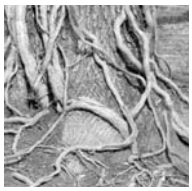
The National Cancer Institute at Frederick

Poster

What is it?
Where is it?



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NIH Director Visits NCI-Frederick

By Frank Blanchard and Maritta Perry Grau

Elias Zerhouni, Ph.D., Director, National Institutes of Health, toured the NCI-Frederick facility in April. He is the first sitting director to have visited, according to Craig Reynolds, Ph.D., Associate Director, NCI, and Director, Office of Scientific Operations, NCI-Frederick.

Dr. Zerhouni toured the new Small Animal Imaging Facility and the Advanced Biomedical Computing Center before heading down to Geoffrey Way for a tour of The National Institute of Allergy and Infectious Diseases' Vaccine Pilot Plant.

In a briefing at the NCI-Frederick Conference Center, Dr. Zerhouni heard about the range of activities on campus that spans basic and applied research, translational and developmental research, preclinical investigations, and clinical trials monitoring.

Dr. Zerhouni got a closer look at the operations of the nation's only Federally Funded Research and Development Center (FFRDC) devoted exclusively to biomedical research. As an FFRDC, NCI-Frederick is set up for rapid

NCI Director John E. Niederhuber, M.D. (left), and NIH Director Elias Zerhouni, M.D., arrive at NCI-Frederick for April tour.

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Community Cancer Centers Pilot Program: Bringing Quality Cancer Care to All

By Frank Blanchard

Sixteen community hospitals in 14 states will participate in the pilot phase of the NCI Community Cancer Centers Program (NCCCP).

NCI Director John E. Niederhuber, M.D., announced the list of pilot hospitals during the June 14 meeting of the National Cancer Advisory Board in Bethesda, Md.

The pilot research program will investigate ways to bring state-of-the-art cancer care to patients in community hospitals across the United States. The three-year pilot will emphasize outreach to elderly, rural, inner-city, and low-income patients and populations with unusually high cancer rates.

NCCCP pilot sites will study how community hospitals nationwide could most effectively develop and implement a national database

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In This Issue

NIH Director Visits NCI-Frederick

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response to meet the government's research and development priorities. The FFRDC designation brings with it increased flexibility and efficiency, the ability to respond rapidly to urgent priorities, and clear accountability.

Two aspects that Dr. Zerhouni explored with NCI-Frederick leaders were new drugs and treatment regimens for patients. "This facility and the experts who work here are key to discovering new drugs and treatment regimens for patients by sharing advanced technologies through public-private partnerships," Dr. Zerhouni said.

Dr. Zerhouni's visit was followed on April 13 by a visit from the Honorable David Edgerley, Secretary, Maryland Department of Business and Economic Development, who came to learn more about the economics of NCI-Frederick's partnerships.

NCI-Frederick provides a unique national resource for the development of new technologies and the translation of basic science discoveries into novel agents for the prevention, diagnosis, and treatment of cancer and AIDS around the globe.

Mr. Edgerley was interested in learning about the role NCI-Frederick plays in accelerating the development of new drugs and treatment regimens to cancer patients by leveraging its wide array of advanced technologies through various partnerships.

As an FFRDC, NCI-Frederick works efficiently with partners in industry, academia, and the nonprofit sector. One major goal, as NCI-Frederick makes greater use of partnerships, is to increase productivity while reducing research and development costs as new concepts move out of the laboratory to become products for patients. ✦

New Headquarters Sign Erected at Building 427

NCI-Frederick welcomes visitors with a new headquarters sign at Building 427. From back left are Paul Miller, chair of the Campus Improvement Committee; Bruce Fernalld, Geoff Needham, Gary Happel, Ken Michaels, and Craig Reynolds. From back right are FME employees who built the massive sign: Woody Smith, Robert Lawler, Denny Grove, Charlie Tyeryar, Donnie Blickenstaff, Tim Gibbs, and Terry Tressler. ✦

Community Cancer Centers Pilot Program

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of voluntarily provided electronic medical records accessible to cancer researchers. The sites will also study methods of expanding and standardizing the collection of blood and tissue specimens voluntarily obtained from patients for cancer research.

"The comprehensive management of easily transferable medical information and its secure exchange between health care consumers and providers is a key issue," said Michael O. Leavitt, Secretary of the Department of Health and Human Services. "The NCCCP pilot holds great potential to inform us on the best ways to further the important adoption of electronic medical records at the community level."

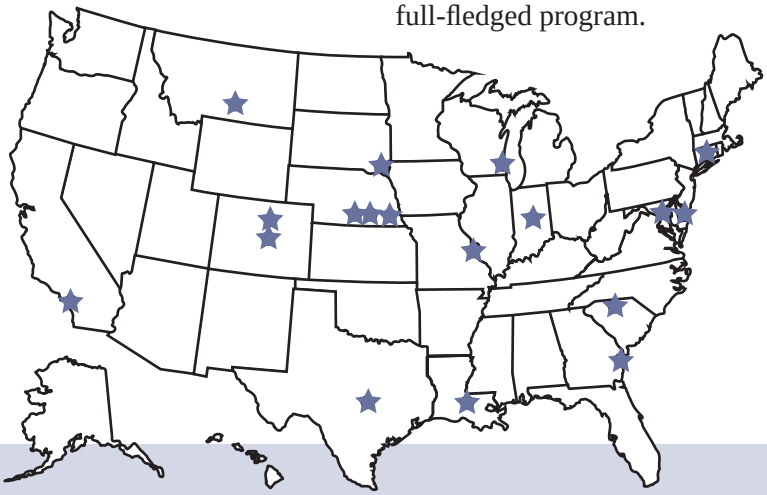
The project comes close to home for NCI-Frederick with Joy Beveridge of the Clinical Monitoring Research Program, Clinical Research Directorate, as project manager for the pilot. She acts as a facilitator, directs all activities, and liaises with the Office of the Director, NCI, community groups, and subcontractors.

The pilot encourages the collaboration of private-practice medical, surgical, and radiation oncologists—with close links to NCI research and to the network of 63 NCI-designated Cancer Centers principally based at large research universities.

"This is a very collaborative pilot between SAIC-Frederick, Inc., NCI, and the pilot sites," Ms. Beveridge said. "We're building another ring, if you will, of support for people in rural or indigent populations to be able to get state-of-the-art care where they live."

Numerous studies suggest that cancer patients diagnosed and treated in such a setting of multi-specialty care and clinical research may live longer and have a better quality of life.

The pilot will begin at eight free-standing community hospitals and six additional hospitals operated by health care systems. The sites will be funded annually at $5 million. An NCI panel of experts and an independent group of outside experts will set milestones, monitor progress, and evaluate success of the pilot and then issue recommendations for a full-fledged program.



The hospitals, their locations, and their cancer centers are:

- **St. Joseph Hospital, Orange, California**
  (St. Joseph Hospital Cancer Center)
- **Catholic Health Initiatives of Denver, Colorado**
  Penrose-St. Francis Health Services, Colorado Springs, Colorado
  (Penrose Cancer Center)
  St. Joseph Medical Center, Towson, Maryland
  (St. Joseph Cancer Institute)
- **Hartford Hospital, Hartford, Connecticut**
  (Helen and Harry Gray Cancer Center)
- **Christiana Hospital, Newark, Delaware**
  (Helen F. Graham Cancer Center at Christiana Care)
- **St. Joseph's/Candler, Savannah, Georgia**
  (Nancy N. and J.C. Lewis Cancer and Research Pavilion)
- **Our Lady of the Lake Regional Medical Center, Baton Rouge, Louisiana**
  (Our Lady of the Lake Cancer Center and Mary Bird Perkins Cancer Center)
- **Billings Clinic, Billings, Montana**
  (Billings Clinic Cancer Center)
- **Ascension Health of St. Louis, Missouri**
  St. Vincent Indianapolis Hospital, Indianapolis, Indiana
  (St. Vincent Oncology Center)
  Columbia St. Mary's, Milwaukee, Wisconsin
  (Columbia St. Mary's Cancer Center)
  Brackenridge Hospital, Austin, Texas
  (Shivers Center)
- **A coordinated regional program in Nebraska** sponsored by Good Samaritan Hospital in Kearney (Good Samaritan Cancer Center); St. Elizabeth Regional Medical Center in Lincoln (St. Elizabeth Cancer Center); and St. Francis Medical Center in Grand Island (St. Francis Cancer Treatment Center).
- **Spartanburg Regional Hospital, Spartanburg, South Carolina**
  (Gibbs Regional Cancer Center)
- **Sanford USD Medical Center, Sioux Falls, South Dakota**
  (Sanford Cancer Center) ✦

Targeted Cancer Therapies: Aiming for the Bull's-Eye

By Dianna Conrad Boissy

A new generation of cancer treatments is homing in on tumors with more precision than ever before, sparing patients from many of the sickening side effects of conventional chemotherapy.

These targeted therapies attack or block specific biological processes that tumors need to survive. Typically, these targets are molecules that play a role in carcinogenesis and tumor growth.

Targeted therapies are gradually coming on the market. It can take 12 to 15 years from discovery through clinical testing to FDA approval before a new drug is available to patients. Researchers at NCI-Frederick are playing an important translational role by speeding up the process of getting new medicines to patients.

Targeted therapies include:

- Small-molecule drugs that block certain enzymes and growth factor receptors
- Drugs that kill cancer cells (apoptosis-inducing drugs)
- Angiogenesis inhibitors that block new blood vessel growth
- Immunotherapy drugs that make the immune system recognize and attack the cancer.

Blocking Enzymes and Growth Factor Receptors

Small-molecule drugs, such as Gleevec® and Iressa, break the tumor cell cycle and prevent tumor survival by *blocking enzymes and growth factor receptors*. Gleevec® is used to treat gastrointestinal stromal tumors and certain kinds of chronic myeloid leukemia. It blocks abnormal enzymes found inside cancer cells that stimulate uncontrolled growth.

Iressa is primarily used to treat advanced non-small-cell lung cancer. In this and other cancers, epidermal growth factor receptor is overproduced, leading to uncontrolled cell growth. Iressa targets this receptor and reduces the level of growth.

Killing Cancer Cells

Some drugs, such as Velcade®, target cancer cells that have eluded the body's normal system for ridding itself of damaged or unneeded cells, a system called *apoptosis*, or programmed cell death. These drugs block part of the mechanism used by cancer cells to avoid apoptosis. Velcade® is a treatment for multiple myeloma cases that have not responded to other therapies.

Blocking New Blood Vessel Formation

Angiogenesis inhibitors block the formation of new blood vessels that nourish tumors. Avastin binds to vascular endothelial growth factor, shutting off the growth signal. Avastin is used with other drugs to treat metastatic colorectal cancer and non-small-cell lung cancer that is locally advanced, cannot be removed by surgery, has metastasized, or has recurred.

Using the Body's Immune System

Immunotherapy, or biological therapy, is a relatively new addition to the oncologist's arsenal. These therapies use the body's immune system to fight cancer or lessen the side effects caused by some treatments. Biological therapies may:

- Stop, control, or suppress processes that permit cancer growth;
- Make cancer cells more recognizable and, therefore, more vulnerable to the immune system;
- Boost the killing power of immune system cells, such as T cells, natural killer cells, and macrophages;
- Alter the abnormal growth patterns and processes of cancer cells to make them more like healthy cells;
- Block or reverse the process that changes a normal cell or a precancerous cell into a cancerous cell;
- Enhance the body's ability to repair or replace normal cells damaged or destroyed by other forms of cancer treatment, such as chemotherapy or radiation;
- Prevent cancer cells from spreading to other parts of the body.

Biological therapies include interferons, interleukins, colony-stimulating factors, monoclonal antibodies, vaccines, gene therapy, and nonspecific immunomodulating agents. They can be used alone or in combination. They are also being used with other treatments, such as radiation therapy and chemotherapy. Rituxan™, a biological therapy, is a monoclonal antibody used to treat non-Hodgkin's lymphoma. Other

biological therapies include the breast cancer treatment agent, Herceptin®; interleukin-11; levamisole; and, most recently, Gardasil™, the cervical cancer vaccine.

Advances at NCI-Frederick

The Biopharmaceutical Development Program at NCI-Frederick is developing a cGMP (current Good Manufacturing Process) for interleukin-15 (IL-15), a cytokine that regulates cellular responses through a receptor shared with interleukin-2, already a licensed drug. IL-15, which may be less toxic, is being studied for use in infectious disease and cancer treatments—a project co-funded by NCI and the National Institute of Allergy and Infectious Diseases.

NCI Center for Cancer Research investigator Ira Pastan, M.D., and colleagues developed the immunotoxin (an antibody combined with a toxin) BL22, which kills cancer cells when the cells take up the antibody. BL22 clinical trials were favorable in patients with hairy cell leukemia. To make the immunotoxin useful for a wider range of patients, Dr. Pastan's group developed HA22, a variation of BL22. A biopharmaceutical company is now scaling up HA22 for use in phase III clinical trials.

Targeted cancer therapies give physicians a better way to tailor cancer treatment. Eventually, treatments may be individualized, based on the unique set of molecular targets produced by the patient's tumor. ✦

Information in this article was drawn from:

www.cancer.gov/cancertopics/factsheet/Therapy/targeted

www.cancer.gov/cancertopics/factsheet/Therapy/biological

www.cancer.gov/cancertopics/factsheet/Therapy/angiogenesis-inhibitors

www.oncolink.com/treatment/article.cfm?c=12&s=88&id=255 ✦

Check It Out!

By Lisa Simpson

May, June, and July are traditionally patriotic months, as the United States marks remembrances of those who've died in battles (Memorial Day, May 31) and celebrations of Flag Day (June 14) and U.S. Independence Day (July 4). Check out these sites for historical information and guides for displaying your flag.

Guidelines for Display of the United States Flag
www1.va.gov/opa/feature/celebrate/flagdisp.asp

History of the Fourth
www.pbs.org/capitolfourth/history.html

The United States Pledge of Allegiance
www.pueblo.gsa.gov/cic_text/misc/ourflag/pledge.htm

NCI-Frederick Programs

NCI-Frederick/Ft. Detrick Fitness Challenge 2007
saic.ncifcrf.gov/fitnesschallenge/

NCI-Frederick Suggestion Committees
web.ncifcrf.gov/campus/committees/

NCI-Frederick Advanced Technologies to Support Research
web.ncifcrf.gov/research-technologies/default.asp ✦

Platinum Highlight

Himanshu Garg, Ph.D.
Postdoctoral Fellow
Center for Cancer Research
Nanobiology Program

By Lisa Simpson

One of the central controversies in HIV pathogenesis research has been the mechanism by which the virus causes the death of uninfected neighboring T cells, leading to T-cell depletion. Dr. Himanshu Garg and colleagues have recently provided key findings to address this issue. "The focus of our work has been to better understand the interaction between the Env glycoprotein expressed on HIV-infected cells and uninfected bystander cells," said Dr. Garg, because "Env glycoprotein is a major determinant of HIV pathogenesis."

During HIV infection, many more $CD4^+$ T cells die than are infected with the virus. Dr. Garg's findings show that HIV-infected cells use the Env glycoprotein subunit gp41 to partially fuse with uninfected neighboring $CD4^+$ T cells. This interaction, aptly termed "kiss and run" hemifusion by Dr. Garg and his fellow researchers, is enough to trigger apoptosis in the neighboring T cells, thereby killing them without infecting them.

This study also shows that a gp41-mutant T-cell strain resistant to the gp41 fusion inhibitor drug Enfuvirtide is less pathogenic than wild-type cells, suggesting that, "Less pathogenic variants of HIV can be selected by using this inhibitor. These results are supported by recent clinical data from others," said Dr. Garg, adding, "so we feel our findings not only clarify the mechanism of HIV pathogenesis, but suggest strategies to circumvent it."

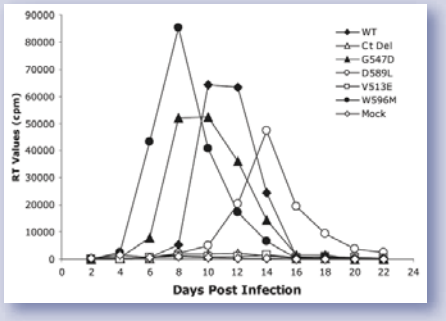
Dr. Garg earned his Ph.D. in immunology from North Carolina State University in 2004, where he studied FIV pathogenesis. Later that year he joined the laboratory of Robert Blumenthal, Ph.D., to study HIV pathogenesis in the Membrane Structure and Function Section at the Center for Cancer Research. ✦

Himanshu Garg, Anjali Joshi, Eric O. Freed and Robert Blumenthal

Site-specific mutations in HIV-1 GP41 reveal a correlation between HIV-1-mediated bystander apoptosis and fusion/hemifusion

J Biol Chem 2007 Apr 6; [Epub ahead of print]

The loss of $CD4^+$ T cells in HIV-1 infections is hypothesized to be caused by apoptosis of bystander cells mediated by cell surface expressed HIV-1 Env glycoprotein. However, the mechanism by which Env mediates this process remains controversial. Specifically, the role of HIV-1 gp120 binding to CD4 and CXCR4 versus the fusion process mediated by gp41 remains unresolved. Env-induced apoptosis in bystander cells has been shown to be gp41-dependent and correlates with the redistribution of membrane lipids between Env-expressing cells and target cells (hemifusion). Using a rational mutagenesis approach aimed at targeting Env function via the gp41 subunit, we examined the role of HIV gp41 in bystander apoptosis. A mutation in the fusion domain of gp41 (V513E) resulted in a fusion-defective Env that failed to induce apoptosis. A mutation in the gp41 N-terminal helix (G547D) reduced cell fusion capacity and apoptosis; conversely, an Env mutant with a deletion of the gp41 cytoplasmic tail (Ct Del) enhanced both cell-to-cell fusion and apoptosis. Most significantly, an Env mutant containing a substitution in the loop region of gp41 (D589L) mediated transfer of lipids (hemifusion) to bystander cells but was defective in cell-to-cell and, to a lesser degree, virus-to-cell fusion. This mutant was still able to induce apoptosis in bystander cells. Hence, we provide the first direct evidence that gp41-mediated hemifusion is both required and sufficient for induction of apoptosis in bystander cells. These results may help to explain the mechanism of HIV-1 Env-induced T-cell depletion. ✦



To access the latest version of the complete article, please visit www.jbc.org/cgi/doi/10.1074/jbc.M701701200 ✦

Platinum Publications

The following 35 articles have been selected from publications in 14 of the most prestigious science journals during the past quarter.

Apoptosis

Berthet C, Rodriguez-Galan MC, Hodge DL, Gooya J, Pascal V, Young HA, Keller J, Bosselut R, Kaldis P. Hematopoiesis and thymic apoptosis are not affected by the loss of Cdk2. *Mol Cell Biol* 2007.

Biophysics

Grigorenko BL, Rogov AV, Topol IA, Burt SK, Martinez HM, Nemukhin AV. Mechanism of the myosin-catalyzed hydrolysis of ATP as rationalized by molecular modeling. *Proc Natl Acad Sci USA* 104(17):7057–61, 2007.

Cell Biology

Hasan UA, Caux C, Perrot I, Doffin AC, Menetrier-Caux C, Trinchieri G, Tommasino M, Vlach J. Cell proliferation and survival induced by Toll-like receptors is antagonized by type I IFNs. *Proc Natl Acad Sci USA* 104(19):8047–52, 2007.

Cellular Differentiation

Jenkinson SR, Intlekofer AM, Sun G, Feigenbaum L, Reiner SL, Bosselut R. Expression of the transcription factor cKrox in peripheral CD8 T cells reveals substantial postthymic plasticity in CD4-CD8 lineage differentiation. *J Exp Med* 204(2):267–72, 2007.

Kuznetsov S, Pellegrini M, Shuda K, Fernandez-Capetillo O, Liu YL, Martin BK, Burkett S, Southon E, Pati D, Tessarollo L, West SC, Donovan PJ, Nussenzweig A, Sharan SK. RAD51C deficiency in mice results in early prophase I arrest in males and sister chromatid separation at metaphase II in females. *J Cell Biol* 176(5):581–92, 2007.

Mikule K, Delaval B, Kaldis P, Jurcyzk A, Hergert P, Doxsey S. Loss of centrosome integrity induces p38-p53-p21dependent G1-S arrest. *Nat Cell Biol* 9(2):160–U49, 2007.

Cellular Immunology and Immune Regulation

Chen X, Howard OM, Oppenheim JJ. Pertussis toxin by inducing IL-6 promotes the generation of IL-17–producing CD4 cells. *J Immunol* 178(10):6123–9, 2007.

Gao JL, Guillabert A, Hu JY, Le YY, Urizar E, Seligman E, Fang KJ, Yuan X, Imbault V, Communi D, Wang JM, Parmentier M, Murphy PM, Migeotte F. F2L, a peptide derived from heme-binding protein, chemoattracts mouse neutrophils by specifically activating Fpr2, the low-affinity N-formylpeptide receptor. *J Immunol* 178(3):1450–6, 2007.

Karaolis DKR, Means TK, Yang D, Takahashi M, Yoshimura T, Muraille E, Philpott D, Schroeder JT, Hyodo M, Hayakawa Y, Talbot BG, Brouillette E, Malouin F. Bacterial c-di-GMP is an immunostimulatory molecule. *J Immunol* 178(4):2171–81, 2007.

Sacha JB, Chung C, Rakasz EG, Spencer SP, Jonas AK, Bean AT, Lee W, Burwitz BJ, Stephany JJ, Loffredo JT, Allison DB, Adnan S, Hoji A, Wilson NA, Friedrich TC, Lifson JD, Yang OO, Watkins DI. Gag-specific CD8(+) T lymphocytes recognize infected cells before AIDS-virus integration and viral protein expression. *J Immunol* 178(5):2746–54, 2007.

Chemokines, Cytokines, and Interleukins

Berner V, Liu H, Zhou Q, Alderson KL, Sun K, Weiss JM, Back TC, Longo DL, Blazar BR, Wiltrout RH, Welniak LA, Redelman D, Murphy WJ. IFN-gamma mediates CD4(+) T-cell loss and impairs secondary antitumor responses after successful initial immunotherapy. *Nat Med* 13(3):354–60, 2007.

Fakruddin JM, Lempicki RA, Gorelick RJ, Yang J, Adelsberger JW, Garcia-Pineres AJ, Pinto LA, Lanes HC, Imamichi T. Noninfectious papilloma virus-like particles inhibit HIV-1 replication: implications for immune control of HIV-1 infection by IL-27. *Blood* 109(5):1841–9, 2007.

Clinical Trials and Observations

Ng D, Toure O, Wei MH, Arthur DC, Abbasi F, Fontaine L, Marti GE, Fraumeni JF, Goldin LR, Caporaso N, Toro JR. Identification of a novel chromosome region, 13q21.33-q22.2, for susceptibility genes in familial chronic lymphocytic leukemia. *Blood* 109(3):916–25, 2007.

Enzyme Catalysis and Regulation

Burnett JC, Ruthel G, Stegmann CM, Panchal RG, Nguyen TL, Hermone AR, Stafford RG, Lane DJ, Kenny TA, McGrath CF, Wipf P, Stahl AM, Schmidt JJ, Gussio R, Brunger AT, Bavari S. Inhibition of metalloprotease botulinum serotype A from a pseudo-peptide binding mode to a small molecule that is active in primary neurons. *J Biol Chem* 282(7):5004–14, 2007.

Galburt EA, Grill SW, Wiedmann A, Lubkowska L, Choy J, Nogales E, Kashlev M, Bustamante C. Backtracking determines the force sensitivity of RNAP II in a factor-dependent manner. *Nature* 446(7137):820–3, 2007.

Experimental Therapeutics, Molecular Targets, and Chemical Biology

Hama Y, Urano Y, Koyama Y, Kamiya M, Bernardo M, Paik RS, Shin IS, Paik CH, Choyke PL, Kobayashi H. A target cell-specific activatable fluorescence probe for in vivo molecular imaging of cancer based on a self-quenched avidin-rhodamine conjugate. *Cancer Res* 67(6):2791–9, 2007.

HIV

Blumenthal R, Dimitrov DS. Targeting the sticky fingers of HIV-1. *Cell* 129(2):243–5, 2007.

Garg H, Joshi A, Freed EO, Blumenthal R. Site-specific mutations in HIV-1 GP41 reveal a correlation between HIV-1–mediated bystander apoptosis and fusion/hemifusion. *J Biol Chem* 2007.

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Platinum Publications

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Waheed AA, Ablan SD, Roser JD, Sowder RC, Schaffner CP, Chertova E, Freed EO. HIV-1 escape from the entry-inhibiting effects of a cholesterol-binding compound via cleavage of gp41 by the viral protease. *Proc Natl Acad Sci USA* 2007.

Zhou TQ, Xu L, Dey B, Hessell AJ, Van Ryk D, Xiang SH, Yang XZ, Zhang MY, Zwick MB, Arthos J, Burton DR, Dimitrov DS, Sodroski J, Wyatt R, Nabel GJ, Kwong PD. Structural definition of a conserved neutralization epitope on HIV-1 gp120. *Nature* 445(7129):732–7, 2007.

Immunobiology

Orr SJ, Morgan NM, Elliott J, Burrows JF, Scott CJ, McVicar DW, Johnston JA. CD33 responses are blocked by SOCS3 through accelerated proteasomal-mediated turnover. *Blood* 109(3):1061–8, 2007.

Immunology

Airoldi I, Di Carlo E, Cocco C, Tavernіti G, D'Antuono T, Ognio E, Watanabe M, Ribatti D, Pistoia V. Endogenous IL-12 triggers an antiangiogenic program in melanoma cells. *Proc Natl Acad Sci USA* 104(10):3996–4001, 2007.

Bozzacco L, Trumpfheller C, Siegal FP, Mehandru S, Markowitz M, Carrington M, Nussenzweig MC, Piperno AG, Steinman RM. DEC-205 receptor on dendritic cells mediates presentation of HIV gag protein to CD8(+) T cells in a spectrum of human MHC I haplotypes. *Proc Natl Acad Sci USA* 104(4):1289–94, 2007.

Membrane Transport, Structure, Function, and Biogenesis

Mazurov D, Heidecker G, Derse D. The inner loop of tetraspanins CD82 and CD81 mediates interactions with human T cell lymphotrophic virus type 1 Gag protein. *J Biol Chem* 282(6):3896–903, 2007.

Microbiology

Derse D, Hill SA, Princler G, Lloyd P, Heidecker G. Resistance of human T cell leukemia virus type 1 to APOBEC3G restriction is mediated by elements in nucleocapsid. *Proc Natl Acad Sci USA* 104(8):2915–20, 2007.

Molecular Basis of Cell and Developmental Biology

Munshi UM, Kim J, Nagashima K, Hurley JH, Freed EO. An Alix fragment potently inhibits HIV-1 budding: Characterization of binding to retroviral YPXL late domains. *J Biol Chem* 282(6):3847–55, 2007.

Oguariri RM, Brann TW, Imamichi T. Hydroxyurea and interleukin-6 synergistically reactivate HIV-1 replication in a latently infected promonocytic cell line via SP1/SP3 transcription factors. *J Biol Chem* 282(6):3594–604, 2007.

Molecular Biology, Pathology, and Genetics

Bowen C, Stuart A, Ju JH, Tuan J, Blonder J, Conrads TP, Veenstra TD, Gelmann EP. NKX3.1 homeodomain protein binds to topoisomerase I and enhances its activity. *Cancer Res* 67(2):455–64, 2007.

Kim HJ, Kim JY, Meng ZJ, Wang LH, Liu F, Conrads TP, Burke TR, Veenstra TD, Farrar WL. 15-deoxy-Delta(12,14)-prostaglandin J(2) inhibits transcriptional activity of estrogen receptor-alpha via covalent modification of DNA-binding domain. *Cancer Res* 67(6):2595–602, 2007.

Matthews CP, Birkholz AM, Baker AR, Perella CM, Becky GR, Young MR, Colburn NH. Dominant-negative activator protein 1 (TAM67) targets cyclooxygenase-2 and osteopontin under conditions in which it specifically inhibits tumorigenesis. *Cancer Res* 67(6):2430–8, 2007.

Yeager M, Orr N, Hayes RB, Jacobs KB, Kraft P, Wacholder S, Minichiello MJ, Fearnhead P, Yu K, Chatterjee N, Wang Z, Welch R, Staats BJ, Calle EE, Feigelson HS, Thun MJ, Rodriguez C, Albanes D, Virtamo J, Weinstein S, Schumacher FR, Giovannucci E, Willett WC, Cancel-Tassin G, Cussenot O, Valeri A, Andriole GL, Gelmann EP, Tucker M, Gerhard DS, Fraumeni JF, Jr., Hoover R, Hunter DJ, Chanock SJ, Thomas G. Genome-wide association study of prostate cancer identifies a second risk locus at 8q24. *Nat Genet* 39(5):645–9, 2007.

Oncogenetics

Angeloni D, Danilkovitch-Miagkova A, Ivanova T, Braga E, Zabarovsky E, Lerman MI. Hypermethylation of Ron proximal promoter associates with lack of full-length Ron and transcription of oncogenic short-Ron from an internal promoter. *Oncogene* 2007.

Berthet C, Kaldis P. Cell-specific responses to loss of cyclin-dependent kinases. *Oncogene* 2007.

Ivanov SV, Salnikow K, Ivanova AV, Bai L, Lerman MI. Hypoxic repression of STAT1 and its downstream genes by a pVHL/HIF-1 target DEC1/STRA13. *Oncogene* 26(6):802–12, 2007.

Lou H, Dean M. Targeted therapy for cancer stem cells: the patched pathway and ABC transporters. *Oncogene* 26(9):1357–60, 2007. ✦

Many Applications for Small Animal Imaging Program

By Dianna Conrad-Boissy

Researchers studying kidney cancer are using the new Small Animal Imaging Program (SAIP) on campus to help develop a mouse model that could be used to test potential new treatments. Once the model is developed, the group, led by Laura Schmidt, Ph.D., SAIC-Frederick, Inc., could administer a new drug and then use the facility's clinical-grade MRI to see if the treatment is effective, without having to sacrifice the animal.

"We could follow the therapeutic treatment in the living animal and follow it long-term," Dr. Schmidt said. Her group, which supports the Urologic Oncology Branch, Center for Cancer Research (CCR), has already produced a mouse model for Birt-Hogg-Dubé syndrome, a genetic disorder that increases the risk of kidney cancer. They are currently using the imaging facility to study the progression of a polycystic kidney phenotype in this mouse model and to assess the effectiveness of potential treatments in the live animals.

The Laboratory of Cancer Prevention is interested in using the facility to visualize the early stages of tumor growth in the colon using MRI, ultrasound, and other imaging modalities. These tumorigenesis studies could reveal potential new targets for early intervention.

The Nanotechnology Characterization Laboratory (NCL), established by NCI's Office of Technology and Industrial Relations (OTIR) and operated by SAIC-Frederick, Inc., has used the new facility to track the biodistribution and half-life of nanoparticles in vivo. This work will pave the way for using nanotechnology in medical applications. The imaging needs of the NCL, part of the NCI Alliance for Nanotechnology in Cancer (Alliance), were part of the impetus for setting up the facility.

In recent years, the NCI Intramural Program in Bethesda has created a robust small animal imaging infrastructure under the Molecular Imaging Program (MIP) within the CCR and has designated space in the Clinical Center at the Bethesda campus for associated small animal imaging under the direction of Dr. Peter Choyke. To meet NCL and other NCI-Frederick researchers' needs, the NCI-Frederick Office of Scientific Operations, OTIR, CCR, and the Division of Cancer Treatment and Diagnosis (DCTD) coordinated efforts and funds to expand the campus's imaging infrastructure as part of the first phase of a comprehensive small animal imaging plan. Conceived in November 2004, SAIP is up and running in Building 553.

The facility has the following imaging modalities:

- Magnetic Resonance Imaging: Philips Intera Achieva 3.0T
- Bioluminescence: Xenogen IVIS Spectrum
- Fluorescence Imaging: CRi Maestro, Xenogen IVIS SPECTRUM
- Ultrasound: VisualSonics Vevo 770

Other modalities will be added this fall:

- MicroSPECT/CT/PET: Siemens Inveon Multimodality Platform Scanner
- Autoradiography: Fujifilm FLA-5100 (high spatial resolution in vitro fluorescence/radioisotope/chemiluminescence)

"The Small Animal Imaging Program at Frederick will be a unique facility with MRI, optical, CT, SPECT, PET and ultrasound all under one roof," said Dr. Choyke, NCI Assistant Project Officer for SAIP. "This is a clean facility designed to accept animals from other holding areas as well as having its own holding area for long-term studies. A lot of thought went into the design for high-throughput imaging of the unique animal models of cancer that are available on campus."

Dr. Joseph Kalen, who came to Frederick in February from Virginia Commonwealth University, heads the facility, operated by SAIC-Frederick, Inc. His staff includes Lilia Ileva (senior research associate) and Lisa Riffle (research associate). Additionally, he will hire a senior research associate, research associate, postdoctoral fellow, and administrative assistant.

"The NCI-Frederick Small Animal Imaging Program was established to provide NCI investigators with a unique, state-of-the-art multimodality in vivo imaging resource," Dr. Kalen said.

An NCI-Frederick SAIP steering committee will evaluate and monitor usage patterns and resource needs and make recommendations for the program's future direction for its first two years. The members include Dr. Choyke (CCR, MIP, NCI), Dr. Piotr Grodzinski (OTIR, OD, NCI), Dr. Kristin Komschlies (OSO, OD, NCI), and Dr. James L. Tatum (DCTD/CIP, NCI). ✦

In Memoriam
Robert C. Moschel, Ph.D.: A Passion for Science

By Maritta Perry Grau

Robert C. Moschel, Ph.D., died April 20th due to complications from pancreatic cancer. It was not only his skill as an outstanding chemist but his ability to be a wonderful friend and colleague that garnered him respect and affection in both his professional and his personal life.

The many comments, both registered on the NCI-Frederick web site and made in passing among colleagues, all emphasize his ability to listen, his cheerfulness, his skill as a role model, and his passion for science.

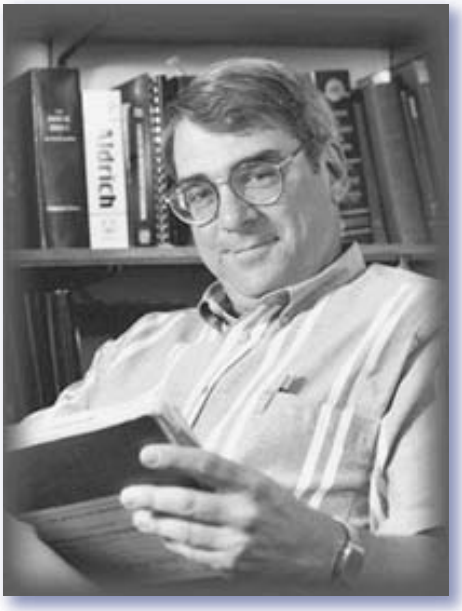
Larry Keefer, Ph.D., chief of the Laboratory of Comparative Carcinogenesis, said that Dr. Moschel was a role model for him, a "superb chemist" who translated "basic chemistry research findings into direct benefits for humankind. It was always inspirational to see the organ scans of patients whose tumors were regressing—indeed disappearing—after dosage with the combination drug therapy he developed. Second-generation therapeutic agents he ingeniously designed show promise for even greater clinical utility. On the personal level, it was always a pleasure to be greeted by Bob's warm smile, engaging personality, and delightful sense of humor. Bob was a truly wonderful individual and a dear, dear friend."

Science was so much a passion for him that even on the golf course, it was a regular topic, according to David Garfinkel, M.D., Gene Regulation and Chromosome Biology Laboratory. "So many rounds of golf, sometimes talking about science, plus other discussions, as well as many great games. We incorporated our children, Bob's wonderful wife, Mary Ann, and many friends and their children as well, in our golf outings and 'nineteenth hole' relaxation. Bob was a very patient person, warm and understanding, but also full of fun and even a little mischief. His work on cancer adjuvants was a brilliant application of organic and biochemistry to enhance chemotherapy while minimizing collateral damage. Of all the science underway at Frederick, Bob's work made it to the bedside and is helping people! And I suspect he has a bunch of improved adjuvants literally on the shelf waiting to be tested."

Qasim Khan, Ph.D., Laboratory of Molecular Pharmacology, Center for Cancer Research, gave insight into Dr. Moschel's casual style. Dr. Khan explained that on his first day at NCI-Frederick, he was told that he would meet with the head of the Carcinogen-modified Chemistry Section. "As I came directly from India, I was not well aware of the nicknames. At the time I was preparing myself to meet Dr. Robert Moschel, a gentleman walked into the office and with a smiling face [said], 'Hi, I am Bob; welcome to Frederick.' I stood up and shook hands with him, and then he left. After a while Tony [Dipple] came in and asked me whether I had some time to talk to him. I said I am [waiting] to meet Dr. Robert Moschel, and Tony was like ... 'Bob was here just now!' I said, 'Was *he* Dr. Robert Moschel?'"

Other colleagues commented on the guidance Dr. Moschel provided.

Magdalena Krajewska, LCC, considered her four years with Dr. Moschel's group "an unforgettable time. Dr. Moschel was a…great teacher and mentor. The door to his office was always open. He constantly inspired us and was always excited about every small step forward. I will continue to be influenced by him."



In a similar vein, Dr. Guangping Wei noted that Dr. Moschel "…directed our research like a flowing stream… I learned from Dr. Moschel to be calm and determined dealing with work, science, and life!"

Nadya Tarasova, Ph.D., Structural Biophysics Laboratory, said, "I frequently admired his moral strength. He had to go through many painful losses in his life, but still retained [a] wonderful sense of humor and passion for the work he was doing."

A member of both the Chemistry and Structural Biology Faculty and the Molecular Targets Faculty, Dr. Moschel published more than 100 papers in highly regarded scientific journals, served on the editorial advisory board of *Chemical Research in Toxicology*; and on the American Cancer Society's Peer Review Committee on Carcinogenesis, Nutrition and the Environment.

In lieu of flowers, memorial contributions may be made to The Community Foundation of Frederick County, c/o Mary Ann Moschel Memorial Scholarship Fund, 312 East Church Street, Frederick, MD 21701; or the Center for the Inland Bays, 39375 Inlet Road, Rehoboth Beach, DE 19971. ✦

Memorial Garden Planted

by Maritta Perry Grau

Staff of the Laboratory Animal Sciences Program (LASP) recently enlarged the small garden behind Building 567 as a memorial to Lori Franklin, one of their caretakers, who died of liver cancer in January.

"Everyone joined in and cleared the area, bought plants, etc., and placed them in the garden," said James Stull, LASP. Facilities Maintenance and Engineering made a plaque that has been placed in the garden. The garden is nearly completed at this writing, and, Mr. Stull said, "We have been very pleased with the results and kind remarks from others." The plantings include annuals such as coleus, New Guinea impatiens, fuchsia, marigolds, and petunias; and perennials such as daylilies, hostas, Shasta daisies, salvia, and heather.

Mr. Stull noted that when Ms. Franklin was diagnosed in August 2006, she was not expected to live more than three months. However, Mr. Stull said, "She underwent experimental treatments for four months and always had faith that perhaps she'd be cured… She moved to Maine the first of January to be with her family and to continue treatments. Five of us traveled to Maine to attend her memorial service. So, we wanted to honor her memory and let others know about her. Lori was a beautiful person inside and out, and hopefully, this garden will do her justice and keep her alive in our memory for many years to come."

If you'd like to visit this pocket garden, take the path to the right of Building 567 and follow it almost to 567's "ell." On your left, tucked between a large electrical utility box and the basement stairwell, you'll find the garden dedicated to Lori Franklin. ✦

Dr. Niederhuber Shares Vision at Spring Research Festival

By Nancy Parrish

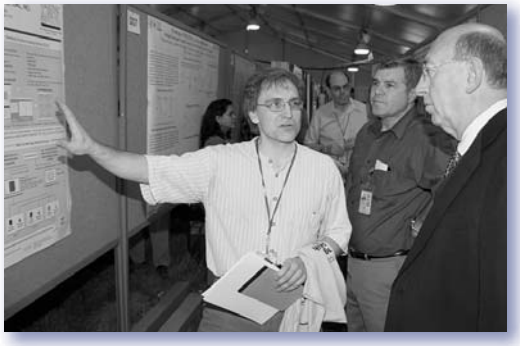
NCI-Frederick was honored to host NCI Director John E. Niederhuber, M.D., on the opening day of the Spring Research Festival held May 16 and 17. Dr. Niederhuber toured the exhibits in the morning and in the afternoon delivered the keynote address to a packed auditorium in the Conference Center.

Valuable 68 Acres

Dr. Niederhuber pointed out just how valuable "this 68 acres" (representing NCI-Frederick) is to the National Cancer Institute as well as to the people of this country. This campus, he said, is where much of the technology development at the National Institutes of Health is occurring. With the strength of the research technologies found in programs such as the Biopharmaceutical Development Program, the Laboratory Animal Sciences Program's mouse models of human cancer, and the Clinical Trials Monitoring program, as well as the "vigorous program in AIDS research," NCI-Frederick is called upon to support "virtually every other institute at one time or another, in one way or another."

"We are evolving in our understanding about cancer."

"I'm excited about how we are evolving in our understanding about cancer and about this dynamic as an organ—not just as a tumor, but as an organ system," Dr. Niederhuber said. This includes "the dynamics that occur between the cancer cells and this microenvironment," although, he said, he's "a little concerned about calling it a microenvironment because it is taking on increasing importance to us in terms of what we are beginning to understand."



Our task, according to Dr. Niederhuber, is to focus on our ability to study the cell at a different level. "We're now talking about how we're going to image inside the cell. We're going to be able to image at the level of a receptor—at a target." The goal is to use this kind of technology to make decisions in real time about whether a particular agent is working against a target. "This ability will be huge in the drug development process," he said, because it could cut months, or even years, from the development time. "It will therefore have a tremendous effect on cost," he added.

New Technologies Will Lead to Earlier Diagnosis

Dr. Niederhuber commented with enthusiasm on the new technologies that have been developed at NCI-Frederick. He envisions bringing the use of nanoparticles in imaging to the design of clinical trials. "Right from the very beginning, these will be part of how a trial is designed," he said.

Using mouse models of cancer is another strong component of NCI-Frederick's research capabilities. Dr. Niederhuber pointed out that the use of these models has "empowered us to do so much in understanding not just the initiation of the cancer, but…it has helped us understand the impact of the whole genome on the risk of developing cancer and the course that cancer takes."

These kinds of technologies "are going to give us the capability…to make an early diagnosis of cancer, when it is just beginning—when we have a much better chance of controlling that disease, or even curing that disease." He added that he was pleased to see examples of the use of these kinds of technologies in the posters he viewed at the Spring Research Festival exhibit.

NCI-Frederick To Act as a Broker

Dr. Niederhuber identified three major sectors that are critical to the success of NCI's mission: the public sector, represented by NCI and other federal agencies; academia, represented by the research universities; and the private sector. Our ability to move forward depends heavily on our ability to create partnerships with these three sectors. He believes that NCI-Frederick is the only one of the three sectors in a position to create these partnerships, and he sees his role as helping facilitate this process. "We're going to be working with large energy and effort…to try to be the honest broker, to be the clearinghouse, to bring these three sectors together because I don't see how we can do the things we want to do unless we develop partnerships…it's absolutely essential."

Personal Commitment

NCI-Frederick represents a tremendous resource for the extramural community, but Dr. Niederhuber believes that there is "a gap in the communication" of what we do here. He emphasized that our story needs to be told "a little bit better," and he believes it is his responsibility to tell it.

With apologies for "preaching," Dr. Niederhuber said that, while there wasn't anything he said that most of the audience didn't already know, what he really wanted to do was "to share with you my commitment to helping all of you get this job done." ✦

Spring Research Festival

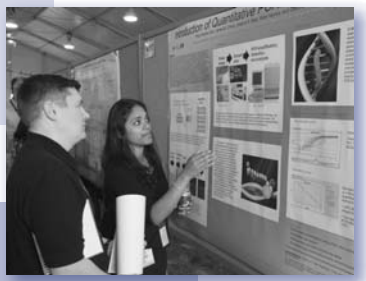
Spring Research Festival Highlights

By Nancy Parrish

The 2007 Spring Research Festival's highlight was a visit from NCI Director John E. Niederhuber, M.D., on the event's opening day, May 16. Dr. Niederhuber toured the poster exhibit, talked with many of the presenters, and visited the exhibits, as well as the Biomedical Research Equipment and Supplies Expo. Later that day, he gave the keynote address (see article on page 12).

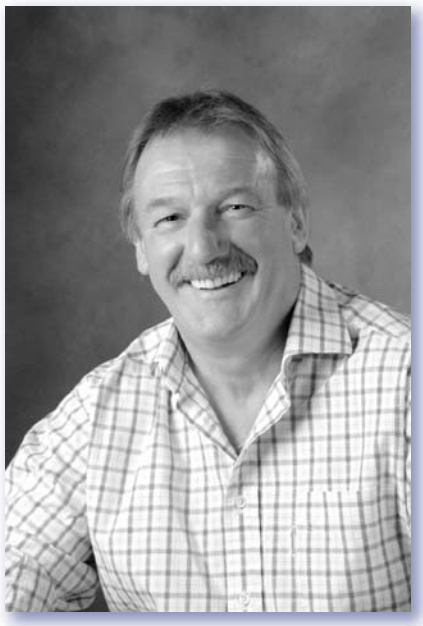
More than 200 posters—a record number—were presented during the festival. New this year were two featured speakers, David Newman, Ph.D., Chief of the Natural Products Branch, and Wayne Yokoyama, Ph.D.; and the Cartoon Medicine Show from the National Library of Medicine.

Cheryl Parrott, Festival organizer since 2002, credited this year's success to the six participating agencies of the National Interagency Confederation for Biological Research, the poster authors, the weather, and, most importantly, to Julie Hartman, Outreach and Special Programs, who took over as organizing chair for the first time. "Julie brings organization skills worthy of a battalion commander, a wealth of institutional knowledge, and her indefatigable energy and enthusiasm. It's an honor to pass the torch to her," Ms. Parrott said. ✦



Stuart Le Grice, Ph.D.: Choosing the High Road of Science

By Maritta Perry Grau



"Two roads diverged in a wood, and I,/I took the one less traveled by,/And that has made all the difference." So said Robert Frost in closing his poem, "The Road Not Taken." It might also be said of Stuart Le Grice, Ph.D., who in 1978 was considering three careers: a diver checking the effects of oil spills; the British equivalent of an IRS agent; or a scientist.

Working with John Scaife, Ph.D., at the University of Edinburgh on the genetics of *E. coli* RNA polymerase, he and his colleagues "were always made to write our ideas on a blackboard, enabling us to get our thoughts together more cohesively than a face-to-face discussion. After two years of this training, I found myself asking more questions about my project and different ways to solve them through microbial genetics and biochemistry. I also discovered that a diver's mask felt like a prison! As for the IRS—that needs no further discussion!"

Dr. Le Grice, who joined the NCI-Frederick HIV Drug Resistance Program in April 1999, believes that coordinating HIV research activities at the Bethesda and Frederick campuses through the Center of Excellence in HIV/AIDS and Cancer Virology will likely be his greatest challenge in the next few years. In addition, because of his increased interest in chemical biology, coupling bioconjugate chemistry, and unnatural amino acid mutagenesis to study protein structure and function, he'd like to see the chemistry and biology expertise at NCI-Frederick better integrated into a program of chemical biology.

Dr. Le Grice and his wife hop-scotched for several years between America and Europe before settling in the U.S.A. in 1990. "In 1981 we moved to America as post-docs at Brown University, Providence, and Tufts Medical School, Boston. In 1984 we moved to Basel, Switzerland, where I worked for Hoffmann-La Roche. Our daughter was born in Switzerland in 1989 (dual British and German citizenship—the Swiss have strange rules on this kind of thing). 1990 brought us back to the U.S.A., and our daughter goes to UC Boulder this year to study journalism and mass communication. After she got bored making designs by joining colored Eppendorf tubes, her interest in science rapidly waned! She writes poetry, has a passion for dancing, and the only interest she shows in following in my footsteps is to the shopping mall."

Dr. Le Grice says of his 35-minute commute to rural Poolesville, MD, about 24 miles from Frederick, "At the end of that drive past farmland and horse ranches, most problems have either disappeared or taken on far less significance. If that doesn't work, the dog is always waiting to be taken for a walk."

He also relaxes by cooking. "I've always tried to convince my colleagues that if you can follow a protocol in 'Methods in Molecular Biology,' it's just as easy to follow a recipe in a Time-Life cookery book! I've never eaten a polyacrylamide gel, but my sesame-seared tuna fish takes some beating!"

His favorite vacation spot, naturally enough, is Scotland. "It's cold most of the year, it rains a lot, but it's Scotland. In 2000, flying from Montreal to Glasgow brought me over the Western Highlands and islands of Scotland at seven in the morning. At that hour, it was really beautiful. After about 25 years out of the UK, I never thought I would get homesick, but looking at those mountains and islands as we flew out of the clouds, I couldn't have been more wrong."

"John Coffin has often quipped, 'You can take the boy out of Scotland, but you can't take Scotland out of the boy.' For different reasons, I think that's true. If you go there, remember (a) take your raincoat and (b) the only thing we Scots drink with our whisky is more whisky!"

A member of the Molecular Targets Development Program steering committee and head of the RT Biochemistry Section, HIV DRP Retroviral Replication Laboratory, Dr. Le Grice considers that one of his greatest accomplishments at NCI-Frederick has been "helping one of my postdoctoral fellows achieve a faculty position at Ohio State University and another to successfully compete for a Pathways to Independence award this year. In my opinion, the strongest testament to what we, as principal investigators, have achieved should be how we have promoted the careers of those we mentor." ✦

Robin Meckley: "You never know who you might inspire...!"

By Nancy Parrish

The number 8 has special meaning for Robin Meckley: She began working at the Scientific Library on August 8, 1988, as a document delivery clerk, responsible for circulation and maintaining a database of journal tables of contents. While working in this position, she earned a master of library science degree (MLS).

Variety Keeps the Job Interesting

Now the Instructional Resources Librarian, and soon to be the Public Services Librarian, she says the variety of her duties is what she likes most about her job. "Being able to do different things at different times keeps the job interesting. And with these varied duties, I am able to meet and work with different people from the NCI-Frederick population."

There's no doubt that Ms. Meckley does lots of "different things." She is the team leader for the library's training program and an instructor for many of the training classes and the library orientation programs. She also is a bibliographic database searcher, which requires her specialized knowledge of databases.

When not in front of a class or at the computer, Ms. Meckley might be found at the Reference Desk, where she spends an hour each day assisting library patrons. She also works on the library's web pages; helps organize special programs offered by the library, such as Take Your Child to Work Day, Science in the Cinema, and Notable Scientists; and is a member of the Academy of Health Information Professionals (AHIP), the Medical Library Association's peer-reviewed professional development and career recognition program.

Notes a Shift in Roles and Attitudes

Ms. Meckley observes that computers have had a major impact on the way that both library staff and users do their work, by shifting the burden of research from the staff to the user. "In addition to finding information for our users," she notes, "we also now teach our users how to find the information themselves."

Robin Meckley
Instructional Resources Librarian
Scientific Library

Another significant change, Ms. Meckley observes, is an increased willingness to share ideas and information throughout the facility. "Years ago," she says, "everything was secretive and private, with no one knowing what anyone else was doing. Now, scientists are sharing their research through lectures and posters, and collaborating more on publications." Ms. Meckley adds that the library has benefited from this sharing environment through collaborations resulting in the new, public Science in the Cinema program, the Center for Health Information (CHI), and the REWARDS program.

Shares Enthusiasm On and Off Campus

As a participant in the Elementary Outreach Program, Ms. Meckley says she has "enjoyed teaching science to students, as well as sharing my enthusiasm for librarianship. You never know who you might inspire to become a librarian!" Her influence doesn't stop there. She also hopes "to encourage high school and college students to become Scientific Library interns through an expanding NCI internship program." In 2004, she participated in the NIH Office of Science Education "LifeWorks," an interactive web site providing career information to middle and high school students. Ms. Meckley is also a member of the Conference Center Users Committee at NCI-Frederick, as well as the Science Education Resource Group at NIH, in Bethesda.

Personal Interests as Varied as Her Job

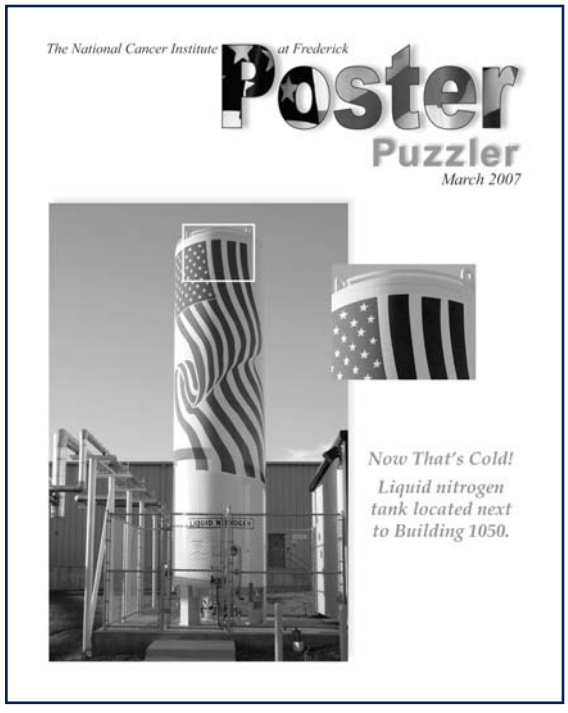
"As you might expect," Ms. Meckley says, "one of my free-time passions is reading." What you might not expect, however, is that Ms. Meckley is a fan of actor Harrison Ford, who also promotes reading. "I also love watching movies, especially those starring Harrison Ford," she admits. She and her husband, now empty-nesters, enjoy traveling, an activity that gives her a chance to add to her collection of Mr. and Mrs. Santa Claus figures, which, she says, "currently numbers almost 500 couples." ✦

Poster Puzzler

What is it?
Where is it?

Your challenge, should you decide to accept it, is to correctly identify the item and its location from the picture to the right. Clue: It's somewhere at Fort Detrick/NCI-Frederick. Win a framed photograph of the Poster Puzzler and an NCI-Frederick tee shirt by e-mailing your guess, along with your name, e-mail address, and daytime phone number, to Poster Puzzler at poster@ncifcrf.gov. 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, August 10, 2007**, and the winner will be drawn from all correct answers received by that date.

Good luck and good hunting! ✦



The Poster Puzzler:
Now That's Cold!

By Nancy Parrish

The March 2007 puzzler is a close-up of the top of the liquid nitrogen tank located next to Building 1050.The tank was installed in 2002 as a central fill station for nitrogen dewars, the special vacuum-insulated containers that hold the liquid nitrogen used in the laboratories for super-cold storage. The flag decal was added as part of the upsurge of patriotism that occurred following the 9/11 attacks. Standing 32 feet high, the tank holds 6,000 gallons of liquid nitrogen, which is –196 °C, or –385 °F. Now that's cold!

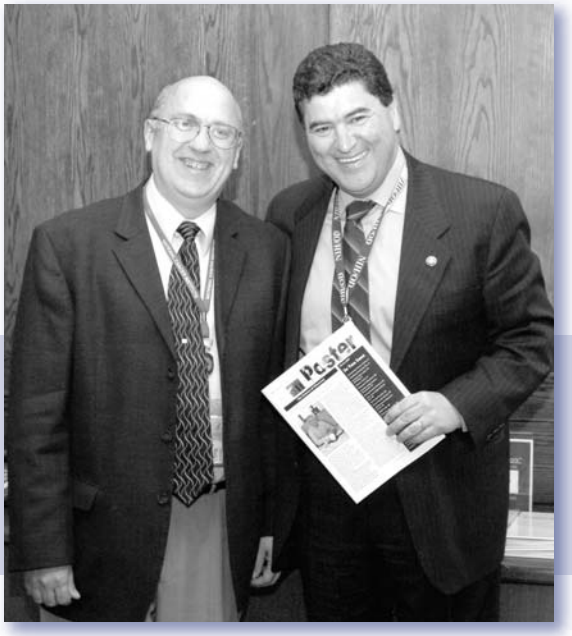
Thanks to all the participants in the March *Poster* Puzzler! ✦

Poster Puzzler Winner

Congratulations to the March 2007 Poster Puzzler winner! Andrew Waters, Manufacturing Associate II, Microbial Fermentation Group, Protein Expression Laboratory, winner of the March 2007 Poster Puzzler, with Paul Miller in front of the liquid nitrogen tank next to Building 1050. ✦

Have Poster—Will Travel!

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



Craig Reynolds, Ph.D. (left), Associate Director for NCI and Director, Office of Scientific Operations, NCI-Frederick, and Elias Zerhouni, M.D., Ph.D., Director, National Institutes of Health, pose with the Poster *during Dr. Zerhouni's April visit to NCI-Frederick.* ✦

Student Interns Win Science Fairs Locally and Internationally

By Nancy Parrish

Twelve Werner H. Kirsten student interns from Frederick County brought home honors at the 26th Annual Science and Engineering Fair on March 24. Sponsored through a partnership between Frederick County Public Schools and the Frederick Jaycees, the science fair drew entries from nearly 150 middle and high school students throughout Frederick County. Projects were judged by 67 professionals from the Frederick community.

Jarrett Remsberg of Middletown High and Teddy Kamata of Frederick High took home top honors in the county competition. Mr. Remsberg won the grand prize for his chemistry project, "Synthetic Analogs of Smoothened Intracellular Loop as Potent Inhibitors of Cancer Cell Growth". Mr. Kamata took first runner-up position for his biochemistry project, "TLE1/Gro = Novel Protein Interactor for Ephrin B1" (see related article in the *Poster*, March 2007).

Winners of the 26th Annual Science and Engineering Fair, Frederick County Public Schools: First row, L to R: Teddy Kamata (Grand Prize runner-up); Hanna Poffenbarger (Hon. Mention); Andrew Scott (Third Place, Cellular/Molecular Biology); Remington Poulin (First Place, Chemistry). Second row: Kenneth Zheng (Hon. Mention), Jarrett Remsberg (Grand Prize winner); Michael Foote (Hon. Mention); Sorin Lupascu (Second Place, Cellular/Molecular Biology). Third row: Leslie Gee (Third Place, Microbiology); Bilguujin Dorjsuren (First Place, Microbiology); Sepideh Ghenatnevi (Second Place, Medicine/Health Science); Angela Bartz (Third Place, Cellular/Molecular Biology).

Alex Ray Top Winner at Western Maryland Science Expo

In Washington County, Alex Ray won top honors at the March 26th Western Maryland Science Expo sponsored by the Western Maryland Tri-County Council, which comprises Washington, Garrett, and Allegany counties. His project, "A Novel Technique for Detection of Unknown Viral RNA Sequences," won first place in the biochemistry category and the overall grand prize. Mr. Ray explained that his new method of detecting viruses is "important in identifying unknown viruses that have possible roles in cancer development." A 2007 graduate of South Hagerstown High School, Mr. Ray works with Denise Whitby, Ph.D., and Thomas Parks in the Viral Oncology Section of the AIDS Vaccine Program. He will attend University of Delaware, Newark, DE, where he intends to major in biochemistry and molecular biology. He would like to pursue a career in medicine. Mr. Ray enjoys swimming with the Monocacy Aquatic Club in Frederick and going out with friends in his free time.

Winners Go to International Competition

As top prize winners, Jarrett Remsberg, Teddy Kamata, and Alex Ray participated in the Intel International Science and Engineering Fair in Albuquerque, NM, in May. The week-long event brought together more than 1,500 students from 51 countries and territories to compete for awards of scholarships, tuition grants, internships, and scientific field trips.

Mr. Remsburg's project won two awards at this prestigious event: a Second Award in the Chemistry category, which earned him $1,500; and a Special Award from the National Taiwan Science Education Center. This award is a trip to Taiwan to attend the Taiwan International Science Fair in February 2008.

Please join the *Poster* staff in congratulating these outstanding students and wishing them continued success. ✦

Welcome to the 2007–2008 Werner H. Kirsten Student Interns

Fifty-one high school seniors began working in the laboratories this summer as part of the Werner H. Kirsten Student Intern Program. The students work full-time during the summer and continue on a part-time schedule throughout their senior year. They attend schools in Frederick, Washington, and Jefferson counties.

Birnman Reaches for the Stars

By Maritta Perry Grau

NCI-Frederick has a very active Outreach Program that over the years has formed strong bonds with the greater Frederick community through its Werner Kirsten Student Intern Program, Elementary Outreach Program, Take Your Child to Work Day, and other activities. In April, Barbara Birnman, Public Affairs Specialist, Office of Scientific Operations, was recognized as one of those who motivate young people, especially young women, to excel in the math and science fields.

"The success of our programs is due to many people at NCI-Frederick and Fort Detrick," Ms. Birnman said. "Without their involvement, these programs would not be as successful as they are. We all work together to make elementary, high school, and college students and others in the community aware of the wonderful opportunities a career in science can offer and the wide range of science-related careers that are available."

Ms. Birnman was one of four awardees from the numerous nominees recognized at the Women in Defense Greater Frederick Chapter's (WID-GFC; www.greaterfrederickwid.org/) "Reach for the Stars" dinner, organized to kick off the WID-CFC local scholarship fundraiser. Major General Gale Pollock, Deputy Surgeon General, U.S. Army and Chief Army Nurse Corps, presented the keynote address. WID-GFC "provides networking and professional development opportunities to promote the role of women in national defense and security, to support military service members, and to encourage partnerships between the local community and military bases such as Fort Detrick," according to Luanne Houck, local WID-GFC chapter president.

Craig Reynolds, PhD, Director, Scientific Operations, NCI-Frederick, commented, "I think the NCI's student programs are unparalleled, and Barbara's direction of these programs outstanding." ✦

Pug Promotes Safety Program at 2007 Spring Research Festival

By Lisa Simpson and Robin Pickens

A personable little dog named Lucie was the star of the "Emergency 1-2-3" campaign rollout, sponsored by Occupational Health Services (OHS), this May at the 2007 Spring Research Festival.

Lucie, a two-year-old pug, and her owner, Kandy Rahochik, Secretary III at OHS, helped distribute flyers and magnets printed with the "Emergency 1-2-3" steps as people stopped at the OHS booth to pet Lucie and admire her campaign-themed dog t-shirt. With Lucie as the attention-getter, "we were able to educate people who would normally not have stopped at our table," said Ms. Rahochik, "and we were able to reach people who are sometimes difficult to access in their labs."

The campaign focuses on what to do in the event of an accidental biological exposure. If you become injured while working with biological agents, whether it is a needle-stick, sharps cut, splash, aerosol inhalation, or animal bite, "Emergency 1-2-3" outlines three steps to follow:

1. Wash contaminated skin and wounds thoroughly for 15 minutes with water and povidone-iodine, chlorhexidine, or soap. If the eyes or mucous membranes are contaminated, irrigate with water for 15 minutes.
2. Notify your supervisor, if he or she is immediately available.
3. Report the exposure to OHS in Building 426 (301-846-1096) between 8:15 a.m. and 5:00 p.m. If the exposure occurs after clinic hours, call Protective Services (301-846-1091) and they will contact an OHS clinician. The OHS clinician will then contact you as soon as possible.

Off-site employees should refer to information in the article "EHS Reference for Off-Site Employees" at home.ncifcrf.gov/ehs/uploadedFiles/EHS_Reference_for_Off-Site_Employees_031606.pdf.

"Emergency 1-2-3" was implemented to emphasize to all NCI-Frederick employees the importance of a quick and appropriate response to an accidental biological exposure. Alberta Peugeot, OHS Manager, notes that the goal is to reduce the time between exposure and treatment to two hours.

The campaign's focus is on education and training, and includes instructional posters, review of "Emergency 1-2-3" during annual employee physicals, annual physical reminder notifications, and an introduction to the campaign during New Employee Safety Orientation training. OHS is encouraging the posting of "Emergency 1-2-3" posters in all laboratory/work areas.

Remember, all work with human pathogens, toxins, oncogenic viruses, and recombinant DNA needs to be registered with the NCI-Frederick Institutional Biosafety Committee (IBC). Registration with the IBC is critical for evaluation of potential biological exposures. See home.ncifcrf.gov/ehs/ehs.asp?id=70 for information on how to register your research with the IBC.

OHS can be reached at 301-846-1096. ✦

How Do Your Lifestyle Choices Affect Your Health?

By Lisa Simpson

Abdul Shaikh, Ph.D., Cancer Prevention Fellow, recent speaker at a July Lunch 'n' Learn.

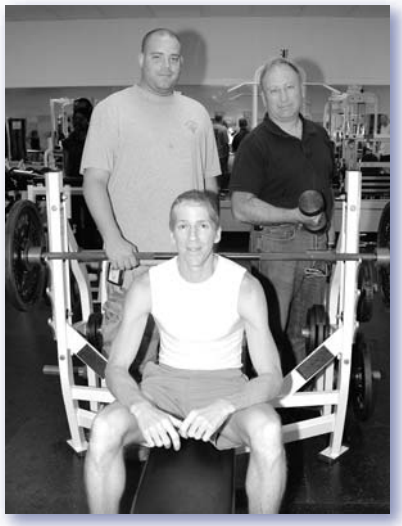
Promoting healthy lifestyle choices in schools, communities, and the workplace is a key factor in the fight against cancer and other diseases that can be influenced by behavioral factors.

On July 12 an informative Lunch'n'Learn session was held in the Building 549 auditorium. Larry Arthur, Ph.D., president of SAIC-Frederick, Inc., welcomed Abdul Shaikh, Ph.D., Cancer Prevention Fellow at NCI's Health Promotion Research Branch, Behavioral Research Program, Division of Cancer Control and Population Sciences.

Dr. Shaikh presented an overview of how health-related factors are influenced by society and psychology, and how studies of these factors are involved in the design of programs that promote positive health practices and help to prevent or manage disease.

Following his talk, OHS staff were be stationed in the lobby to hand out free reflective arm bands to Fitness Challenge 2007 participants. ✦

Fitness Challenge Monthly Winners



March and April

Bob Curry (seated); March; other fitness activities; U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID).

Rodman Smith (left); April; other fitness activities; SAIC-Frederick, Inc., Basic Science Program.

Bill Adkins (right); April; pounds lost; SAIC-Frederick, Inc., Facilities Maintenance and Engineering Directorate.

Not pictured are:

Ray Stine; March; pounds lost; SAIC-Frederick, Inc., Acquisition and Logistical Services Directorate.

Michael Frydl; March; miles traveled; Joint Medical Logistics Functional Development Center, and Dwayne Neal; April; SAIC-Frederick, Inc., Vaccine Clinical Materials Program. ✦

May

Robin Dewar (left); miles traveled; SAIC-Frederick, Inc., Applied/Developmental Research Directorate.

Stephanie Henderson (seated); other fitness activities; SAIC-Frederick, Inc., Basic Science Program.

Allison Hazen (right); pounds lost; SAIC-Frederick, Inc., Applied/Developmental Research Directorate. ✦

Halfway There!

We're six months into the 2007 Fitness Challenge year and, based on information entered into the Fitness Tracker as of June 8, well on our way to meeting our goals for biking, running, walking, and other forms of exercise. Our progress toward losing a ton of weight by the end of the year is lagging a bit, but don't give up! Cut down on calories deliciously by trying out the FitFood recipes at saic.ncifcrf.gov/fitnesschallenge/recipes.asp ✦

Activity	Average Per Person	Total	Goal	Percentage Accomplished
Pounds lost	2	***543***	2,000	27%
Total, bike, run, walk		**20,522**	25,000	82%
Hours, other exercise	24	**3535**	8,760	40%

NCI-Frederick Café: Breakfast and Lunch Just Got Easier

Didn't have time for breakfast? Need lunch? You'll find lots of healthy selections at the NCI-Frederick Café, Building 549.

Stop by before work: Choose from eggs to order, breakfast sandwiches, omelets, pancakes, sausage, biscuits and gravy, home fries, and more.

Take a break at lunch: Soups, salads, hot entrees, sandwiches, desserts, pizza, to name a few. Check out the menu on-line at www.detrick.army.mil/calendar/lunchmenu.pdf, or pick up a menu in the Café.

Make it easy on yourself: Let the NCI-Frederick Café cater your next meeting or special office event. Call 301-846-1750.

The NCI-Frederick Café is open Monday through Friday, 7:00 a.m.–10:00 a.m., for breakfast, and 11:00 a.m.–2:00 p.m. for lunch. ✦

Write When You Get Work

Jeffrey Gerard, M.D.: Following a Straight Line

By Nancy Parrish

Jeffrey Gerard, M.D., must have always known he would go into medicine. Why else would he have applied—and been accepted—to medical school during his junior year of college? His life so far seems to be driven by two things: his devotion to medicine and his devotion to his faith.

Dr. Gerard was a Werner H. Kirsten student intern in the Laboratory of Experimental Immunology in 1990–1991, under the mentorship of Howard Young, Ph.D. After graduating from Frederick High School in 1991, he embarked on a straight path to becoming a physician. First stop was Pennsylvania State University, where he studied molecular and cell biology and worked in Dr. Young's laboratory during the summers. By the end of his junior year, he had been accepted to the Pennsylvania State College of Medicine in Hershey, PA.

After graduating with honors early, in January 1995, he worked as a technician in a laboratory at Hershey Medical Center. In June, he married his high school sweetheart, Julie, and entered medical school in July. Four years later, he had a medical degree, also with honors, as well as a baby daughter, who was born one week prior to graduation. He then entered a four-year residency program in internal medicine/pediatrics at Wright State University in Dayton, Ohio, from which he graduated in June 2003. Two months later, he began his career with Cornerstone Family Health Associates in Lititz, PA, and is board-certified in internal medicine and board-eligible in pediatrics. Now a partner in the practice, he and Julie have three children.

Dr. Jeff Gerard with his wife, Julie, who was his high school sweetheart.

Warm Memories and Solid Experience

Although he hasn't stepped onto the NCI-Frederick campus since 1993, Dr. Gerard still has fond memories of his time here, including "Howard's [Dr. Young's] chocolate fetish, the Anthrax Tower rumors, playing racquetball on the base with Steve Giardina and Mark Smyth, [and] traveling weekly for two summers to the NIH…for conferences as a Howard Hughes, and later, Sobel, summer scholar."

He is also grateful for the experience he had here, saying "I am convinced that my experience in the lab and my secondary author status on two papers were critical to my medical school and residency acceptance."

Dr. Gerard believes that his faith has played a major influence in his life's course, and that, in addition to his marriage and family, his most significant accomplishment has been "the work of God's love and grace in my life."

Advice for Student Interns

When asked what advice he would give current interns, Dr. Gerard focused on strength of character. "Be deliberate and disciplined. Be filled with integrity (making the right choice even when other people may not be happy with it). Live and love the truth." Clearly, living by these principles has helped Dr. Gerard succeed, both personally and professionally. ✦

Campus Improvements

Employees around the facility planted flowers during the second annual spring "dig-in" sponsored by the Campus Improvement Committee.

Only 1 in 3 Gathers a Family Medical History

By Maritta Perry Grau

How much do you know about your family's health history? Can you identify diseases or illnesses two generations back? According to Vice Admiral Richard H. Carmona, M.D., M.P.H., FACS, United States Surgeon General, U.S. Department of Health and Human Services (HHS), the Centers for Disease Control and Prevention conducted a survey in 2004 that indicated "96 percent of Americans believe that knowing family history is important to their health. The survey also shows, however, that only one-third of Americans have ever tried to gather and organize their families' health histories" (www.surgeongeneral.gov/news/speeches/01272005.html).

Government health agencies for the past several years have been emphasizing the importance of knowing—and recording—your family's health history. It's particularly important in these days of shortened doctor visits, when doctors may not have the time or insurance companies may not allow them to take detailed family health histories. If you have such a health record on your computer, you can print a hard copy for your doctor.

A number of commercial web sites have popped up with software programs to organize your family's medical records. However, one of the best is free: the HHS Family History Initiative (www.hhs.gov/familyhistory).

Begun in 2002, the Family Health Initiative grew out of a conference concerning the recognition that family medical histories are good tools for public health and disease-preventive practices. The web site offers a comprehensive sidebar, in English or Spanish, that guides you through the site's various well-organized sections. The directions are simple and clear.

For example, "Before You Start" gives tips for talking with family members about their medical history, including sample questions you can ask, how and when to ask questions, how to handle sensitive issues, and how to keep information up to date.

Another page offers a wealth of web site links that can be particularly helpful as you explore your medical history.

You create your medical record at "My Family Health Portrait." Available as a web version or paper, it can be downloaded onto your home computer. The most common diseases, such as chronic heart disease; diabetes; stroke; and colon, breast, and ovarian cancer, are addressed in the site. You can also add diseases to the list and download a family genealogy chart that will clearly mark those who are deceased and will color-coordinate the blocks that indicate those who died from the same disease, making it easy to see at a glance the preponderance of any disease in your family.

The HHS Family History is a useful web site for you and your children—and who knows? It might just alert you or your doctor to a family tendency for certain diseases that you may be able to avoid by making choices for a more health-conscious lifestyle now. ✦

Recycling Bins Relocated

By Maritta Perry Grau

Because of construction at the Old Farm Gate, the recycling drop-off has been moved to a parking lot just past the Rosemont Gate entrance, on the left, adjacent to the USDA greenhouses, according to Randall Morin, Dr. PH. A second drop-off point is located in the Commissary parking lot at Building 1520. Metal and all other recyclable items can be dropped off at the recycling center, Building 393, between 7:00 a.m. and 3:30 p.m., Monday through Friday.

Acceptable recyclables include paper and cardboard; plastics designated as recyclables #1, 2, or 4; aluminum and steel cans, and glass that has been cleaned and sorted by color. The recycling bins are marked for each type.

"We encourage all employees at Fort Detrick to bring their acceptable recyclables from home and drop them off for inclusion in the Fort Detrick Recycling Program," Dr. Morin said. ✦

Technology Transfer Center (TTC)

NCI OD Reorganization Results in TTC Name Change

Much has happened in the field of technology transfer at NCI-Frederick since our last published article in the *Poster*. As a result of the December 2006 announcement from NCI Director John E. Niederhuber, M.D., about organizational changes taking place within the NCI Office of the Director, NCI's Tech Transfer group now has a new name.

Effective April 3, 2007, our group's name was changed from the NCI Technology Transfer Branch to the NCI Technology Transfer Center (TTC). Along with the change in our organization's name, our leadership's titles have changed. Thomas Stackhouse, Ph.D., is now Assistant Director, Technology Transfer Center, National Cancer Institute at Frederick. Karen Maurey is now Director, Technology Transfer Center, NCI; and Kathleen Carroll, Ph.D., is now Associate Director, Technology Transfer Center, NCI. Ms. Maurey and Dr. Carroll are stationed in our main office in Rockville (Executive Plaza South, Suite 450).

TTC Welcomes New Staff

As well as our name change, we welcomed three new staff members: Michael Currens, Ph.D., formerly with the Screening Technologies Branch, Developmental Therapeutics Program, Division of Cancer Treatment and Diagnosis, NCI; Jianbo Hu, Ph.D., formerly with the Cancer and Developmental Biology Laboratory, Center for Cancer Research (CCR), NCI; and Nadezda Radoja, Ph.D., formerly with the Experimental Immunology Branch, CCR, NCI.

At the Federal Laboratory Consortium's (FLC's) national meeting are, left to right, Susan Sprake, FLC Vice-Chair, Los Alamos National Laboratory; Michael Shmilovich, J.D., Office of Technology Transfer, NIH; Thomas Stackhouse, Ph.D., Assistant Director, Technology Transfer Center (TCC), NCI-Frederick; Donna Bialozor, Technology Transfer Specialist, TCC, NCI-Frederick; and Ed Linsenmeyer, FLC Chair, Naval Surface Warfare Center, CSS.

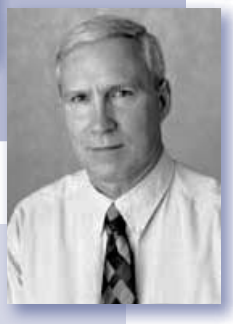
Accomplishments at National Meeting

What else has TTC been up to? On May 17, 2007, in Fort Worth, Texas, at the Federal Laboratory Consortium (FLC) national meeting, Dr. Stackhouse, accompanied by Donna Bialozor, Technology Transfer Specialist, NCI, and Michael Shmilovich, Licensing Specialist, Office of Technology Transfer (OTT), NIH, accepted a 2007 FLC Award for Excellence in Technology Transfer on behalf of Drs. John Schiller, Douglas Lowy, and Reinhard Kirnbauer for "Gardasil™: A New Era in Cancer Prevention."

FLC is a nationwide network of federal laboratories that provides the forum to develop strategies and opportunities for linking laboratory mission technologies and expertise with the marketplace. FLC was organized in 1974 and formally chartered by the Federal Technology Transfer Act of 1986 to promote and strengthen technology transfer nationwide. Today, more than 250 federal laboratories and centers and their parent departments and agencies are FLC members.

At the meeting, NCI also presented a poster highlighting how, nearly 20 years ago, NCI researchers showed that a structural protein from the surface of a human papilloma virus (HPV) serotype causally linked to the development of cervical cancer can self-assemble into virus-like particles (VLPs) that stimulate protective immune responses to HPV without causing infection. NIH facilitated translation of this discovery into a commercial human vaccine by overseeing the patenting of the VLP technology and licensing it to Merck

and Glaxo-SmithKline. The U.S. patent (# 7,220,419) "Self-Assembling Recombinant Papillomavirus Capsid Proteins" was issued on May 22; the inventors included Drs. Douglas Lowy, John Schiller, and Reinhard Kirnbauer.



Winners of the 2007 Federal Laboratory Consortium Award for Excellence in Technology Transfer "Gardasil™: A New Era in Cancer Prevention." Douglas Lowy, M.D., Chief, Laboratory of Cellular Oncology, CCR, NCI (on left); and John Schiller, Ph.D., Head, Neoplastic Disease Section, Laboratory of Cellular Oncology, CCR, NCI. Not pictured is Dr. Reinhard Kirnbauer.

In a tightly contested election, with only three spots available, Dr. Stackhouse was elected as an FLC Member-at-Large. Mojdeh Bahar, Licensing Specialist, OTT, NIH, was also elected as a new Member-at-Large. As a result of this election, NIH is now well represented in FLC. You can learn more about FLC at: www.federallabs.org/home/.

Eight U.S. Patents Issued with NCI-Frederick Researchers as Co-Inventors

NCI-Frederick researchers contributed significantly to the granting of eight patents in 2007—and the year's only half over!

US 7,223,844; issued May 29, 2007:
Broadly cross-reactive neutralizing antibodies against human immunodeficiency virus selected by Env-CD4-co-receptor complexes. Inventors: **Dimiter Dimitrov; Maxime Moulard; Xiadong Xiao; Yuuei Shu; Sanjay Phogat; Mei-Yun Zhang**; and **Dennis Burton**.

US 7,205,334; issued April 17, 2007:
Chondropsin-class antitumor v-atpase inhibitor compounds, compositions and methods of use thereof. Inventors: **Michael Boyd** and **Kirk Gustafson**.

US 7,192,579; issued March 20, 2007:
Methods of gene therapy using nucleic acid sequences for ATP-binding cassette transporter. **Rando Allikmets; Kent Anderson; Michael Dean; Mark Leppert; Richard Lewis; Yixin Li; James Lupski; Jeremy Nathans; Amir Rattner; Noah Shroyer; Nanda Singh; Philip Smallwood**; and **Hui Sun**.

US 7,189,511; issued March 13, 2007:
Methods of screening and diagnostics using ATP-binding cassette transporter. **Rando Allikmets; Kent Anderson; Michael Dean; Mark Leppert; Richard Lewis; Yixin Li; James Lupski; Jeremy Nathans; Amir Rattner; Noah Shroyer; Nanda Singh; Philip Smallwood**; and **Hui Sun**.

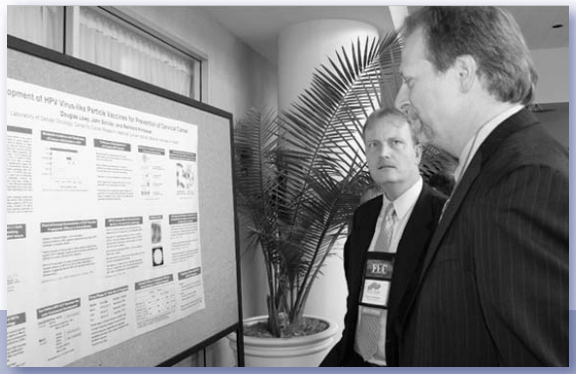
US 7,189,393; issued March 13, 2007:
Recombinant anti-tumor RNAse. **Susanna Rybak** and **Dianne Newton**.

US 7,183,071; issued February 27, 2007:
Anthrax lethal factor is a MAPK kinase protease. **Nicholas Duesbery; Craig Webb; Stephen Leppla**; and **George Vande Woude**.

US 7,175,838; issued February 13, 2007:
Use of a promoter of T-cell expansion and an inducer of CD40 stimulation in the treatment or prevention of a pathologic state; **William Murphy; Robert Wiltrout; Bruce Blazar**; and **Susan E. Wilson**.

US 7,157,495; issued January 2, 2007:
Hexahydrofuro[2,3-B]furan-3-YL-N-{3-[(1,3-benzodioxol-5-ylsulfonyl)(isobutyl)amino]-1-benzyl-2-hydroxypropyl}carbamate as retroviral protease inhibitor. **Guangyang Wang; Michael Eissenstat; John Erickson**; and **Piet Wigerinck**.

Congratulations to our NCI-Frederick inventors! ✦



At the 2007 FLC national meeting, Dr. Tom Stackhouse (left), Assistant Director, Technology Transfer Center, NCI-Frederick, discusses how research on virus-like particles was translated into a successful product for the market through patenting and licensing.

Frederick Employee Diversity Team

Special Olympics

By Maritta Perry Grau

Recently, the Employee Diversity Team invited Special Olympian gold medal winner Adam Hays to speak at a Brown Bag Lunch 'n' Learn Seminar.

Mr. Hays, 23, addressed the need for volunteers and coaches for the Maryland Special Olympics, which have participants in nearly every sport that the quadrennial Olympics support. The Special Olympics provides an opportunity for participants to learn responsibility and gives them a chance to compete in many sports and make many friends, he said. He has participated in the events for the past 11 years.

Mr. Hays is an Eagle scout and a recent graduate of Frederick Community College with a degree in visual communications. He is a cofounder of the Maryland Media in Motion and is working this summer for Fort Detrick as an intern in visual communications. ✦

Frederick and Washington County Advanced Degrees Nearly Double That of Nation

By Scott Keimig, Ph.D., and Maritta Perry Grau

Where do you fit in Maryland's demographic profile? While in some areas, Maryland's profile closely aligns with that of the United States, in other areas, it is quite diverse. The counties that many of NCI-Frederick's denizens call home—Frederick, Montgomery, and Washington counties—also reflect that diversity. Check out the chart below, taken from the 2005 American Community Survey, U.S. Census Bureau or go to the Census Bureau's web site (www.census.gov/acs/www/) to glean more nuggets of statistical information. ✦

Win Movie Tickets—It's Easy!

Each month, the Diversity team offers you a chance to win movie tickets to local theaters. All you have to do is fill out a short questionnaire on the contents of the Diversity display case, slip it into the ballot box, and keep your fingers crossed that your correct responses will be one of those chosen. You'll find the questionnaires right next to that display case at the back of the NCI-Frederick Café in Building 549.

Recent winners include Shawn Brown and Jerry Alexandratos during "Black History Month," and Roxanne Gibson and Dan Oleyar during the "Days of Remembrance and Children in Crisis: Voices of the Holocaust" month. ✦

Watch for Launch of Diversity Web Site

Were you one of the lucky ones to get a Diversity Team cookbook or lunch bag at the Spring Research Festival? You had to be quick to get the cookbook; they were all grabbed up the first day.

But don't worry—with the advent of the Diversity web site being developed as we go to press, you'll soon be able to get cookbooks and more. Watch your e-mail for an announcement about the web site's launch. ✦

2005 Census Survey Topic	Frederick County	Washington County	Montgomery County	Maryland	U.S.A.
Population	215,877	132,574	918,046	5,461,318	288,378,137
Language other than English spoken at home, %	9.7	NA	34.6	14.5	19.4
Completed advanced degree	11.8	7.7	NA	15.2	10
Travel time to work (minutes)	32.9	26	33.2	30.8	25.1
Median household income	$73,149	$47,771	$82,187	$61,592	$46,242

New Faces at NCI-Frederick

NCI-Frederick Welcomes New Staff

Seventy-nine people joined our Facility in January, February, and March 2007.

NCI-Frederick welcomes…

Daniela Andrei
Shanmuganathan Aranganathan
Victorino Briones
Amit Chaudhary
Jamaine Davis
Dennis Klinman
Catriona Miller
Islam Mohammad Hussein
Selinda Orr
Elena Riboldi
Yang Sun
Debra Tross
Kayako Waki
Zhaouxu Yang
Olga Zabirnyk
Xiaobin Zuo ✦

Parag Aggarwal

Dennis Klinman

Lisa Simpson

Jamaine Davis

Irene Newman

Joseph Kalen

SAIC-Frederick, Inc., welcomes…

Parag Aggarwal
Sandra Allen
Calvin Bell, Jr.
Earl Bere, Jr.
Jennifer Bharucha
Allen Bosley, Jr.
Nannie Brooks-Thompson
Melinda Burrill
Linda Caldwell
Michelle Chakrabarti
Xiongfong Chen
Za Ci
Megan Coleman
Roxanne Cox
Samantha Crist
Lena Diaw
Marzena Dyba
Michelle English
Maudeline Etienne
Kimberly Geisinger
Margurette Getz
John Gilly
Mariana Guillen
Jennifer Hall
Timothy Harris
Bradley Hollinger
Ryan Jenkins
Jeffery Jones, Jr.
Joseph Kalen
Meghan Kelly
Britini LaBrie
John Maciolek III
Terry Mainprize
Rosa Maza
Rosemary McConnell
Laurie Menzl
Tyvin Moelin
Max Moore
Kaustav Nandy
Irene Newman
Andrew Okoth
David Parmiter
Yongzhen Qian
Uma Ramalinga
Jamie Rodriguez
Nathaniel Roman
Bonnie Salley
Joseph Shott
Dwight Simmons, Jr.
Lisa Simpson
Jeremy Smedley
Kenneth Thompson
Georgina Uhlenbrauck
Brittany Valenzuela
Junwen Wang
Kimberly Wesmiller
Mark Williams
Kathleen Wilson
Janine Wince
Xiaoying Ye
Lisa Yonosko
Yuelin Zhu
Irenna Zubal ✦

Debra Tross

Kenneth Thompson

Data Management Services (DMS)

Computers and Statistical Support

Although perhaps most widely known for our Microcomputer Support and Web Development services, C&SS also offers many other services to the NCI-Frederick community. Listed here are some of these other services.

Statistical Consultation

The Statistical Consultation group provides a wide array of mathematical and statistical consulting services to the NCI-Frederick scientific community. The director and consulting statisticians work in collaboration with principal investigators through all facets of the scientific process: from development and formulation of research and statistical hypotheses through design of experiments and statistical analyses, preparation of technical reports and modern graphics, to preparation of formal scientific documents and publications in peer-reviewed journals. ✦

Custom Software Development

Our team of analysts and developers employs the most modern methods and tools to create custom software solutions to meet the unique needs and requirements of NCI-Frederick. Our staff can assist you with both administrative and scientific programming needs, as well as Web design and development services.

Visit the C&SS web site at css.ncifcrf.gov or call 301-846-1060 for information about custom development services available from C&SS. ✦

Technology Advocacy and Consultation

As NCI-Frederick's information technology experts, C&SS continually explores and evaluates new technologies that could benefit the user community and further NCI-Frederick's mission. C&SS staff would be happy to meet with you to discuss your specific technology needs. ✦

Computer Services Helpdesk

The Computer Services Helpdesk provides the NCI-Frederick community with a single point of contact for computer assistance, information, service, and support. The Helpdesk is staffed from 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding NCI-Frederick holidays.

Requests for service can also be placed via the C&SS web site (css.ncifcrf.gov/helpdesk) at any time. ✦

Site-Licensed Software Available from the Helpdesk!

C&SS, in conjunction with the NCI, has worked to secure site licenses for many of the programs in broad use at NCI-Frederick. To view the growing list of software available from the Helpdesk, visit the C&SS web site at: css.ncifcrf.gov/resources/software.asp or contact the Computer Services Helpdesk to borrow the software or request installation assistance. ✦

Contacting C&SS

Computer Services Helpdesk
Web: css.ncifcrf.gov/helpdesk
E-mail: helpdesk@css.ncifcrf.gov
Phone: 301-846-5115

Hours of Operation:
8:00 a.m.–5:00 p.m.,
Monday through Friday

NCI-Frederick Webmasters
Phone: 301-846-6700
E-mail: webmaster@css.ncifcrf.gov
govwebmaster@css.ncifcrf.gov

Other Inquiries
Phone: 301-846-1060 ✦

You Asked for It and We Heard You!

By Kathleen Groover, Ph.D.

Not enough bench top or frozen storage space in your lab to requisition 50 boxes for review? Do you need a place to review the materials you have on inventory when you are visiting Frederick from NIH? Have changes in regulations or protocols dictated relabeling of vials? Is there vial label information that needs to be recorded in the database?

Now you'll be able to perform these and other tasks in a User Work Space at the NCI-Frederick Central Repository, Buildings 434 and 1066, beginning in June 2007, between 8:30 a.m. and 2:00 p.m. Each work space is outfitted with six feet of counter top, chairs, phone, and a computer with Internet and BioSpecimen Inventory (BSI-II) access. Repository staff will be available to assist you and will provide you with personal protective equipment, materials, and supplies so that you can safely handle specimens.

All you need to do is reserve the space for a specific time, and then requisition samples to be "shipped" to the User Work Space. When you are finished, you will submit a "return to inventory" via BSI. Repository staff will then return the samples to their permanent storage locations within the repository. Following each use of the space, repository staff will perform standard clearance procedures.

Of course, you must follow all NCI-Frederick and Fisher BioServices safety policies and procedures while working at the repository. For example, specimen vials may not be opened because these areas do *not* meet NCI-Frederick requirements for laboratory space. At this writing, standard procedures for use of the work space are available as handouts; they will soon be posted to the web site.

How did this come about? Repository staff surveyed 373 NCI-Frederick Central Repository users to determine interest in a User Work Space within repository facilities. Of the responses received, 33% were in favor of such an area, in either the nitrogen storage repository in Building 434 or the –80 °C storage repository in Building 1066. Projected use of the areas is 2–5 times per month. Fisher BioServices submitted a proposal to the Repository Quality Board and it was approved.

Please contact repository staff for more information and look for additional information to be posted on the NCI-Frederick Central Repository web site located at web.ncifcrf.gov/repository/cr/ ✦

Repository Quality Board Recognizes Years of Service

David Newman, Ph.D., Natural Products Repository Branch, and Katherine Gill, Biological Testing Branch (BTB), recently completed their service with the NCI-Frederick Repository Quality Board. ✦

Above, Dr. Newman, accepts an award from Kristin Komschlies, OAD, recognizing his 22 months of service to the NCI-Frederick Repository Quality Board.

Katherine Gill (left), BTB, accepts an award from Ms. Komschlies, recognizing Ms. Gill's 15 months of service to the NCI-Frederick Repository Quality Board.

The NCI-Frederick's Repository Quality Board recently gathered for a group picture during a reception recognizing those who were leaving the Board. Pictured are (left to right) Kathy Scarzello, Dr. Newman, Ms. Gill, Ms. Komschlies, Beth Mobley, Julie Metcalf, Phil Baird, Dr. Mike Baseler (chairperson), Dr. Jim Vaught, Dr. Kathleen Groover, Dr. Mark Cosentino, Gerald Princler, Jim Reilly, and Karen Allen.

CMRP Protocol Nurse Coordinator Meets President

By Taree Foltz

This past January, Geoffrey Seidel, a protocol nurse coordinator with the Clinical Research Directorate's (CRD's) Clinical Monitoring Research Program, met briefly with President George W. Bush, who was making his fourth visit to the Clinical Center, NIH-Bethesda, and participating in a roundtable discussion on advances in cancer prevention.

Mr. Seidel accompanied Steven Libutti, Ph.D., chief of the Tumor Angiogenesis Section, Surgery Branch, NCI-Bethesda, and an NCI patient, whose wife, a White House employee, had arranged the meeting.

Their meeting, the first time that either Mr. Seidel or Dr. Libutti had met with a U.S. president, occurred after the roundtable discussion. President Bush was accompanied by NIH Director Elias Zerhouni, Ph.D., and Brigadier General (Dr.) Richard J. Tubb, Physician to the President, and Director, White House Medical Unit, the White House.

Following the introductions, the small talk moved to the importance of getting screening colonoscopies to diagnose colon cancer in its early stages. According to Mr. Seidel, President Bush commented that he always gets an annual colonoscopy. "President Bush was very personable and charismatic. He spoke about the great work that is accomplished at NCI and thanked us for our efforts," Mr. Seidel said.

"We likewise acknowledged his support of NCI over the years, allowing cancer research to continue. The White House photographer was there, and he snapped pictures while we spoke with the President. It was a privilege and an honor to meet him," Mr. Seidel continued.

The study of tumor neovasculature and nanotechnology are two integral components of Dr. Libutti's research in the Tumor Angiogenesis Section. NCI-Frederick's connection with this work is twofold. In addition to CMRP's clinical trial-related work, the Nanotechnology Characterization Laboratory, headed by Dr. Scott McNeil at NCI-Frederick, is collaborating with Dr. Libutti on the nanotechnology clinical trials.

Mr. Seidel has more than 29 years of experience in nursing and nursing management and has worked for SAIC-Frederick, Inc., for the last six years. As a Protocol Nurse Coordinator II, he supports the 14 current clinical trials with which CRD is connected by overseeing the patient screening and evaluation process, patient treatments while on the studies, patient follow-up, and ongoing care. He also provides regulatory review and compliance for the studies, a responsibility he shares with Yvonne Shutack, M.D., an NCI Research Nurse Specialist assigned to the Section. Dr. Shutack has served with SAIC-Frederick, Inc., for nearly four years and has nearly 10 years of experience as a physician in Colombia, South America. ✦

Summer at the Scientific Library

The Scientific Library staff is in the midst of a program-packed summer for 2007.

In **June**, we had a series of student orientations. In addition, scientists from Hershey gave a presentation on *The Science of Chocolat*e. It was packed, as people enjoyed not only the scientists' informative presentation, but also the chocolate candy bars they passed out at the end of the program.

As we go to press, July has included a three-part summer video series called *Plant Wars: A Global View of Natural Medicine*. We participated in a showing and follow-up lecture on "The Science of Harry Potter" at Hood College, with a viewing of *Harry Potter and the Sorcerer's Stone*, after which Dr. George R. Plitnik, Professor of Physics, Frostburg State University (www.frostburg.edu/dept/engn/gplitnik.htm), lectured on the plausibility of some of the events in the movie.

July also included Take Your Child to Work Day (TYCTWD) and the classes "ABCs of DNA," "Structural Analysis QuickStart," and "Database Searching."

Our topic for TYCTWD was *Some Like It Hot, Some Like It Cold*. The Scientific Library staff participates in TYCTWD every year by offering a hands-on program in our Technology Training Lab, Building 549. This year's program was all about deserts—the children journeyed with us to some of the driest places on earth, meeting creatures such as coyotes, gila monsters, scorpions, even penguins, as we traveled the web.

In "QuickStart," instructors from the National Center for Biotechnology Information (NCBI) demonstrated how to visualize and annotate 3D protein structures using NCBI's Cn3D, identify conserved domain(s) present in a protein, search for other proteins containing similar domains, explore a 3D modeling template for the query protein, and find distant sequence homologs that might not be identified by BLAST.

Our REWARDS: a Multipart Learning Program takes place in **July and August**; the topic is alcohol abuse. You're also welcome to come to our free orientation on August 8. In addition, be sure to sign up early for "Making Sense of DNA and Protein Sequences," which will be offered August 22. Instructors from NCBI will teach this free, hands-on training class to help you find a gene within a eukaryotic DNA sequence; predict the function of the implied protein product by seeking sequence similarities to proteins of documented function using BLAST and other tools; and finally, we will find a 3D modeling template for this protein sequence using a Conserved Domain Database Search. **Registration is required**.

Watch e-mails for future announcements and check our web site for more details about these fun, informative, and interesting events: www-library.ncifcrf.gov/summerlibrary07.aspx. ✦

Farmers' Market

Tuesdays
11:00 a.m.–1:30 p.m.,
or until sell-out.
Through October 31st

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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.

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National Cancer Institute at Frederick
www.training.nih.gov/postdoctoral

SAIC-Frederick, Inc.
saic.ncifcrf.gov
www.saic.com

Wilson Information Services Corporation
www-library.ncifcrf.gov

Upcoming Events and Dates to Note

August 8—Summer Student Poster Day

August 10— Entry Deadline: *Poster* Puzzler

September 3—Labor Day

Every Tuesday, 11:00 a.m.–1:30 p.m. (or sellout)—Farmers' Market

Reminder: When you have a change in staff, be sure to change the information in the NCI-Frederick database. You can do this online by logging on to web.ncifcrf.gov/campus/phonebook/, 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 web.ncifcrf.gov/ThePoster

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