric Castleman disease: a pilot study of virus-activated cytotoxic therapy. *Blood* 117(26):6977–6986, 2011.

Developmental Biology

Bennuru S, Meng ZJ, Ribeiro JMC, Semnani RT, Ghedin E, Chan K, Lucas DA, Veenstra TD, Nutman TB. Stage-specific proteomic expression patterns of the human filarial parasite *Brugia malayi* and its endosymbiont *Wolbachia*. *Proc Natl Acad Sci USA* 108(23):9649–9654, 2011.

Epidemiology and Prevention

Ciampa J, Yeager M, Amundadottir L, Jacobs K, Kraft P, Chung C, Wacholder S, Yu K, Wheeler W, Thun MJ, Divers WR, Gapstur S, Albanes D, Virtamo J, Weinstein S, Giovannucci E, Willett WC, Cancel-Tassin G, Cussenot O, Valeri A, Hunter D, Hoover R, Thomas G, Chanock S, Chatterjee N. Large-scale exploration of gene-gene interactions in prostate cancer using a multistage genome-wide association study. *Cancer Res* 71(9):3287–3295, 2011.

Genomics, Proteomics, and Bioinformatics

Boutz DR, Collins PJ, Suresh U, Lu MZ, Ramirez CM, Fernandez-Hernando C, Huang YF, Abreu RD, Le SY, Shapiro BA, Liu AM, Luk JM, Aldred SF, Trinklein ND, Marcotte EM, Penalva LOF. Two-tiered approach identifies a network of cancer and liver disease-related genes regulated by miR-122. *J Biol Chem* 286(20):18066–18078, 2011.

HIV

Boltz VF, Zheng Y, Lockman S, Hong FY, Halvas EK, McIntyre J, Currier JS, Chibowa MC, Kanyama C, Nair A, Owino-Ong'or W, Hughes M, Coffin JM, Mellors JW. Role of low-frequency HIV-1 variants in failure of nevirapine-containing antiviral therapy in women previously exposed to single-dose nevirapine. *Proc Natl Acad Sci USA* 108(22):9202–9207, 2011.

Dahirel V, Shekhar K, Pereyra F, Miura T, Artyomov M, Talsania S, Allen TM, Altfeld M, Carrington M, Irvine DJ, Walker BD, Chakraborty AK. Coordinate linkage of HIV evolution reveals regions of immunological vulnerability. *Proc Natl Acad Sci USA* 108(28):11530–11535, 2011.

Josefsson L, King MS, Makitalo B, Brannstrom J, Shao W, Maldarelli F, Kearney MF, Hu WS, Chen JB, Gaines H, Mellors JW, Albert J, Coffin JM, Palmer SE. Majority of CD4(+) T cells from peripheral blood of HIV-1-infected individuals contain only one HIV DNA molecule. *Proc Natl Acad Sci USA* 108(27):11199–11204, 2011.

Immunobiology

Barao I, Alvarez M, Ames E, Orr MT, Stefanski HE, Blazar BR, Lanier LL, Anderson SK, Redelman D, Murphy WJ. Mouse Ly49G2(+) NK cells dominate early responses during both immune reconstitution and activation independently of MHC. *Blood* 117(26):7032–7041, 2011.

Jiang Q, Weiss JM, Back T, Chan T, Ortaldo JR, Guichard S, Wiltrout RH. mTOR kinase inhibitor AZD8055 enhances the immunotherapeutic activity of an agonist CD40 antibody in cancer treatment. *Cancer Res* 71(12):4074–4084, 2011.

Srinivasula S, Lempicki RA, Adelsberger JW, Huang CY, Roark J, Lee PI, Rupert A, Stevens R, Sereti I, Lane HC, Di Mascio M, Kovacs JA. Differential effects of HIV viral load and CD4 count on proliferation of naïve and memory CD4 and CD8 T lymphocytes. *Blood* 118(2):262–270, 2011.

Waldmann TA, Lugli E, Roederer M, Perera LP, Smedley JV, Macallister RP, Goldman CK, Bryant BR, Decker JM, Fleisher TA, Lane HC, Sneller MC, Kurlander RJ, Kleiner DE, Pletcher JM, Figg WD, Yovandich JL, Creekmore SP. Safety (toxicity), pharmacokinetics, immunogenicity, and impact on elements of the normal immune system of recombinant human IL-15 in rhesus macaques. *Blood* 117(18):4787–4795, 2011.

Microbiology

Manzano M, Reichert ED, Polo S, Falgout B, Kasprzak W, Shapiro BA, Padmanabhan R. Identification of cis-acting elements in the 3'-untranslated region of the dengue virus type 2 RNA that modulate translation and replication. *J Biol Chem* 286(25):22521–22534, 2011.

Molecular Bases of Disease

Kimble JB, Sorrell E, Shao HX, Martin PL, Perez DR. Compatibility of H9N2 avian influenza surface genes and 2009 pandemic H1N1 internal genes for transmission in the ferret model. *Proc Natl Acad Sci USA* 108(29):12084–12088, 2011.

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Platinum Publications

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Kurotani R, Okumura S, Matsubara T, Yokoyama U, Buckley JR, Tomita T, Kezuka K, Nagano T, Esposito D, Taylor TE, Gillette WK, Ishikawa Y, Abe H, Ward JM, Kimura S. Secretoglobin 3A2 suppresses bleomycin-induced pulmonary fibrosis by transforming growth factor beta signaling down-regulation. *J Biol Chem* 286(22):19682–19692, 2011.

Purdue MP, Lan Q, Bagni R, Hocking WG, Baris D, Reding DJ, Rothman N. Prediagnostic serum levels of cytokines and other immune markers and risk of non-Hodgkin lymphoma. *Cancer Res* 71(14):4898–4907, 2011.

Molecular Biophysics

Nady N, Lemak A, Walker JR, Avvakumov GV, Kareta MS, Achour M, Xue S, Duan SL, Allali-Hassani A, Zuo XB, Wang YX, Bronner C, Chedin F, Arrowsmith CH, Dhe-Paganon S. Recognition of multivalent histone states associated with heterochromatin by UHRF1 protein. *J Biol Chem* 286(27):24300–24311, 2011.

Oncogenes

Grohar PJ, Woldemichael GM, Griffin LB, Mendoza A, Chen QR, Yeung C, Currier DG, Davis S, Khanna C, Khan J, McMahon JB, Helman LJ. Identification of an inhibitor of the EWS-FLI1 oncogenic transcription factor by high-throughput screening. *J Natl Cancer Inst* 103(12):962–978, 2011.

Min Y, Ghose S, Boelte K, Li J, Yang L, Lin PC. C/EBP-delta regulates VEGF-C autocrine signaling in lymphangiogenesis and metastasis of lung cancer through HIF-1alpha. *Oncogene*, doi: 10.1038/onc.2011.187; advance online publication 13 June 20112011.

Protein Function, Structure, and Folding

DiMaio F, Terwilliger TC, Read RJ, Wlodawer A, Oberdorfer G, Wagner U, Valkov E, Alon A, Fass D, Axelrod HL, Das D, Vorobiev SM, Iwai H, Pokkuluri PR, Baker D. Improved molecular replacement by density- and energy-guided protein structure optimization. *Nature* 473(7348):540–U149, 2011.

Red Cells, Iron, and Erythropoiesis

Biswas K, Das R, Alter BP, Kuznetsov SG, Stauffer S, North SL, Burkett S, Brody LC, Meyer S, Byrd RA, Sharan SK. A comprehensive functional characterization of BRCA2 variants associated with Fanconi anemia using mouse ES cell-based assay. *Blood*, doi:10.1182/blood-2010-12-32454; prepublished online June 30, 2011.

Retrovirus Biology

Paprotka T, Delviks-Frankenberry KA, Cingoz O, Martinez A, Kung HJ, Tepper CG, Hu WS, Fivash MJ, Jr., Coffin JM, Pathak VK. Recombinant origin of the retrovirus XMRV. *Science* 333(6038): 97–101, 2011.

Signal Transduction

Smith AM, Qualls JE, O'Brien K, Balouzian L, Johnson PF, Schultz-Cherry S, Smale ST, Murray PJ. A distal enhancer in *Il12b* is the target of transcriptional repression by the STAT3 pathway and requires the basic leucine zipper (B-ZIP) Protein NFIL3. *J Biol Chem* 286(26):23582–23590, 2011.

Song CC, Rahim RT, Davey PC, Bednar F, Bardi G, Zhang L, Zhang N, Oppenheim JJ, Rogers TJ. Protein kinase C zeta mediates mu-opioid receptor-induced cross-desensitization of chemokine receptor CCR5. *J Biol Chem* 286(23):20354–20365, 2011.

Vaccines

Burton DR, Hessell AJ, Keele BF, Klasse PJ, Ketas TA, Moldt B, Dunlop DC, Poignard P, Doyle LA, Cavacini L, Veazey RS, Moore JP. Limited or no protection by weakly or nonneutralizing antibodies against vaginal SHIV challenge of macaques compared with a strongly neutralizing antibody. *Proc Natl Acad Sci USA* 108(27):11181–11186, 2011.

Hansen SG, Ford JC, Lewis MS, Ventura AB, Hughes CM, Coyne-Johnson L, Whizin N, Oswald K, Shoemaker R, Swanson T, Legasse AW, Chiuchiolo MJ, Parks CL, Axthelm MK, Nelson JA, Jarvis MA, Piatak M, Lifson JD, Picker LJ. Profound early control of highly pathogenic SIV by an effector memory T-cell vaccine. *Nature* 473(7348):523–U270, 2011. ■

Vascular Biology

Stefater JA, Lewkowich I, Rao S, Mariggi G, Carpenter AC, Burr AR, Fan JQ, Ajima R, Molkentin JD, Williams BO, Wills-Karp M, Pollard JW, Yamaguchi T, Ferrara N, Gerhardt H, Lang RA. Regulation of angiogenesis by a non-canonical Wnt-Flt1 pathway in myeloid cells. *Nature* 474(7352):511–515, 2011. ■

On the Hunt

While here for "Take Your Child to Work Day," Christopher Turnquist, Alison Brawner, Emily Turnquist, Jeremy Brawner, and Michael Turnquist (left to right) hunted down the Poster Puzzler. Alison and Jeremy's mother is Elizabeth Brawner, Administrative Officer, NCI-Frederick ARC, while the Turnquist triplets belong to Valerie Turnquist, also an Administrative Officer for the ARC. ■

Interior Construction Begins on Final Wing of the ATRF

By Hoyt Matthai, Guest Writer, Advanced Technology Research Facility

The final wing of the Advanced Technology Research Facility (ATRF) is moving ahead with construction. The design for the administration wing (known as E wing) and the atrium was completed and approved in June, and bidding by general contractors (GCs) on the fit-out, or interior construction, occurred throughout July.

The final design includes details on specific spaces, such as hallways, offices, an auditorium, and conference rooms.

Eight GCs bid on the project, and by the time this article is published, the winning GC will be staging materials in E wing and the atrium will be in preparation for the interior construction, which is scheduled to start in late September.

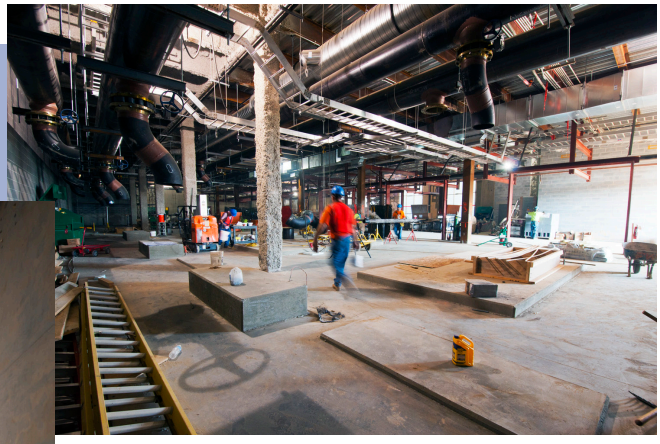
Interior construction of the laboratory wings continues on schedule. Also by publication date, major parts of the central utility plant (first floor of the A wing), such as boilers, will have been delivered.

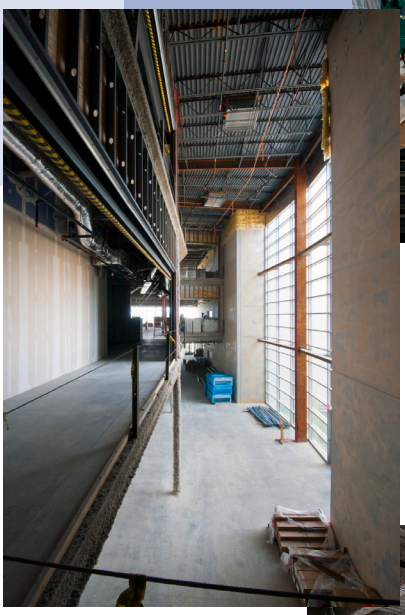
Data Center First Functional Area to Be Completed

Suppliers for the data center will be selected in September. Completion of the data center is projected for the end of the first quarter of 2012. Because of the lead time needed to test and qualify systems and equipment before occupancy, the data center will be the first functional area in the ATRF to be completed.

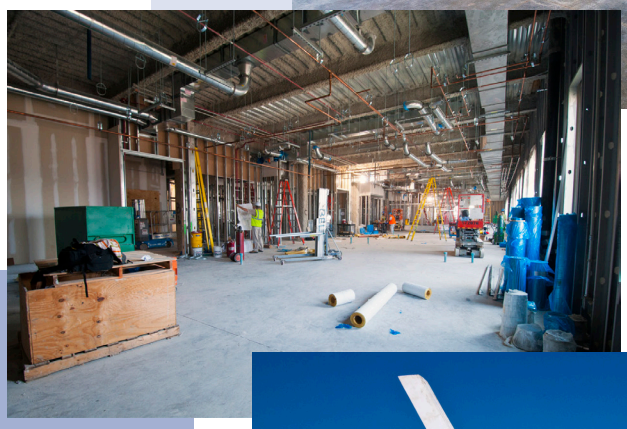
In addition to supporting the science applications, Internet, employee and laboratory workstations, and other data processing needs throughout the facility, the ATRF data center will use a voice over Internet protocol (VoIP) system to support voice and multimedia communications requirements.

Occupancy of the ATRF continues to be projected for the summer of 2012. ■





Construction progresses on the ATRF. From top: Biopharmaceutical Development Program laboratories under construction; second floor of the atrium; Data Center, ready for fit-out; Imaging and Nanotechnology laboratories under construction; exterior view of the ATRF.



Asbestos Abatement at FME Includes a "Facelift"

By Peggy Pearl, Facilities Maintenance and Engineering, Contributing Writer

In June 2010, Facilities Maintenance and Engineering (FME) began asbestos abatement in the offices in Building 350. This project required removing residual asbestos within the attic as well as removing a fire separation barrier that contained asbestos and had been installed between the attic and the occupied spaces. Following asbestos removal, the interior space received a much-needed "facelift": the walls and floor tile were restored and the carpet was replaced, and the entire space was re-painted.

FME Senior Project Manager Bart Christy managed the project, and Construction Administrators John Bell, Scott Wanrow, and Geoff Needham worked closely with FME Maintenance Shops and various subcontractors to successfully complete the job on schedule and within the original budget. Travis Gaydos, drafting designer, documented existing conditions before the project began, so that office spaces could be re-created in accordance with NCI's new interior color and material standards.

Since the building had to be vacated to complete the work and limited temporary space was available, FME relocated 24 staff members in four carefully coordinated phases. Building 552 and a few available rooms in Building 349 provided the necessary temporary space for staff.

Christy said his biggest challenge was relocating the employees into temporary office space and storing their belongings in storage units. "The most difficult part of the project was meeting the needs of my co-workers, whose daily routines were disrupted during the course of the project," he said.

Photo Display Highlights FME's Capabilities

With the restoration now complete, photos of FME's work will be artfully displayed on the interior walls of the building. Dante Tedaldi, Ph.D., associate director of FME, selected several photos of various construction projects by FME. The photos will be arranged into several montages of different sizes and shapes, to represent the wide variety of projects executed by FME over the past five years. Jon Summers, Scientific Publications, Graphics & Media photographer, produced the photo display boards, and Donnie Blickenstaff of the FME Carpenter Shop assisted with the wall mounting.

The finished product will represent a permanent and beautiful record of the talent and expertise of the FME staff. ■

Renovation of Building 350 began more than a year ago with asbestos removal, followed by interior restoration. Collages of FME's work are displayed in the newly renovated space. Pictured are some of the major contributors to the renovation project, from left: John Bell, Geoff Needham, Dante Tedaldi, Peggy Pearl, and Donnie Blickenstaff.

Keeping NCI-Frederick Employees Safe

Asbestos was widely used before 1989 in a variety of building and industrial products because of its excellent fire resistance and insulating properties. However, if asbestos is disturbed, the fibers may become airborne and trapped in the lungs, where they can cause significant, even fatal, respiratory conditions.

In 1989, the Environmental Protection Agency banned most asbestos-containing building materials. SAIC-Frederick's Environment, Health, and Safety (EHS) and Facilities Maintenance and Engineering (FME) directorates have developed a comprehensive facility management plan to locate, inventory, and assess the condition of asbestos building materials in all NCI-Frederick buildings constructed before 1985. The plan ensures that the NCI-Frederick community is not at risk from uncontrolled asbestos hazards.

Under the management of Greg Ragan, management planner and Maryland-accredited asbestos inspector, the EHS Industrial Hygiene department typically discovers the asbestos-containing materials in attics and mechanical rooms that contain components such as concrete board, floor tile and glue, and pipe and duct insulation. John Bell, Geoff Needham, and Ronnie Lambert, all of FME, are certified asbestos abatement supervisors who work with subcontractors to test for and remove asbestos from our facilities when its condition or location poses a hazard.

The project is nearly complete, with the few remaining buildings scheduled to be assessed for future renovation or demolition.

For information or questions about asbestos removal, contact: Greg Ragan, ragang@mail.nih.gov, 301-846-5376.

Sometimes, a "Near Miss" Counts

By Tammie Ford, Environment, Health, and Safety, Guest Writer

Have you ever "almost" had an accident? You drop a knife while dissecting a mouse tumor and the knife lands blade down, stuck in the floor beside your open-toed sandals. You reach to the back of the biological safety cabinet to get a pipette and almost knock over an open tube of retrovirus with your lab coat sleeve. You're replacing a steam pipe and forget to turn the valve to the "off" position (lucky for you, there was no steam at the time). You slip in a puddle near the ice machine, madly waving your arms in the air, and regain your balance. These are all examples of what we call a "near miss."

If you have observed someone doing something that is not quite safe, or you know of a process that could be done more safely, you may want to make use of the new "Near Miss" reporting system. It is set up through the Environment, Health, and Safety (EHS) Directorate for all of NCI-Frederick. It's easy!

- First, open the NCI-Frederick web site.
- On the "NCI-F Quicklinks" column (lower right side of the home page), click on the "Safety (EHS)" quick link.
- Click on the "Near Misses and Hazard Reporting" link (under the "What's New?" heading on the left side of the EHS home page), which brings you to the "Near Miss & Hazard Report" form.
- Print the form, fill it out, and drop it in the interoffice mail to EHS, Building 426.

Although you can submit the form anonymously, you are encouraged to sign it so that Safety can contact you if additional information is needed for an investigation or so that you can be recognized for your contribution to the safety of NCI-Frederick employees.

EHS will investigate each report, so please describe the event as accurately as you can.

- Include any fact or observation relevant to the event.
- If any equipment is involved, describe or identify the type of equipment. If a process is involved, describe the steps that led up to the event.
- If the event was an act of nature or happened because of a third party, try to list as much relevant information as possible. Nothing is too trivial to include.
- If you can, recommend a corrective action you believe could eliminate or lessen the hazard.

Near misses are warnings. It is a given that reporting near misses reduces injury incidents. Reporting creates an opportunity for us to identify hazardous conditions and work practices. In the workplace examples above, unless they had resulted in an injury, they might never have been investigated.

Since many accidents can be prevented by taking action to correct a hazardous situation, it seems crazy to ignore such situations. So, don't let a near miss go unreported; use it as an early warning system. Fill out those forms and let EHS know what is going on.

Let's work together to make this a safe facility for everyone! ■

Reminder: Urgent Care Services Have Changed

Occupational Health Services (OHS) has changed the way it handles urgent care. The procedure you follow will depend on whether your illness or injury is work-related or non-work-related.

For work-related illness or injury: You may make an appointment to see an OHS clinician by calling 301-846-1096.

For non-work-related illness or injury: If you have a sore throat, cough, bruise, or other non-work-related illness or injury, you may walk in to OHS between 10:00 and 11:30 a.m., Monday through Friday. Appointments are no longer necessary for these kinds of visits. If you experience an urgent condition outside of these hours, you may either call or walk in. OHS clinicians will be available to evaluate and triage your condition.

Remember: In a true medical emergency, call 9-1-1.

If you have any questions about the new policy, please call OHS, 301-846-1096.

Save the Date

By Marla Mullen, Occupational Health Services, Guest Writer

If you haven't had a mammogram this year, here's your chance: SAIC-Frederick is again partnering with Frederick Memorial Hospital to provide mammograms. All screenings are from 5:00 to 7:00 p.m.

Tuesday, October 4: FMH Rose Hill
Wednesday, October 12: FMH Crestwood
Thursday, October 20: FMH Rose Hill
Tuesday, October 25: FMH Crestwood

New Single-Stream Recycling Program to Save $300K per Year

By Ashley DeVine, Staff Writer

NCI-Frederick's new recycling program began in July and has two major changes: all recyclable items can now be placed in the same bin, and Facilities Maintenance and Engineering (FME) service workers are responsible for emptying the green recycling bins.

The new trash and recycling contractor for NCI-Frederick is Waste Management. Recyclable items are sent to a processing facility in Elkridge, MD, where they are separated and baled; the bales are sold to various companies to make products such as roads and playground equipment.

The new contract will save about $300,000 per year, according to Gary Happel, civil engineer, NCI-Frederick. "In addition to the monetary savings, the recycling services are improved to be more user-friendly 'single-stream' recycling. This means that all recyclable items are permitted to be comingled and the need for multiple containers is eliminated," Happel said.

Single-Stream Recycling

The following items can be placed in the same recycling bin: plastics #1–7, steel, tin, aluminum cans, all colored glass, paper, and cardboard. Remember to clean food residues from any of these items before placing them into the bin. Do not put soiled paper products, such as plates, napkins, tissues, or cups, into any recycling bins. If items containing food residue are placed in a recycling bin, all the other items in the bin will be contaminated and nothing in the bin will be recycled.

Some recyclable items will be collected, upon request, by Environment, Health, and Safety (EHS), and cannot be placed in recycling bins or dumpsters. These items include batteries; Tyvek suits; fluorescent, UV, or mercury vapor lamps; photographic film or paper; and chemical containers such as brown glass or plastic jugs that are not clean enough for recycling. Contact EHS Waste Management at ncichemwaste@nih.gov or 301-846-5718 to arrange for pick-up of these items.

FME service workers are responsible for emptying the green recycling bins around NCI-Frederick; they will not empty other types of bins used in laboratories or offices. Laboratory and office workers should empty personal bins into green recycling bins or outside in the designated recycling dumpsters. Bigger bins are not provided inside buildings because they are too cumbersome for service workers to empty.

Representatives from Waste Management, NCI-Frederick's new recycling contractor, were available to answer questions about the new recycling program at a recycling kickoff event on June 30, which was organized by the NCI Green Team and EHS.

Solutions to Reasons You Might Not Be Recycling

- Your building does not have a recycling bin—contact the FME Service Worker Shop at 301-846-1081.
- Your recycling bin is full or too far away—create your own recycling container (for example, you could bring in a large paper bag); when your bin is full, empty the recyclable items in a nearby green recycling bin or take them directly outside to a recycling dumpster. You can also contact the FME Service Worker Shop if a recycling bin in your area needs to be emptied.
- You do not know what is accepted in the recycling bins—go to NCI-Frederick's recycling page for a full list of items that are accepted/not accepted: http://home.ncifcrf.gov/ehs/recycling/procedures.asp. ■

From left: Dee Miller, Eileen Downey (winner), and Aylen Molina, with the preschoolers.

From left: Teri Mullen, Debbie Crawford, and Barbara Birnman (winner), with the infants.

PALS Holds Eighth Annual Art Auction and Bake Sale

By Ashley DeVine, Staff Writer

The Play and Learning Station (PALS) held its eighth annual art auction and bake sale on July 12, featuring a colorful display of artwork created by the children and baked goods made by parents. Each class (infants, toddlers, two-year-olds, and preschoolers) also created a masterpiece to be auctioned off. Proceeds from the event will support PALS classrooms and children. Winners of the art are shown with the artists and their teachers. ■

From left: Nicole Fisher (winner), Judy Burrier, and Joyce Kaempf (front), with the toddlers.

From left: Mary Kay Stecyk, Lucas and Tricia Barr (winners), and Rachael Stecyk, with the two-year-olds.

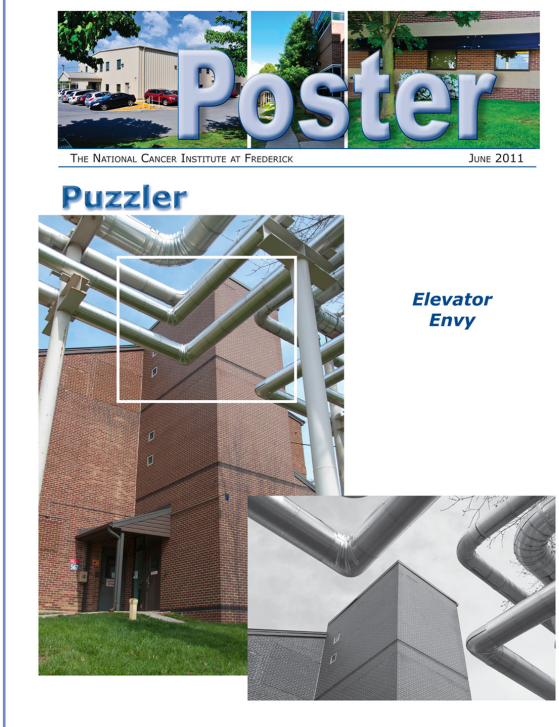
Congratulations to the June 2011 Poster Puzzler winner! Penny Baugher, glassware processor, Basic Science Program, SAIC-Frederick, is pictured with Paul Miller, executive editor of the *Poster*.

The Poster Puzzler:

Elevator Envy

By Ashley DeVine, Staff Writer, and Travis Gaydos, Facilities Maintenance and Engineering, Contributing Writer

The June 2011 puzzler is the top of Building 567—specifically, the top of the building's elevator shaft, which faces Building 576. Originally constructed in 1952, Building 567 received a 9,800-square-foot, two-story brick addition on its north side in 1993 for AIDS research laboratories. The programs currently housed here include the Laboratories of Cancer Prevention, Experimental Immunology, and Molecular Immunoregulation, Central Glassware, and animal care. ■

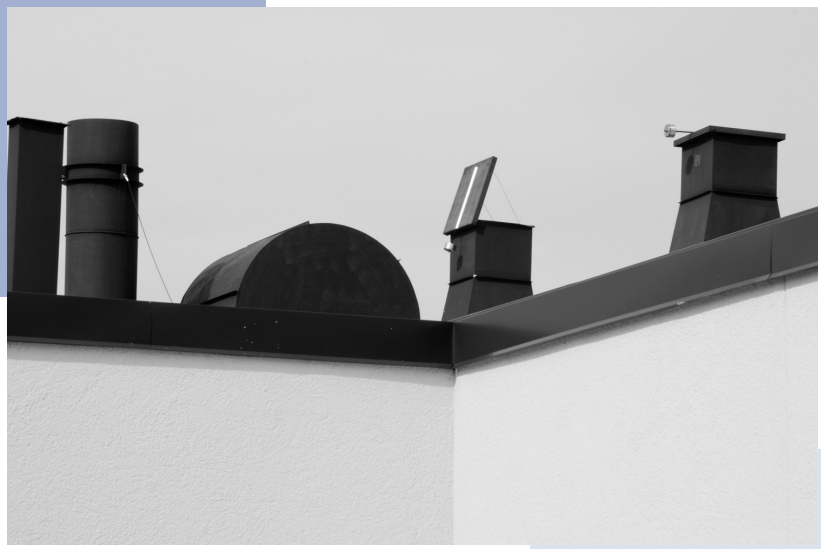


Poster Puzzler

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@mail.nih.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 21, 2011**, and the winner will be drawn from all correct answers received by that date.

Good luck and good hunting! ■



Have Poster, Will Travel

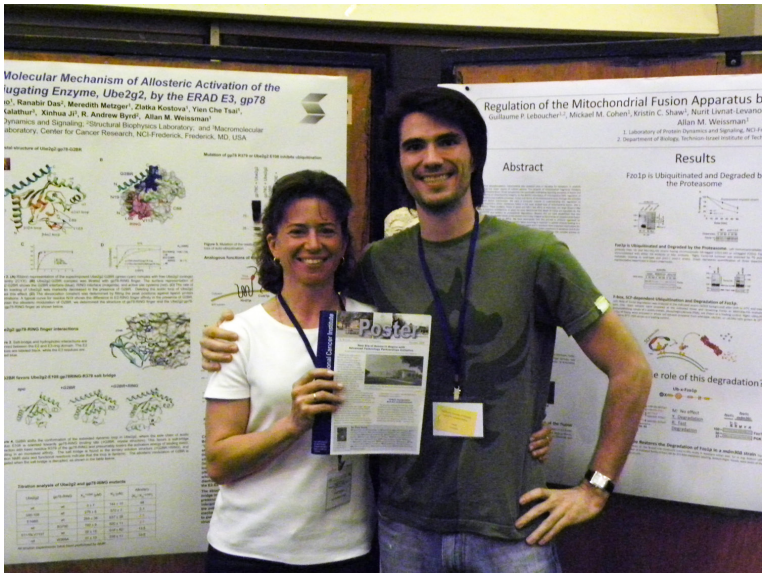
The *Poster* Traveled to Israel

By Maritta Perry Grau, Staff Writer

Jennifer Mariano, Laboratory of Protein Dynamics and Signaling, traveled with her *Poster* last year to the Biology of the Ubiquitin and the Ubiquitin-like Systems Conference at the Hebrew University of Jerusalem, Israel. Both Mariano and (now former) colleague Guillaume Leboucher, Ph.D., presented posters. In addition, their laboratory chief, Allan Weissman, M.D., was an invited speaker at the conference.

This conference brought together many of the leading scientists in the field of ubiquitin research, one of whom is Weissman. The conference was a joint one, hosted by the Institute for Advanced Studies at the Hebrew University of Jerusalem, the Israel Science Foundation, and Rubicon (the European Union Ubiquitin Network on Excellence). "Both Aaron Ciechanover and Avram Hershko, two of the three 2004 Nobel Prize winners for chemistry for the discovery of the ubiquitin-proteosome system, were critical to the success of the meeting." Mariano said. [See http://ncifrederick.cancer.gov/ThePoster/archive/Sep06_POSTER.pdf for an article on Hershko's lecture at NCI-Frederick.]

Mariano noted, "Many of the scientific approaches that were presented were directly applicable to our research. It was also gratifying to hear that reagents developed in our lab are widely used by other scientists around the world."



Take the *Poster* on your next trip!

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 while traveling on the metro, plane, or train, or when commuting in a carpool. 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 just might be featured in the next newsletter. ■

Sarah Hooper Named OHS Manager

By Nancy Parrish, Staff Writer

Sarah Hooper, R.N., M.S., was named manager of Occupational Health Services (OHS) in May 2011. She supervises a staff of nine, including six clinicians and three administrative employees.

Sarah Hooper

With a commitment to "the most valuable and enduring resource of the NCI-Frederick, our employees," Hooper said her vision for OHS is "to provide excellent service." Part of that vision includes launching the new Wellness Program (see article below), as well as a pilot program to offer OHS services at some of the off-site facilities. "We will start with the VPP [Vaccine Pilot Plant], offering wellness and occupational health surveillances," Hooper said.

"Homegrown Frederick Girl"

By her own admission, Hooper is a "homegrown Frederick girl." She graduated from Governor Thomas Johnson High School, and then from Salisbury University as a registered nurse with a bachelor of science in nursing. Following graduation, she returned to Frederick to work at Frederick Memorial Hospital (FMH) in the intensive care unit as well as the cardiac catheterization laboratory.

While at FMH, she earned her master's degree in primary care nursing and board certification as an adult and gerontological nurse practitioner (A.N.P., G.N.P.-B.C.), and she continues to work part-time for FMH Immediate Care, a walk-in, urgent care facility.

Hooper also served the community for 10 years as a volunteer paramedic for Frederick County Advanced Life Support and as a Frederick County firefighter for Junior Fire Company #2, to which she still belongs. The most important thing she learned from this experience, she said, was how to "remain calm in an emergency."

Like many managers in the current economic climate, Hooper believes her biggest challenge will be "doing more with less." She hopes to meet this challenge through cross-training and helping the staff work more efficiently, she said. ■

New Wellness Program Launched

By Nancy Parrish, Staff Writer

Occupational Health Services (OHS) launched a new Wellness Program for all NCI-Frederick employees, effective September 1, 2011. The new program brings many noticeable changes to existing OHS services.

"These changes resulted from our realization that not all of the NCI-Frederick employees were taking advantage of the opportunity to participate in our wellness services," said Sarah Hooper, manager, OHS. The program, she explained, is part of OHS' mission to improve employees' health, and increase job satisfaction and productivity, as well as decrease the costs associated with absenteeism and private health care.

Wellness Visits, Educational Events Offered

Under the new program, employees will be able to schedule an annual wellness visit, separate from an annual physical. These visits may focus on the wellness topic of the month and include a discussion of the employee's specific interests and wellness needs, which might include such issues as smoking cessation, exercise plans, weight loss, cholesterol screening, meal planning, and cancer screening.

Monthly educational events and activities based on a specific wellness theme are also part of the Wellness Program. For example, OHS recently sponsored an Open House and off-site visits to the Vaccine Pilot Plant to promote the new program, as well as a Lunch 'n' Learn event focused on yoga.

Upcoming topics and events include breast cancer awareness and a local screening opportunity, along with influenza vaccinations, during October; diabetes awareness and smoking cessation in November; and, in December, holiday stress management and getting fit for 2012.

The Fitness Challenge will continue to be available to all employees as part of the Wellness Program (visit http://saic.ncifcrf.gov/fitnesschallenge/), and winners will be announced quarterly.

The new Wellness Program requires that all employees formally enroll by signing a consent form to acknowledge their understanding that any screening tests they undergo are not job-related and are entirely voluntary.

Work-related Annual Physicals Still Provided

Annual physicals that are directly related to potential hazards in the workplace will continue to be offered to all NCI-Frederick employees. This type of work-related surveillance may include vaccinations, X-rays, blood work, pulmonary function tests, hearing tests, and physical examinations. All work-related exams are voluntary unless the monitoring is mandated by the Occupational Safety and Health Administration.

Please call OHS, 301-846-1096, for additional information or the necessary consent forms. ■

NCI-Frederick Wellness Program

September 11, 2001: How Are You Handling the Stress of Remembrance?

By Selden Cooper, Employee Assistance Program, Contributing Writer

September 11 is a date emblazoned into our collective memory; an event like, for the older among us, former President Kennedy's assassination, or the *Challenger* disaster: we all remember where we were when we first heard the news. We all remember seeing the hijacked airliners crashing into their targets, and the collapse of the World Trade Center towers, over and over again. Such concentrated and prolonged visual exposure to such traumatic events has the potential to intensify our normal reactions of horror, fear, and vulnerability.

You may have been—and perhaps still are—re-experiencing those events and your reactions, as well as heightened concerns that more terrorist attacks could occur. You should realize that such experiences and concerns are normal. What is crucial is that you are now able to regard the experience from a position of safety—to be able to view it from the perspective of here and now, as opposed to then and there. Reliving a traumatic event lets you revisit the experience in a safe way, so that you can further process your reactions to it.

Psychologists recommend that you open yourself to memorializing the events of 10 years ago, without excessively exposing yourself to the horror of that day (i.e., don't keep watching re-runs of those catastrophes). In addition, they suggest that you shield children from televised images, but that you do discuss the events with them. Anniversaries constitute a particular "teachable moment," in terms of your being able to explore with children the reality that "bad things" can and do happen to "good people," but that most people, even those different from ourselves, are good and trustworthy.

Tips for Handling Potential Anniversary Reactions

For Yourself: Acknowledge and accept the validity of your feelings and thoughts.

- Be "gentle" with yourself.
- Seek solace in spirituality in keeping with your beliefs.
- Maintain your routines and follow a healthy lifestyle.
- Avoid self-medication.
- Employ stress management techniques as needed.
- Minimize your exposure and that of your children to visual images of the event.
- Recognize and accept fears about another attack, but don't be dominated by them.
- Be skeptical about rumors; don't believe everything you hear, including (especially) those from the media.
- Don't lose sight of the good in life and in others.

With Others: Maintain your "human" connection with others for a sense of community and mutual support.

- Talk or write about the experience; it is through words that we construct meaning out of the senseless.
- "Give testimony" and "bear witness," not just to the event, but also to the heroism and other transcendent human values that were displayed by so many on September 11 and afterwards.
- Participate in communal commemoration and healing rituals.
- Be accessible to others, showing you are listening, understanding, and accepting their feelings and thoughts.
- Be patient and supportive—just "being there" can be enough; words may not even be necessary.
- Know when to recommend help.

With Children: Children will take their cues from the adults in their lives.

- Limit the child's exposure to visual images of the events.
- Remember that a child's understanding of time differs from that of an adult's.

Selden Cooper notes that anniversaries of traumatic events can be positive, enabling further processing of our reactions to the event.

- Be available/accessible; encourage talk but take your lead from the child.
- Tailor your approach to the developmental stage of the child; get on his/her level.
- Answer questions truthfully, but age-appropriately, and reassure the child.
- Maintain routine and structure.

You may have felt in the past few weeks that your nerves were "raw" and that your eating or sleeping routine was impacted; you may have been preoccupied with the event, or you may have avoided any reminders. These reactions are normal, but if they are intense or prolonged, consider obtaining professional assistance. The Employee Assistance Program can assist in making such a determination, and can link you to appropriate community resources.

If you have questions about these or any other issues, contact me (Selden Cooper, LCSW-C, CEAP) at 301-846-1308. I am on site Tuesdays and Wednesdays (all day) and Friday mornings, in Building 426. ■

"For everything, there's a cause and an effect"

By Maritta Perry Grau, Staff Writer

For everything, there's a cause and an effect, whether you are working in a laboratory or just pursuing your favorite hobby. Just ask Roberta Matthai, an SAIC-Frederick research technician in the Flow Cytometry Core, Basic Science Program, support to the Center for Cancer Research, NCI-Frederick.

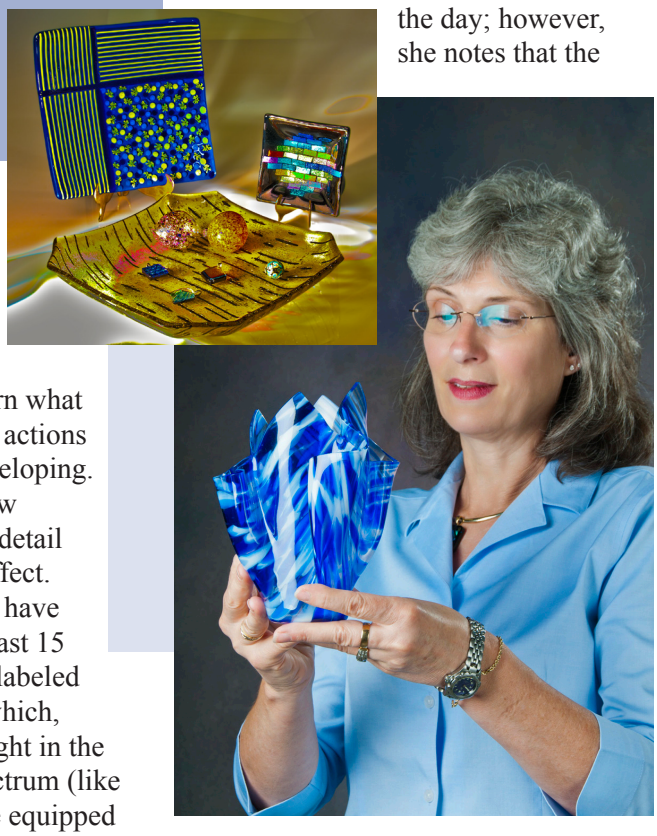
Cause and Effect: Finding Solutions on the Job

On the job (and Matthai's been doing this for more than 14 years), you very quickly learn what negative or positive effect your actions have on the project you are developing.

Like fusing glass, much of flow cytometry requires attention to detail and observation of cause and effect. Capabilities of flow cytometers have advanced tremendously in the last 15 years. Cells or particles can be labeled with different fluorochromes, which, when excited by a laser, emit light in the different colors of the light spectrum (like a rainbow). These machines are equipped to separate the different light spectra, and by using a gating strategy (like a road map), specific populations of cells can be defined and/or sorted. As experiments become more complicated with the addition of more fluorochromes, it is critical to understand the cause and effect that each "player" contributes. False populations can be created or statistics changed without strict attention to detail.

While most of Matthai's experiences have come through on-the-job training, she says that "seminars and annual conferences have been incredibly informative. Science has evolved a lot. At these meetings, we see the cutting-edge stuff—the latest techniques, equipment, and research findings. Such meetings are a great resource to learn about new fluorochromes or emerging techniques that we can share with our customers and users in our lab. It is also a great forum to network and discuss issues and solutions with other cytometrists."

Matthai and her two colleagues (Kathleen Noer, core manager, and Guity Mohammadi, technician), while cross-trained, focus on individual bodies of work throughout the day; however, she notes that the lab functions on mutual cooperation and support. "We often rely on each other's observations of cause and effect." Matthai's primary function involves identifying and sorting specific cell types or subpopulations into individual tubes that the researcher can use later for the assay or experiment.



Roberta Matthai makes a variety of delicate glass objects (top). Above, she holds a glass vase she molded over a martini shaker.

A lot of the cell sorting work time is devoted to setting up and monitoring the cytometer to ensure that everything runs smoothly. Some expanded days are required to allow for 7- or 8-hour sorts, in addition to more than an hour to set up and an hour or so to shut down the machine, she explains.

Cause and Effect: Fusing Glass

Have you ever had a glass object shatter for no apparent reason? Glass is rated by its COE (coefficient of expansion). If you fuse glass pieces with different COEs, they will eventually break, since they will expand and contract at different rates.

That's "cause and effect" operating again. In much the same way that she monitors her cell sorting machines at work, Matthai programs and monitors her kiln in pursuing her favorite hobby: layering and fusing or melting together different colors and types of glass for various effects.

"You have to be very careful when you are fusing glass that all the pieces are compatible," Matthai cautions, "otherwise, the glass will shatter."

Living in Belgium and traveling throughout Europe for two years, Matthai and her husband (Hoyt Matthai, Director of Operations, Advanced Technology Research Facility) saw people making glass ornaments, stained glass, and other "glass objects everywhere we went. Every city seemed to have incredible stained glass windows in the cathedrals," she says.

Back in the United States, Matthai took classes in fusing glass, then in making three-dimensional objects (such as boxes), beads, and even in blowing glass ornaments.

Most of the glass she makes—pendants, flat display panels, vases, and bowls—is for gifts. "I have lots of ideas, but not much time to do them," she says.

Like her work in sorting cells, making a simple object like a pendant involves several steps and lots of time. You have to program the kiln to "hold" at certain temperatures, to vent and slowly cool, or cool more quickly, depending on what effect you want. "And after all my work, it never turns out the way I think it will," she says of her glass-making.

She concludes, "Both my work and my hobby have in common that there's a cause and effect in what you do; through observation and attention to detail, I've learned a lot in both arenas." ■

Former Intern Describes Careers Outside the Laboratory

By Nancy Parrish, Staff Writer

Former Werner H. Kirsten student intern Stefanie Bednarczyk (above) advised students to keep an open mind when considering career options.

On July 19, former NCI-Frederick Werner H. Kirsten student intern Stefanie Bednarczyk (see *Poster*, June 2011, page 17) spoke to current interns about career options other than laboratory research or medicine, and she underscored the value of the internship experience.

As a student intern, Bednarczyk knew early on that she did not want a career at the bench. "After my thousandth Western blot, it just was not going to be a career for me," she said. But she didn't know what else was out there.

While in college, Bednarczyk shadowed people who were in professions she thought she might pursue. This helped her rule out two potential careers—obstetrician ("too gross") and forensic pathologist ("I don't know what I was thinking").

Owes Success to Lab Experience

Thinking about medical school but needing to earn money after graduating from college, Bednarczyk accepted an offer from Computer Sciences Corporation as a regulatory affairs medical writer—a position that relies heavily on having a scientific background.

Within six months she was moved into business development and the fast-paced world of government contracting. She quickly realized that she thrived in this highly competitive environment—and that she was good at it. At age 25, she was instrumental in landing a $242.2 million contract for her company.

Now a life sciences account executive at SAIC Corporate, Bednarczyk travels all over the world in pursuit of new business for the company. She attributes her success to her laboratory experience. "My customers really value and appreciate the fact that I can speak science to them, and that is something I owe…to working in the lab [at NCI-Frederick]."

Lots of Career Options

Business development, Bednarczyk said, involves a lot of partnership, teaming, and customer interface. She frequently works 90-hour weeks and travels much of the time. She also described a number of other business-related career paths open to student interns.

Project management positions often require a science background: project managers keep a project—such as the development of a new product or a specific research project—on time and within budget. Anyone interested in project management should consider a Project Management Professional certification, which, she said, is "treacherous to get [but] very valuable to have."

If you have an interest in legal issues, you might explore intellectual property and patents, another area in which a science background is "hugely valuable"; or, if you lean toward finance, Bednarczyk noted that product financial analysis often combines science and business.

What Can a Student Do Now?

Bednarczyk strongly recommends shadowing people to assess potential careers. "If you can't get an actual internship, either paid or unpaid, it's really invaluable to spend some time with people who are doing the job that you think you might want to do." You can also talk to people in the field. "Find someone who's in the career that you think you might want to have," she said.

Another option is to take business courses in college if you think you might be interested in business. Equally important, she said, is keeping an open mind. When she was an intern, she said, "I certainly never would have envisioned…that I would end up in business."

Most of all, she said, "absorb and appreciate this opportunity." She admitted that she did not "fully appreciate the experience that I was having, the contacts I was making, and how valuable the people that I worked with in the lab at the time could be to me. And even now there are times when I'll pick up the phone and call one of them for advice or a contact."

She reminded students that "this is a really lucky time….You're allowed to make mistakes, and you won't have that when you have a job."

Interested in Shadowing Stefanie Bednarczyk?

If you'd like a chance to see what business development is all about by shadowing Bednarczyk, you may contact her directly at stefanie.m.bednarczyk@saic.com. ■

Use of Social Media at NCI's Technology Transfer Center

By Charles Salahuddin, Kashif Haque, John Hewes, Jeffrey Thomas, and Tom Stackhouse, Technology Transfer Center, Guest Writers

Social media leverages the power of networks and relationships to communicate information to a broad audience more effectively than traditional marketing methods. Image courtesy of: http://searchenginewatch.com/article/2054313/Social-Media-Marketing-for-Small-Business.

The use of social media tools has changed the way content is publicized and distributed on the web. Applications such as Twitter, YouTube, and LinkedIn have allowed users to turn one-on-one communication into an interactive, multi-party dialogue in which more information can reach a broader audience in a shorter period of time. The ability of social media to enable a wider distribution of content has prompted the National Cancer Institute's Technology Transfer Center (NCI-TTC) to facilitate interaction with members of the life science community using these tools.

Traditional marketing has relied on a single-channel approach that involves establishing a connection, exchanging information with this connection, re-establishing new connections, and duplicating efforts with each new connection. Social media allows a multi-channel, networked approach in which information distribution can occur instantly within various communities. Once key individuals are informed of NIH discoveries, they re-broadcast the information into their own networks. The decreased time, cost, and effort associated with marketing technologies using social media have allowed NCI-TTC to use its resources more effectively and efficiently.

Social Media Journey Begins with Twitter

In June 2010, NCI-TTC began its journey into the world of social media by setting up a Twitter account: http://twitter.com/ncitechtransfer. NCI-TTC publicizes new inventions and discoveries to its followers by "tweeting" the information (a "tweet" can be no more than 140 characters of text). The information is, in turn, instantaneously "re-tweeted" by NCI-TTC followers to others, such as members of the scientific community, advocacy groups, patients, and the general public, who otherwise would not have access to it.

Using Online Video to Distribute Technology to Wider Audience

NCI is actively exploring the use of online video as a means of making its technology more accessible. As part of a team effort, NCI-TTC worked with SAIC-Frederick's Frank Blanchard, director, Public Affairs; David Hoekzema, director, Advanced Technology Partnerships Initiative; and Bruce Crise, director, Business Development, Advanced Technology Program, to create a short YouTube video that can be delivered electronically to appropriate contacts throughout the world.

The video, which is available to view at http://www.urweb.tv/pharma/TargetedProteinDelivery/TargetedProteinDelivery.html, describes virus-like particles (VLPs) that can deliver therapeutic proteins to cells of interest. These VLPs were developed by Deb Chatterjee, Ph.D., in SAIC-Frederick's Protein Expression Laboratory. The laboratory uses empty viral shells as vessels for protein delivery. These empty viral shells are potentially safer than traditional delivery methods because no foreign viral genetic material is introduced into the cells. The video includes a live animation of how the VLPs enter cells to release proteins to target cells. It also includes commentary from Chatterjee describing technical details and how to pursue further collaborative relationships. The video brings to life the biological processes associated with a promising NCI technology and provides the viewer with a conceptual representation of what the technology does and its various applications.

LinkedIn has allowed NCI-TTC to establish relationships with many of the sectors of the life science industry, including venture capitalists, business development professionals from biotechnology and pharmaceutical companies, and university and government technology transfer specialists.

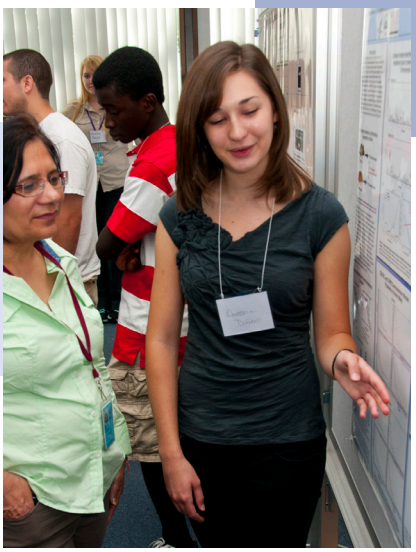
Social media will likely continue to evolve and change the way information is distributed and how technologies are marketed. NCI-TTC has been at the forefront in adapting to these new technologies and continues to seek out new, creative ways of reaching members of the scientific community and public for the purpose of improving public health throughout the world. ■

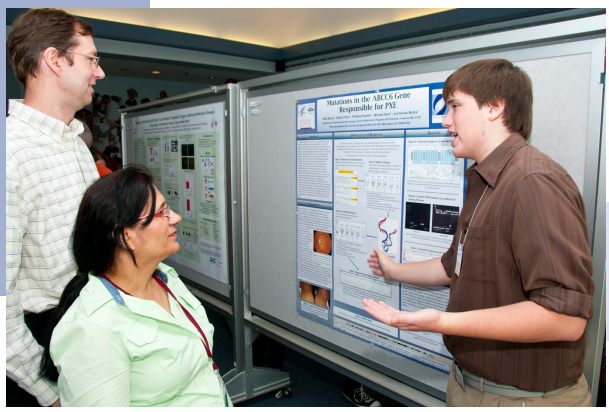
Student Poster Day: A Way for Interns to Share Their Research

By Ashley DeVine, Staff Writer

Summer Student Poster Day brought 36 Werner H. Kirsten student interns and college interns together to present their research to the NCI-Frederick and Fort Detrick communities.

Alex Borsa, a high school student interning in the Laboratory of Experimental Immunology (LEI), Cancer and Inflammation Program (CIP), decided to participate in Student Poster Day because he heard it was "a great way for anyone on campus, no matter what lab or building they're from, to come together and learn about each other's research." Borsa's poster, "Mutations in the *ABCC6* Gene Responsible for PXE," was about his research on the disease pseudoxanthoma elasticum (PXE), which occurs primarily from mutations in the *ABCC6* gene. "What I'm doing is sequencing the DNA of PXE patients around the world. After sequencing the DNA, I will analyze it to detect the mutations that are causing the PXE, and potentially find novel mutations that have never been documented," he said. Borsa was happy with the outcome of his poster and presentation.





Returning college intern Emily Bowers signed up for Student Poster Day to gain experience in public speaking and in presenting her data. Her poster, "Inhibitor of DNA Binding (Id) Protein 1 as a Potential Therapeutic Target in Myeloproliferative Disease," described the use of shRNA to target Id1 mRNA in order to knockdown Id1 in two acute myelogenous leukemia cell lines. Since Id1 is involved in regulating blood cell development, it is believed that targeting Id1 could inhibit cancer cell growth. "I feel that I did well in explaining my project and in answering questions," said Bowers, who is interning in the Hematopoietic and Stem Cell Biology Section, Laboratory of Cancer Prevention. "I think it is very beneficial for students to get experience in public speaking and in asking questions," she said.

Jessica Henry, a college intern in the Protein Chemistry Laboratory, Advanced Technology Program, presented her poster at the event "because I knew it would be a great experience, and I wanted to show and tell others about the hard work I did on my project." Henry's poster, titled "Using Fluorescence Correlation Spectroscopy to Observe Binding Interactions," showed her research with the QuantumXpert™ fluorescence correlation spectrometer to measure the diffusion times of antibody/antigen and oligonucleotide/M13mp18 interactions. "The goal of the project was to see an increased diffusion time when the antibody and antigen were bound and when the oligo and M13mp18 were bound," she said. Henry enjoyed the event and believes it will benefit her future career plans.

Summer Student Poster Day was held July 27 in two sessions in the lobby of Building 549. The event was organized by the Office of Outreach and Special Programs, NCI-Frederick. and co-chaired by Howard Young, Ph.D., LEI, CIP, and Anu Puri, Ph.D., Center for Cancer Research Nanobiology Program. ■

Check Your Calendar for Fall Diversity Observances

By Maritta Perry Grau, Staff Writer

The fall quarter is an interesting one for noting the diversity important to our work forces. Many observances of days, weeks, or months are noted on federal calendars. Below this article you will see "Web Sites of Note," which identify just a few of the groups and diseases that are specially marked with observances. You can find many others at http://www.healthfinder.gov/nho/default.aspx.

The federal holiday, Labor Day, always occurs on the first Monday in September, which this year is September 5. According to the U.S. Department of Labor (web site http://www.dol.gov/opa/aboutdol/laborday.htm), Labor Day is "a yearly national tribute to the contributions workers have made to the strength, prosperity, and well-being of our country."

Although history doesn't make clear who first suggested holding this holiday in the early 1880s, by 1894 Congress had passed a law recognizing the first Monday in September as the federal holiday.

Besides the U.S. Labor Day, September also recognizes the independence on September 15 of "five Hispanic countries—Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua," according to http://www.2011federalholidays.com/. You may want to check your local news listings for any observances in your area.

October marks recognition of several groups and other observances. In the United States, it's a special month to observe lesbian, gay, and bisexual history. Several organizations merged forces in 1994, choosing October to mark observances because it was also a month when, in 1979 and 1987, marches on Washington for lesbian and gay rights were held; National Coming Out Day is held; and because educational institutions have the opportunity to explore the history and social issues surrounding lesbians, gays, and bisexuals.

Thought for the Quarter

"The desire of knowledge, like the thirst of riches, increases ever with the acquisition of it."

Laurence Sterne, novelist and clergyman (1713–1768)

Source:
A.Word.A.Day, Anu Garg, July 6, 2011;
Wordsmith, wsmith@wordsmith.org

In addition, October marks Disability Employment Awareness Month. This designation began in 1945 as "National Employ the Physically Handicapped Week," but was changed to its current title and length in 1988.

In 2009, "Congress passed and the President signed legislation that established the Friday immediately following Thanksgiving Day of each year as 'Native American Heritage Day,'" says the Bureau of Indian Affairs, U.S. Department of the Interior (http://www.bia.gov/DocumentLibrary/HeritageMonth/index.htm).

Movie Ticket Winners

Congratulations to Holly Morris, a laboratory technician in the Mouse Cancer Genetics Program, and Vijay Gowda, a research associate II in the Protein Expression Laboratory, who won free movie tickets from the NCI-Frederick Diversity Team. The tickets, with no expiration date, are good for movies at local Regal theatres.

You, too, can win a free movie ticket. Just answer the questions on the quiz about our display case in the front lobby of Building 549 (directly across from the Scientific Library); submit your answers to Ethel Armstrong, reference librarian.

Please note that the correct answers are predicated on what is in the display case and not on information you might find on the Internet. ■

Web Sites of Note

By Ashley DeVine, Staff Writer

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

September

Ovarian Cancer Awareness Month: http://www.ovariancancerawareness.org/home.aspx
Prostate Cancer Awareness Month: http://www.cdc.gov/Features/ProstateCancer/

October

National Breast Cancer Awareness Month: http://www.nlm.nih.gov/medlineplus/breastcancer.html, and http://www.cancer.gov/cancertopics/pdq/treatment/breast/patient

November

Lung Cancer Awareness Month: http://www.lungcanceralliance.org/involved/lcam_month.html
Pancreatic Cancer Awareness Month: http://www.knowitfightitendit.org/home

December

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

Welcoming Newcomers to NCI-Frederick

Ninety-two people joined our facility in April, May, and June 2011.

The National Cancer Institute welcomes...

Shaan **Ahmed** ■ Elizabeth **Anderson** ■ Biswarup **Basu** ■ Ryan **Baugher** ■ Jessica **Baumel** ■ Giovana **Bendfeldt Avila** ■ Kimberly **Boelte** ■ Pavlos **Bousounis** ■ Justin **Brodie-Kommit** ■ William **Cukierski** ■ Christian **Daniels** ■ Weston **Dennen** ■ Joseph **Donkor** ■ Bonnie **Douglas** ■ Angie **Dull** ■ Samuel **Edland** ■ Talia **Guardia** ■ Bjorg **Gudmundsdottir** ■ Katherine **Hardey** ■ Maxine **Harvey** ■ April **Hoffman** ■ Benjamin **Holdridge** ■ Alexis **Hott** ■ Qing **Huang** ■ Isabella **Johnson** ■ Nathan **Kadan** ■ David **Kaiser-Jones** ■ Eun-Kyung **Kim** ■ Jake **Kirkwood** ■ Kalliope **Kyriakides** ■ John **Lee** ■ Dane **Liston** ■ James **Liu** ■ Patricia **Lloyd** ■ Sarah **Loewy** ■ Bartholomeus **Machielse** ■ Omid **Manoochehri** ■ Takashi **Masaoka** ■ Jared **May** ■ Rose **Milando** ■ Damara **Miller** ■ Michael **Mina** ■ Laura **Minang** ■ Muna **Oli** ■ Victor **Perez** ■ Avery **Quirk** ■ Jianke **Ren** ■ Bradley **Reuter** ■ Christina **Ruiz** ■ Pavel **Sacha** ■ Kate **Santullo** ■ Seif **Shahidain** ■ Jonathan **Shakesprere** ■ Xiao **Song** ■ Katherine **Szigety** ■ Brian **Templeton** ■ Amy **Thompson** ■ Luke **Verdi** ■ Thomas **Waltz** ■ Acong **Yang** ■ Kelly **Yoo** ■ David **Zhu** ■ Feng **Zhu**

SAIC-Frederick welcomes...

Maya **Arai** ■ Victor **Ayala** ■ Eric **Baldwin** ■ Amy **Blumhardt** ■ Thomas **Brown** ■ Terri **DeLloyd** ■ Mary Colette **Donato** ■ Anton **Filikov** ■ Andrew **Flint** ■ Maria Silvina **Frech** ■ Michael **Harper** ■ John **Hirt** ■ Christina **Horton** ■ Gyan **Joshi** ■ Bhargavi **Kondragunta** ■ Colleen **Kotb** ■ George **Lountos** ■ Brian **McCartney** ■ Adelle **McFarland** ■ Nicole **McMichael** ■ Benjamin **Miner** ■ Prabakaran **Ponraj** ■ Kanyarat **Promchan** ■ Liqun **Qi** ■ Julia **Selah** ■ Dawn **Shaw** ■ Martha **Sklavos** ■ Guo-Yun **Yu** ■ Wendy **Yuen** ■

SAIC Rocks NCI in Softball Game

By Peggy Pearl, Facilities Maintenance and Engineering, Contributing Writer

On August 23, an earthquake rocked the East Coast, and SAIC-Frederick (SAIC) rocked NCI-Frederick (NCI) at the fourth annual softball game, in Baker Park.

SAIC was in it to win it this year, crushing NCI 37-10 and tying the series at two wins each.

After the first inning, SAIC-Frederick shot off the Richter scale with a 9-1 lead. The rumbling continued throughout the game, with SAIC-Frederick's MVP David Parmiter blasting a pair of homers and Donnie Blickenstaff, Ronnie Lambert, and Chris Ohler doubling it up. SAIC defense was the core of the game, with terrific pitching by Brian Boland, Tim Lenhart, and Keith Zecher. Along with some excellent infield plays and rolling catches in the outfield, Ronnie Lambert threw out two NCI players from right field.

Left: Dave Heimbrook, SAIC-Frederick chief executive officer, shakes hands with Craig Reynolds, associate director, NCI/director, Office of Scientific Operations, NCI-Frederick. Photo courtesy of Christina Arnold. Above: Teams congratulate each other following the game. Photo courtesy of Scott Wanrow.

NCI continued to play through the aftershocks and never gave up. Stephanie Watkins played outstanding defense on third base and was awarded NCI's MVP. Dianna Conrad and Mike Giano had some awesome catches in the outfield, and in the infield, Craig Reynolds played a tough first base while Andy Hurwitz was an extreme pitching machine. Catcher Philip Tedbury, a first-time player, contributed offensively with speedy base running.

In addition to all the players from various organizations within NCI and SAIC, there was also great fan support on both sides. ■

Racheff Honored as Entrepreneur of the Year

By Stephanie Halling, Data Management Services, Contributing Writer

Jim Racheff was recently honored by the Entrepreneur Council of Frederick County as the 2011 Entrepreneur of the Year, for his contributions as the chief executive officer of Data Management Services, Inc. (DMS).

Each year, according to its web site (http://www.entrepreneurcouncil.com/), the Entrepreneur Council "recognizes some of the area's most distinguished entrepreneurs. These awards honor Frederick County residents or owners of Frederick County companies whose ingenuity, hard work, and perseverance have created and sustained viable business ventures that contribute to the economic well-being of our community."

Photo courtesy of David Arthur, Entrepreneur Council of Frederick County.

Jim Racheff, left, accepts the 2011 Entrepreneur of the Year award for a Large Established Business from Jim Merkel, Board Member Emeritus of the Entrepreneur Council of Frederick County.

Racheff was named the winner among nominees in the Large Established Business category during a sealed-envelope ceremony held in June in Ijamsville, Maryland. In accepting the award, Racheff said, "I was surprised and honored simply to be nominated, let alone to be selected, given the accomplishments of my fellow nominees. Quite frankly, I'm speechless—which is saying something for me!"

Racheff credited his wife and family, and the past and present employees of DMS, with his selection. "It's the support of our families and friends that allow us to take the risks to realize our dreams, and it's through the efforts of our employees and colleagues that our businesses succeed." ■

Computer & Statistical Services Announces Fall 2011 Computer Software Training Schedule

By Cathy McClintock, Data Management Services, Guest Writer

DMS the Computer & Statistical Services (C&SS) contractor, provides on-site computer software training exclusively for NCI-Frederick employees. All classes are held in the Training Room in Building 362, located on the NCI-Frederick campus at Fort Detrick.

Any NCI-Frederick employee, supervisor, or manager can arrange an exclusive regular or custom class for a minimum of four students. If you are interested in scheduling a class for your group, contact Cathy McClintock (301-846-5776) for more information.

Classes are held in the Building 362 Training Room from 9:00 a.m.to 4:00 p.m. for full-day classes and 9:00 a.m.to 12:00 p.m. or 1:00 to 4:00 p.m., as indicated, for half-day workshops. The cost of $100 for full-day classes and $75 for half-day workshops is billed to the training account of the student's center number.

Visit the C&SS web site at http://css.ncifcrf.gov/training to register and obtain more information. ■

NCI-Frederick Computer Software Training Schedule Fall 2011

October 3	Transition from Office 2003 to 2010
October 4	Outlook 2010, Level 1
October 13 and 14	MS Project 2010 (2-Day Class)
October 17	Excel 2010, Level 1
October 21	Access 2010, Level 1
October 24	Word 2010, Level 1
October 27	SharePoint 2010 Basic End User
October 28	PowerPoint 2010 Complete
November 3	Adobe Acrobat 9.0, Level 1
November 4	Excel 2010, Level 1
November 7	Word 2010, Level 2
November 8	Outlook 2010, Level 2
November 17	Excel 2010, Level 2
November 18	Access, Level 2
November 21	Adobe Acrobat 9.0, Level 2
December 1	Word 2010, Level 3
December 2	Excel 2010, Level 2
December 5	Word 2010 Templates and Forms (AM) Word 2010 Shortcuts and Tools (PM)
December 9	Adobe Acrobat 9.0: Forms and Advanced PDF Topics
December 12	Excel 2010, Level 3

Scientific Library Has a Database for You

By Robin Meckley, Wilson Information Services Corporation, Contributing Writer

Years ago, scientists visiting the Scientific Library browsed the print journals and print indexes, such as *Index Medicus* and *Chemical Abstracts*, for relevant articles.

Then, with the Internet, many bibliographic databases evolved into end user-–based products, allowing scientists to perform their own searches in databases such as *Medline* (*PubMed*), the online basis for *Index Medicus*, which is produced by the U.S. government via the National Library of Medicine, and is free to anyone, anywhere, at any time.

Today, many more general bibliographic databases are available through the Scientific Library's web site, including *Scopus*, *EMBASE*, *Biological Abstracts*, *Agricola*, *CINAHL*, *Conference Papers Index*, and *PsycINFO*.

Specialized bibliographic databases have also come into existence, including *MedlinePLUS* for consumer health information, *NCI-Frederick-In-Print* for information about NCI-Frederick publications, *SciVerse* for multi-content, and *Faculty of 1000* for peer-nominated "important" articles.

Over the past year there has been an explosion of very specialized and subject-specific databases on the web, such as *Journal Citation Reports* (journal impact factors); *BindingDB* (binding affinities); *Cochrane Library* (clinical trials); *GeneGo* (pathway analysis tools); *Henry Stewart Talk*s (online scientific lectures); *Ingenuity Pathways Analysis* (molecular interactions); *MiMi* (protein interactions); *Partek Genomics Suite* (interactive data visualization); *Reaxys* (broad chemical platform); and *TOXMAP* (environmental health e-maps).

The Scientific Library strives to stay current on these databases, so that we can provide the most relevant information to our users. You'll find many databases listed alphabetically on our databases web page, with brief abstracts describing each database, and links to each web site. For more information go to http://www-library.ncifcrf.gov/databases.aspx.

The staff of the Scientific Library is always available to help you to select and use any of these databases through hands-on training classes or online training webinars. Please contact us at 301-846-1682 or NCIFredLibrary@mail.nih.gov.

Fifth Annual Student Science Jeopardy Tournament Held

By Robin Meckley, Wilson Information Services Corporation, Contributing Writer

The Scientific Library staff organized the Student Science *Jeopardy* Tournament for the fifth consecutive year this past July.

In 2007, our first year, the tournament was open only to Werner H. Kirsten students. In 2008, we opened the contest to college students, so we had 11 teams competing. During these first two years, the students used flags to signal their intentions, and the *Jeopardy* game appeared in the form of PowerPoint slides. In 2009, the Scientific Library purchased an electronic classroom *Jeopardy* game, which streamlined the tournament, provided electronic scoring, and required the students to master those pesky signaling devices, or "clickers."

This year, the top three winning teams were:

First Place, Team A: Nidharshan Anandasivam and Tracy Cheng
Second Place, Team F: Bonnie Douglas and Cherish Ardinger
Third Place, Team I: Patricia Dunford and Selene Sparks

The other teams were: Weston Dennen and Jessica Henry; Amy Thompson and Alexandra Turano; Bridget Cantwell and Alexandra Pantos; William Cukierski and David Hou; Christopher Dextras and David Kaiser-Jones; Melissa Cronin and Odilia Sendze; and John Lee and Praveen Puppala.

All teams received prizes donated by Miltenyi Biotec, Rules-Based Medicine, Citeline, MetLife, Perkin Elmer, NCI-Frederick Green Team, COMSTAR Federal Credit Union, Discovery Café, NCI-Frederick, SAIC-Frederick, the Employee Diversity Team, WISCO, and Howard Young, Ph.D., Laboratory of Experimental Immunology.

The distinguished judges, who were able to make immediate judgment calls on some questionable responses, were Young; Dina Sigano, Ph.D., Chemical Biology Laboratory; and Cheryl Parrott, director, Public Relations, NCI-Frederick.

The classroom *Jeopardy* game has also been used by an NCI-Frederick laboratory during all-hands meetings to generate team unity and information-sharing in an entertaining way. We welcome the opportunity to help other labs use the classroom *Jeopardy* game in a similar manner. Please contact the Scientific Library at 301-846-1682 or NCIFredLibrary@mail.nih.gov. ■

"Use both your brain and your hands" in Research, New CEO Says

By Maritta Perry Grau, Staff Writer

In science, "you use both your brain and your hands—benchwork and puzzle-solving." That's one of Dave Heimbrook's reasons for his affinity to research, he said in a recent interview.

Heimbrook, Ph.D., who has been at the helm of SAIC-Frederick as its chief executive officer (CEO) since the end of May, realized at the start of his career, during a postdoctoral fellowship in cancer research, that he "liked the focus on drug research and applying the research findings to practical use." Then, too, his grandfather's and father's deaths from cancer highlighted for him "the need for medications that could help people, without having the terrible side effects" that his father experienced.

Dave Heimbrook, Ph.D.

In pursuit of this goal, Heimbrook spent 16 years at Merck, where he became head of cancer research in the drug discovery and development section, and then eight years at Hoffman-LaRoche.

That desire to apply research findings to practical use led to his involvement in the discovery and development of more than a dozen drug candidates, including one (vemurafenib), which was just approved by the Food and Drug Administration (FDA) to treat patients with BRAFV600E mutation-positive inoperable "or metastatic melanoma... as detected by an FDA-approved test" (http://www.fda.gov/AboutFDA/CentersOffices/CDER/ucm268301.htm).

"Working on the Raf drug has really been the highlight of my career—so far," he said. "My only real professional objective was to contribute to the discovery and development of at least one approved drug. Besides hard work, that also takes a bit of luck." Now from a distance, Heimbrook is tracking the further development of this drug in other indications.

When the CEO job opened up at SAIC-Frederick, Heimbrook applied because he wanted to use his skills to lead a different type of organization with different challenges than he faced at Roche, and "to apply research to the greater public good. If what we do here is successful, the impact on cancer will be great. That was the big attraction of SAIC-Frederick."

Heimbrook, who is quite open and approachable, likes the team/collaborative effort, which is becoming more common at NCI-Frederick: "I like to bounce ideas off others, to brainstorm, until things come into focus. The greatest discoveries occur at the interface of people with different ideas and points of view. We will get a better crossover of research if we can place more focus on collaborations and exchange of ideas, perhaps in informal settings," he said.

In the next five or so years, Heimbrook also hopes to build more partnerships with private industry, "to apply all the technology and know-how that we have at NCI-Frederick to pay off for the patients with cancer and AIDS, through NCI and partnerships with academia and the private sector." For example, he'd like the Advanced Technology Partnerships Initiative, the driving force behind the Advanced Technology Research Facility, to be seen by academics and biotechs as *the* place to start in accessing the most advanced technology platforms to facilitate moving new medicines into development.

Heimbrook is very sensitive to the relationship of contractors and the government. "This is a very complex organization," he notes. "We need to continue the efforts to create clear alignment on objectives with NCI, and a sense of personal accountability to contribute to the success of NCI's main mission, i.e., helping patients. It may sound simplistic, but the patients really are counting on us."

"There's so much opportunity here; none of the problems are unsolvable. Between the leadership at NCI and the great expertise of people here," Heimbrook said emphatically, "we should have a tremendous impact on cancer." ■

Garden of Hope Earns RESPECT

By Andi Gnuschke, Quality Management Office, Guest Writer

Guity Mohammadi, a research associate in the Flow Cytometry Core, Basic Science Program, support to the Center for Cancer Research (CCR), was recently awarded an SAIC-Frederick RESPECT (Recognizing Excellent Service Promotes Employee Commitment and Teamwork) Employee Recognition Award for the time and energy she put into creating the beautiful "Garden of Hope" along Wood Street.

Mohammadi is a member of the Campus Improvement Committee (CIC), whose mission is to develop and maintain an aesthetically interesting campus that will enrich and inspire the NCI-Frederick community. She happily volunteered many lunch and after-work hours to plant and care for the flowers, many of which she donated.

In an e-mail, Mohammadi commented, "I always think that flowers add color to

continued on page 27

The Beauty of Brevity

By Ken Michaels, Staff Writer

An unidentified public speaking coach once defined the "three Bs" of public speaking: Be sincere, Be brief, and Be seated. This short article expands on the second of these.

One consequence of the quickened pace of information flow in recent years is that it has made time a precious commodity. Think about it. Whom would you be most likely to give your attention to: someone who says, "I have a lengthy, rambling, complicated, and detailed description of a problem that I'd like your help with," or the speaker who says, "Let me make this quick"?

Of course, people really don't make the former statement, but it's surprising how many, in fact, go on to do exactly that. "I will be brief" might be the most welcome phrase in the modern vernacular, especially if the speaker goes on to prove it an accurate prediction. How can we be that speaker? The "elevator speech" is one way.

A Speech in Ten Floors

Imagine that you have an important idea to convey to the company's chief executive officer (CEO), whose office is on the top floor of a ten-story building. It's impossible to get an appointment, so you plan an alternative strategy: you'll wait, early in the morning, in the lobby of the building; when the CEO arrives, you'll get in the elevator, stand close, greet him or her, and explain your idea. You have the time it takes for the elevator to travel from the lobby to the tenth floor to make your pitch. Clearly, an economy of words will be necessary. This brief speech will need to be very carefully worded and delivered with skill—it will obviously need to be practiced to perfection.

What if everyone applied the "elevator speech principle" to all communication? When speaking up at meetings, when describing projects or plans, when presenting ideas to a supervisor or to a gathering of staff members, when discussing a plan on the telephone? Just imagine how efficient we might become.

Abraham Lincoln Set the Bar

At 710 words, Abraham Lincoln's second inaugural address was one of the shortest given by an American president, yet it also remains one of the most memorable and relevant in American history. Lincoln was known for speaking slowly—between 110 and 120 words per minute (versus 180 to 200 words per minute for the average speaker)—so his speech would have clocked in at five-and-a-half to six minutes long. That's short enough to be carved on the north wall of his memorial in Washington, D.C.

Yes, there really is beauty in brevity. Remember that the next time you step into an elevator. ■

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our lives. I have not done this myself. Joan Boxell and Sondra Sheriff also keep the garden going."

Anyone who walks along Wood Street towards the Conference Center can attest to the color and cheer that she and her friends, both CCR administrative assistants, have added to the NCI-Frederick campus.

The RESPECT Program is a peer-based employee recognition program for SAIC-Frederick employees. More information can be found at http://ncifrederick.cancer.gov/campus/sahsp/EmployeeRecognition/. For more information about CIC, contact Chairman Paul Miller at millepau@mail.nih.gov, 301-846-5660. ■

Pictured from left, Guity Mohammadi, Sondra Sheriff, and Joan Boxell show off the flowers in their Wood Street garden. This fall, Mohammadi will buy spring bulbs with the money from her RESPECT award.

Upcoming Events and Dates to Note

Farmers' Market
Every Tuesday through October 25
11 a.m.–1:30 p.m., in front of Building 549

October 10
Columbus Day: NCI-Frederick closed

October 21
Poster Puzzler Entries Due

November 11
Veterans' Day: NCI-Frederick closed

November 24
Thanksgiving Day: NCI-Frederick closed

December 26
Christmas 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
http://www.criver.com

Data Management Services
http://css.ncifcrf.gov/services

National Cancer Institute at Frederick
http://www.training.nih.gov

SAIC-Frederick, Inc.
http://www.saic-frederick.com/

Wilson Information Services Corporation
http://www-library.ncifcrf.gov

NCI-Frederick Programs

NCI-Frederick/Ft. Detrick Fitness Challenge 2011
http://saic.ncifcrf.gov/fitnesschallenge/

NCI-Frederick Suggestion Committees
http://ncifrederick.cancer.gov/campus/committees/

NCI-Frederick Advanced Technologies to Support Research
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 http://ncifrederick.cancer.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@mail.nih.gov.

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

http://ncifrederick.cancer.gov/ThePoster

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