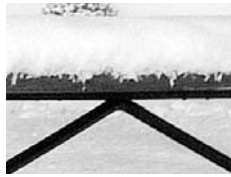


What is it?  
Where is it?

Story on page 13.



# Poster

## Science News: Genome Mapping

### LGD Collaborates to Sequence Cat Genome

By Maritta Perry Grau

NCI-Frederick investigators collaborate with fellow scientists around the world to research ways to cure cancer and other diseases, often in animal models that range from mice to elephants. Several months ago, a rather remarkable three-year collaboration through Dr. Stephen J. O'Brien's Laboratory of Genomic Diversity culminated in mapping the domestic cat (*Felis catus*) genome.

Dr. Joan Pontius, lead author on the report, explained that the National Center for Biotechnology Information (NCBI; part of the National Library of Medicine, NIH) provided six previously sequenced mammalian genomes (human, chimp, mouse, rat, dog, and cow). These were combined with other gene-mapping studies of cats, then compared to the sequences of a 4-year-old Abyssinian cat, Cinnamon.

"The information from NCBI also includes extensive annotation, for example, of the human genes and their function. These recent resources (the annotated mammalian genomes) were a great help in the annotation of the cat," Dr. Pontius said.

The study started with 817,956 sequences, "which had to be ordered with respect to one another. That's where the previous gene-mapping studies of the cat came in handy—the genetic maps of the cat (radiation hybrid maps, to be exact), which were used to help in the ordering of the sequence segments or contigs," Dr. Marilyn Raymond, staff scientist and a co-author of the study, said.



*Dr. Stephen O'Brien, Laboratory of Genomic Diversity, plays with Cinnamon, whose own genome was instrumental in the recent complete mapping of the cat genome (photo, courtesy of Dr. Kristina Narfström, University of Missouri-Columbia).*

### Comparison Helps Locate Genes of Mammalian Diseases

Feline immunodeficiency virus (FIV) is a genetic relative of HIV. Retinitis pigmentosa, a degenerative eye disease sometimes seen in cats, affects approximately 1 in 350,000 Americans (Cinnamon, who is blind, carries a genetic mutation for this disease). Because the domestic cat serves as an excellent model for human disease, both hereditary and infectious, the National Human Genome Research Institute (NHGRI) authorized the cat genome-sequencing project three years ago.

The mapping has already been "tremendously useful to researchers

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who need to identify genes associated with inherited and infectious disease in the cat and interesting phenotypes of basic biological interest,” said Dr. Raymond. For example, when Dr. Pontius “was developing her genome browser, which orders the sequence contigs and compares the order of sequence of genes in the cat relative to other sequenced mammalian genomes, we were able to use this resource immediately in some of our gene mapping studies,” Dr. Raymond explained.

Dr. Pontius added, “We now have defined over 20,000 regions in the cat as potential gene orthologs. In comparing the chromosome structure of the cat with the other mammals, we’ve been offered a glimpse of the chromosomal rearrangements that seemed to have occurred among these mammals throughout evolution.”

## Useful Developments

As well as making immediate use of the ordered sequencing, the researchers’ collaborations have also enabled them to identify *LIX1*, a gene of previously unknown function, as a novel gene for spinal muscular atrophy in the cat.

As for Cinnamon’s gene mutation for retinitis pigmentosa, Dr. Raymond said, “The mutation in the *CEP290* gene is also causative of human Joubert’s syndrome and a proportion of human cases of Leber’s congenital amaurosis. We are initiating gene therapy trials now in the cat to see if we can rescue cats with a mutation in the *CEP290* gene. If it works, this could also advance to human clinical trials.” She noted that gene therapy (RPE65, a protein of unknown function expressed in the retinal pigment epithelium) for retinal disease was successful in the dog and is now in human clinical trials.



*Cinnamon’s eyes display retinitis pigmentosa, a degenerative eye disease that affects 1 in 350,000 Americans each year (photo, courtesy of Dr. Kristina Narfström, University of Missouri-Columbia).*

Variants of DNA known as short tandem repeats (STRs) and single nucleotide polymorphisms (SNPs) were also analyzed. These variants will be useful for parentage testing, forensic analysis, and studies of evolution, including the reconstruction of domestication processes, fancy breed development, and ecological adaptation among the great cats.

“We are anticipating the complete 7X genome sequencing of the cat soon, and with it the development of a SNP chip, which will provide another invaluable resource for the mapping of genes of interest in the cat,” Dr. Raymond added.

The Cat Genome Project is based at NCI. Besides initial funding from NHGRI, the project was supported by the Intramural Research Program, a program of the Center for Cancer Research, and by NCI. Cinnamon, now 5 years old, lives in a cat colony at the University of Missouri-Columbia. ♦

## Recent Publications on the Feline Genome Project

Driscoll CA, Menotti-Raymond M, Roca AL, Hupe K, Johnson WE, Geffen E, Harley E, Delibes M, Pontier D, Kitchener AC, Yamaguchi N, O’Brien SJ, and MacDonald D. Near Eastern origins of cat domestication. *Science* 317:519, 2007. doi:10.1126/science.1139518.

Fyfe JC, Menotti-Raymond M, David VA, Brichta L., Schäffer AA, Agarwala R, Murphy WJ, Wedemeyer WJ, Gregory BL, Buzzel BL, Drummond MC, Wirth B, and O’Brien SJ (Letter). An ~140-kb deletion associated with feline spinal muscular atrophy implies an essential *LIX1* function for motor neuron survival. *Genome Research* 16(9):1084–1090, 2006.

Johnson WE, Eizirik E, Murphy WJ, Pecon-Slatery J, Antunes A, and O’Brien SJ. Evolutionary history of the cat family: An explosive late Miocene radiation. *Science* 311:73–77, 2006.

Menotti-Raymond M, David VA, Schäffer AA, Stephens R, Wells D, Kumar-Singh R, O’Brien SJ, Narfström K. Mutation in *CEP290* discovered for cat model of human retinal degeneration. *J Hered* 98(3):211–220, 2007.

Murphy WJ, David B, David VA, Agarwala R, Schäffer AA, Pearks-Wilkerson AJ, Neelam B, O’Brien SJ, and Menotti-Raymond M. A 1.5-megabase resolution radiation hybrid map of the cat genome and comparative analysis with the canine and human genomes. *Genomics* 89:189–196, 2007.

O’Brien SJ. *Cats*. *Curr Biol* 14:R988–R990, 2004.

O’Brien SJ and Johnson WE. The evolution of cats. *Sci American* 297(1):68–77, 2007.

O’Brien SJ, Menotti-Raymond M, Murphy WJ, Yuhki N. The Feline Genome Project. *Ann Rev Genetics* 36:657–686, 2002.

Pontius JU, Mullikin JC, Smith D (Agencourt Sequencing Team); Lindblad-Toh K, Gnerre S, Clamp M, Chang J, Stephens R, Neelam B, Volfovsky N, Schäffer AA, Agarwala R, Narfström K, Murphy WJ, Giger U, Roca AL, Antunes A, Menotti-Raymond M, Yuhki N, Pecon-Slatery J, Johnson WE, Bourque G, Tesler G (NISC Comparative Sequencing Program); and O’Brien SJ. Initial sequence and comparative analysis of the cat genome. *Genome Res* 17:1675–1689, 2007. doi:10.1101/gr.6380007.

Pontius JU and O’Brien SJ. Genome annotation resource fields—GARFIELD: A genome browser for *Felis catus*. *J. Hered.*, 98: 386–389. 2007.



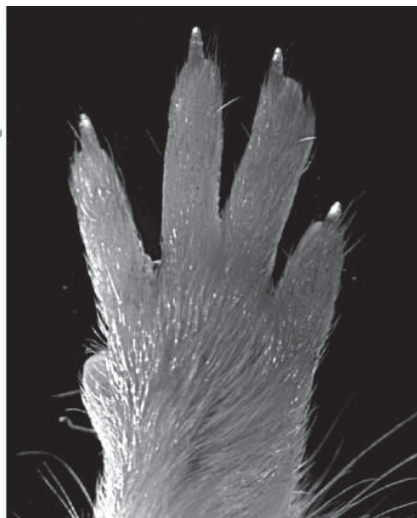
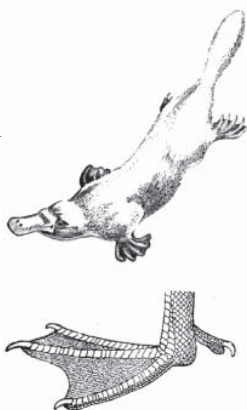
## Why Don't We All Have Webbed Hands and Feet?

By Mark Lewandoski, Ph.D.

*Editor's Note: Why do some creatures have webbed feet, hands, paws, or wings, and others don't? The answer may lie in a recent discovery by Mark Lewandoski, Ph.D., Laboratory of Cancer and Development Biology, and colleagues at NCI-Frederick. Their research over the past two years indicates that certain growth factors and proteins send signals to developing limbs, telling the limbs' cells whether or not to stop development that would otherwise create webbing between digits. The researchers' work appeared in the journal Development, April 2007.*

Next time you glance at an arm or leg, you might ask, "How did this limb form?" We've learned a lot about limb development, thanks to 50 years of chick experimental embryology research and mouse genetics, from classical mutants to current cutting-edge gene manipulations.

The embryonic limb looks simple—merely a bud of loosely packed cells surrounded by a jacket of more tightly packed cells. We know that certain regions in this simple structure are actually signaling centers that secrete molecules that pattern the limb in three dimensions: from thumb to pinky, shoulder to fingertip, and back of the hand to palm. We also know most of the molecules that are secreted from these signaling centers and some of the genes activated in the cells that receive these signals. However, we don't know how different signaling pathways interact with each other; how they are integrated in the receiving cell; or how all these interacting signaling pathways actually generate the pattern of bones, muscle, tendons, and skin that make up specific limb patterns.



While understanding limb development per se is fascinating in its own right, more important is learning about the interactions of signaling pathways and their effect on limb development. First, understanding limb development gives us insight into the variety of human congenital limb abnormalities which occur about once every thousand births. Second, knowing how the limb develops helps us to understand how evolutionary processes have acted to generate, for example, a bat's wing or a horse's hoof. Third, the molecular mechanisms that control limb

genes in specific cells of the developing mouse limb and to study how the tissue between the digits (the interdigit region) normally dies away in mice and humans (although in some species, this tissue persists to form a web).

A major insight detailed in this paper is that one class of signaling molecules, the Bone morphogenetic proteins (Bmps), controls cell death in the interdigit region by controlling the withdrawal of another class of signals, the Fibroblast growth factors (Fgfs). In this system, the Fgfs act as survival signals, so their withdrawal triggers cell death.

growth also act outside the limb, in different aspects of normal embryonic development, as well as during the abnormal processes that control the growth and death of cancer cells.

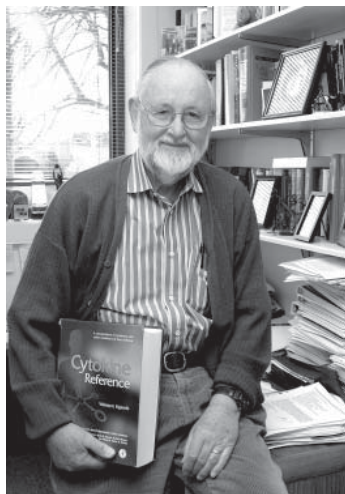
Those of us in the Laboratory of Cancer and Development Biology, along with other colleagues, have addressed how different signaling pathways interact and how the final pattern is formed in a recent paper, "BMP Signals Control Limb Bud Interdigital Programmed Cell Death by Regulating FGF Signaling" (*Development* 134:2359, 2007). We used a technique (conditional control of gene expression with Cre-mediated DNA recombination) to manipulate

This work challenges the prevailing belief that Bmps directly trigger cell death, without intermediaries. Since the specific Bmps and Fgf genes that we found were responsible for this aspect of limb development and also affect how cells grow and die in colorectal and mammary tumors, our work is relevant to cancer studies. In addition, a recent paper by a fellow researcher shows that similar signaling pathways explain why the cells between the digits of the developing bat wing do not die.

Currently, we are exploring how the Bmp and Fgf signaling pathways interact to control the bone pattern of the limb. ♦

### *Tripping Your Body's Alarm System*

By Maritta Perry Grau



*Joost Oppenheim, Ph.D.,  
Chief, Laboratory of Molecular Immunoregulation*

Your body has its own special alarm system to activate a host defense network against injury and invaders. In the last three years, Drs. Joost Oppenheim, De Yang, and their colleagues in the Laboratory of

Molecular Immunoregulation have proposed that certain molecules, called *alarmins*, activate that system.

Alarmins consist of a diverse group of structurally unrelated molecules that serve various functions, such as antimicrobial activity. That's when your body's defense system goes to work—with alarmins such as defensins; cathelicidin; EDN, the eosinophil-derived neurotoxin (the only member of the RNase family with alarmin activity); and High Mobility Group Box 1 (HMGB-1), a nuclear finding protein.

Some of these defensins are stored in neutrophil granules, while others are found in epithelial cells, in the lining of the bronchial tree, in the gastrointestinal and genitourinary tracts, and in the skin. Thus, when these epithelial lining cells or leukocytes are stimulated or injured, the alarmins are immediately released and become rapidly available to exert their antimicrobial and antiviral effects, as well as their alarmin effects.

Experimental clues to support Dr.

Oppenheim's theory about alarmins have been accumulating over the past decade, but scientists are just now beginning to explore the concept. The Oppenheim group's report that leukocyte and epithelial cell-derived molecules act on host cell receptors with activating effects attracted considerable attention, and Dr. Oppenheim was cited as a "rising star" in immunology by "In-Cites," an editorial component of *Essential Science Indicators* from Thomson Scientific in 2006.

Currently, Dr. Oppenheim's group is researching several other granule-derived proteins, such as lactoferrin and granulysin, that they believe have alarmin activity. "It is our aim to identify a potent activator of immunity that can be administered in vaccines along with antigens to increase our resistance to tumors and infectious agents. We hope that molecules we generate will be less toxic and tolerated better than vaccine adjuvants derived from micro-organisms," Dr. Oppenheim said. ♦

*De Yang, Qian Chen, Shao Bo Su, Ping Zhang, Kahori Kurosaka, Rachel Caspi, Suzanne Michalek, Helene Rosenberg, Ning Zhang, and Joost Oppenheim*

### *Eosinophil-derived neurotoxin acts as an alarmin to activate the TLR2–MyD88 signal pathway in dendritic cells and enhances Th2 immune responses*

*The Journal of Experimental Medicine 205 (Jan): 79–90, 2008*

Eosinophil-derived neurotoxin (EDN) is an eosinophil granule-derived secretory protein with ribonuclease and antiviral activity. We have previously shown that EDN can induce the migration and maturation of dendritic cells (DCs). Here, we report that EDN can activate myeloid DCs by triggering the Toll-like receptor (TLR)2–myeloid differentiation factor 88 signaling pathway, thus establishing EDN as an endogenous ligand of TLR2. EDN activates TLR2 independently of TLR1 or

TLR6. When mice were immunized with ovalbumin (OVA) together with EDN or with EDN-treated OVA-loaded DCs, EDN enhanced OVA-specific T helper (Th)2-biased immune responses as indicated by predominant production of OVA-specific interleukin (IL)-5, IL-6, IL-10, and IL-13, as well as higher levels of immunoglobulin (Ig)G1 than IgG2a. Based on its ability to serve as a chemoattractant and activator of DCs, as well as the capacity to enhance antigen-specific immune responses, we

consider EDN to have the properties of an endogenous alarmin that alerts the adaptive immune system for preferential enhancement of antigen-specific Th2 immune responses.

To access the complete article, please visit <http://www.jem.org/>. The DOI search field is [doi:10.1084/jem.20062027](https://doi.org/10.1084/jem.20062027).

The following 24 articles have appeared during the past quarter in 13 of the most prestigious science journals. The articles reflect the broad scope of cutting-edge research done at NCI-Frederick.

## Biochemistry and Biophysics

**Bong YS, Lee HS, Carim-Todd L, Mood K, Nishanian TG, Tessarollo L, Daar IO.** EphrinB1 signals from the cell surface to the nucleus by recruitment of STAT3. *Proc Natl Acad Sci USA* 104(44):17305–17310, 2007.

**Hong SH, Cho YW, Yu LR, Yu H, Veenstra TD, Ge K.** Identification of JmjC domain-containing UTX and JMJD3 as histone H3 lysine 27 demethylases. *Proc Natl Acad Sci USA* 104(47):18439–18444, 2007.

**Liu J, Nussinov R.** Allosteric effects in the marginally stable von Hippel Lindau tumor suppressor protein and allosteric-based rescue mutant design. *Proc Natl Acad Sci USA* 2008.

## Cellular Immunology and Immune Regulation

**Ahlenstiel G, Martin MP, Gao X, Carrington M, Rehermann B.** Distinct KIR/HLA compound genotypes affect the kinetics of human antiviral natural killer cell responses. *J Clin Invest* 2008.

**Albu DI, Feng DY, Bhattacharya D, Jenkins NA, Copeland NG, Liu PT, Avram D.** BCL11B is required for positive selection and survival of double-positive thymocytes. *J Exp Med* 204(12):3003–3015, 2007.

**Alter G, Martin MP, Teigen N, Carr WH, Suscovich TJ, Schneidewind A, Streeck H, Waring M, Meier A, Brander C, Lifson JD, Allen TM, Carrington M, Altfeld M.** Differential natural killer cell-mediated inhibition of HIV-1 replication based on distinct KIR/HLA subtypes. *J Exp Med* 204(12):3027–3036, 2007.

**Baba M, Furihata M, Hong SB, Tessarollo L, Haines DC, Southon E, Patel V, Igarashi P, Alvord WG, Leighty R, Yao M, Bernardo M, Ieva L, Choyke P, Warren MB, Zbar B, Linehan WM, Schmidt LS.** Kidney-targeted Birt-Hogg-

Dubé gene inactivation in a mouse model: Erk1/2 and Akt-mTOR activation, cell hyperproliferation, and polycystic kidneys. *J Natl Cancer Inst* 100(2):140–154, 2008.

**Hallett WHD, Ames E, Motarjemi M, Barao I, Shanker A, Tamang DL, Sayers TJ, Hudig D, Murphy WJ.** Sensitization of tumor cells to NK cell-mediated killing by proteasome inhibition. *J Immunol* 180(1):163–170, 2008.

**Horak CE, Mendoza A, Vega-Valle E, Albaugh M, Graff-Cherry C, McDermott WG, Hua E, Merino MJ, Steinberg SM, Khanna C, Steeg PS.** Nm23-H1 suppresses metastasis by inhibiting expression of the lysophosphatidic acid receptor EDG2. *Cancer Res* 67(24):11751–11759, 2007.

## Cell, Tumor, and Stem Cell Biology

**Jablonska B, Aguirre A, Vandenbosch R, Belachew S, Berthet C, Kaldis P, Gallo V.** Cdk2 is critical for proliferation and self-renewal of neural progenitor cells in the adult subventricular zone. *J Cell Biol* 179(6):1231–1245, 2007.

## Experimental Therapeutics, Molecular Targets, and Chemical Biology

**Calvani M, Trisciuglio D, Bergamaschi C, Shoemaker RH, Melillo G.** Differential involvement of vascular endothelial growth factor in the survival of hypoxic colon cancer cells. *Cancer Res* 68(1):285–291, 2008.

## Gene Structure and Regulation

**Pujana MA, Han JDJ, Starita LM, Stevens KN, Tewari M, Ahn JS, Rennert G, Moreno V, Kirchhoff T, Gold B, Assmann V, ElShamy WM, Rual JF, Levine D, Rozek LS, Gelman RS, Gunsalus KC, Greenberg RA, Sobhian B, Bertin N, Venkatesan K, Ayivi-Guedehoussou N, Sole X, Hernandez P, Lazaro C, Nathanson KL, Weber BL, Cusick ME, Hill DE, Offit K, Livingston DM, Gruber SB, Parvin JD, Vidal M.** Network modeling links breast cancer susceptibility and centrosome dysfunction. *Nat Genet* 39(11):1338–1349, 2007.

## Genetics

**Datta S, Costantino N, Zhou X, Court DL.** Identification and analysis of recombineering functions from Gram-negative and Gram-positive bacteria and their phages. *Proc Natl Acad Sci USA* 105(5):1626–1631, 2008.

## Immunobiology

**Goldszmid RS, Bafica A, Jankovic D, Feng CG, Caspar P, Winkler-Pickett R, Trinchieri G, Sher A.** TAP-1 indirectly regulates CD4(+) T cell priming in *Toxoplasma gondii* infection by controlling NK cell IFN-gamma production. *J Exp Med* 204(11):2591–2602, 2007.

**Yang D, Chen Q, Su SB, Zhang P, Kurosaka K, Caspi RR, Michalek SM, Rosenberg HF, Zhang N, Oppenheim JJ.** Eosinophil-derived neurotoxin acts as an alarmin to activate the TLR2–MyD88 signal pathway in dendritic cells and enhances Th2 immune responses. *J Exp Med* 2008.

## Mechanisms of Signal Transduction

**Bergamaschi C, Rosati M, Jalah R, Valentin A, Kulkarni V, Alicea C, Zhang GM, Patel V, Felber BK, Pavlakis GN.** Intracellular interaction of IL-15 with its receptor alpha during production leads to mutual stabilization and increased bioactivity. *J Biol Chem* 2007.

**Caposio P, Gugliesi F, Zannetti C, Sponza S, Mondini M, Medico E, Hiscott J, Young HA, Gribaudo G, Gariglio M, Landolfo S.** A novel role of the interferon-inducible protein IFI16 as inducer of proinflammatory molecules in endothelial cells. *J Biol Chem* 282(46):33515–33529, 2007.

**Curcio MJ, Kenny AE, Moore S, Garfinkel DJ, Weintraub M, Gamache ER, Scholes DT.** S-phase checkpoint pathways stimulate the mobility of the retrovirus-like transposon Ty1. *Mol Cell Biol* 27(24):8874–8885, 2007.

**Zdanov A, Wlodawer A.** A new look at cytokine signaling. *Cell* 132(2):179–181, 2008.

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## Medical Science

**Boyer JD, Robinson TM, Kutzler MA, Vansant G, Hokey DA, Kumar S, Parkinson R, Wu L, Sidhu MK, Pavlakis GN, Felber BK, Brown C, Silvera P, Lewis MG, Monforte J, Waldmann TA, Eldridge J, Weiner DB.** Protection against simian/human immunodeficiency virus (SHIV) 89.6P in macaques after coimmunization with SHIV antigen and IL-15 plasmid. *Proc Natl Acad Sci USA* 104(47):18648–18653, 2007.

## Molecular Basis of Cell and Developmental Biology

**Carlson BA, Moustafa ME, Sengupta A, Schweizer U, Shrimali R, Rao M, Zhong**

**N, Wang S, Feigenbaum L, Lee BJ, Gladyshev VN, Hatfield DL.** Selective restoration of the selenoprotein population in a mouse hepatocyte selenoproteinless background with different mutant selenocysteine tRNAs lacking Um34. *J Biol Chem* 282(45):32591–32602, 2007.

## Neoplasia

**Wang LH, Yang XY, Zhang XH, Farrar WL.** Inhibition of adhesive interaction between multiple myeloma and bone marrow stromal cells by PPAR gamma cross talk with NF-kappa B and C/EBP beta. *Blood* 110(13):4373–4384, 2007.

## Protein Function, Structure, and Folding

**Tsai YC, Mendoza A, Mariano JM, Zhou M, Kostova Z, Chen B, Veenstra T, Hewitt SM, Helman LJ, Khanna C, Weissman AM.** The ubiquitin ligase gp78 promotes sarcoma metastasis by targeting KAI1 for degradation. *Nat Med* 13(12):1504–1509, 2007.

## Receptor Biology

**Ilani T, Khanna C, Zhou M, Veenstra TD, Bretscher A.** Immune synapse formation requires ZAP-70 recruitment by ezrin and CD43 removal by moesin. *J Cell Biol* 179(4):733–746, 2007. ♦

## NCI-Frederick Programs

**NCI-Frederick/Ft. Detrick Fitness Challenge 2008**  
[saic.ncifcrf.gov/fitnesschallenge/](http://saic.ncifcrf.gov/fitnesschallenge/)

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

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

## Science News: Kidney Cancer

### *New BHD-knockout Mouse Model Could Help Test Therapeutic Drugs against Kidney Cancer*

By Maritta Perry Grau



kidney failure by the time they were three weeks old, while those treated with rapamycin developed a more normal kidney size and lived almost twice as long (41.5 versus 23 days).

In research to generate a mouse model of Birt-Hogg-Dubé (BHD) syndrome, Drs. Masaya Baba, Laura Schmidt, and colleagues in the Urologic Oncology Branch have successfully mutated both copies of the *FLCN* gene in mouse kidney cells, producing enlarged cystic kidneys that do not function properly.

Their mouse model may be helpful in testing therapeutic drugs for efficacy against kidney cancer.

The group treated kidney cells isolated from *BHD* knockout and control mice with rapamycin, a strong immunosuppressant drug given to prevent the body from rejecting an organ or bone marrow transplant that may be useful to treat cancer, due to its antiproliferative properties. They also treated the mice directly with this drug.

The results? The untreated *BHD*-knockout mice developed huge kidneys filled with cysts and died from

Why is the *FLCN* gene important?

The gene may play a significant role in cell growth. Normally, the *FLCN* gene tells the body how to make folliculin (a protein that may control cell growth

and thus may be a tumor suppressor). We receive one *FLCN* gene from each parent. Just one mutated copy may be all that is needed to cause the papules associated with BHD. Researchers think that when both copies of *FLCN* are disabled by mutation in a single kidney cell, instructions for making folliculin are lost, thus allowing these cells to grow out of control and to form kidney tumors.

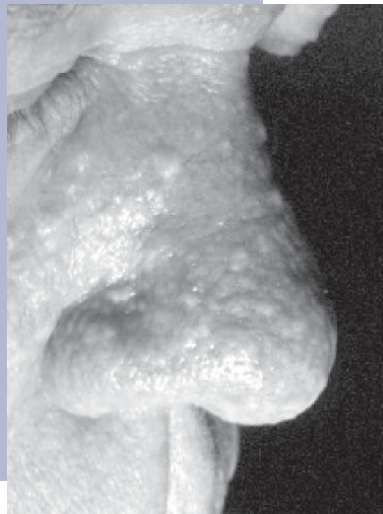
Therefore, the generation of a mouse model of BHD by Drs. Baba, Schmidt, and their colleagues is an extremely important achievement and may help in testing potential therapeutic drugs against kidney cancer.

“The conditional BHD-knockout mouse is a useful research model for dissecting multistep kidney carcinogenesis. Rapamycin is a potential treatment for Birt-Hogg-Dubé syndrome,” the authors

concluded in a January article published in the *Journal of the National Cancer Institute* (Baba M, et al. Kidney-targeted BHD Inactivation in a Mouse Model: Erk1/2 and Akt-mTOR Activation, Cell Hyperproliferation, and Polycystic Kidneys. *J. Nat. Cancer Inst.* 100(2):140–154, 2008. doi: 10.1093/jnci/djm288).

More information on BHD is available at NCI’s on-line dictionary of cancer terms, [www.cancer.gov/templates/db\\_alpha.aspx?CdrID=285947](http://www.cancer.gov/templates/db_alpha.aspx?CdrID=285947). Or, you can check out Genetic Home Reference, the NIH Web site for the U.S. Library of Medicine, which

gives you links to articles written in clear language for laypeople and researchers: <http://ghr.nlm.nih.gov/condition=birthoggdubesyndrome>. ♦



*A patient with Birt-Hogg-Dubé syndrome exhibits characteristic skin papules. Such papules often begin to appear on head and torso by age 30 or 40.*



# Outreach and Special Programs

## Alternative Science Careers

### *Are You Comfortable with College Students?*

By Nancy Parrish

Teaching 3 classes in 3 different courses, preparing labs, revising a manuscript, attending committee meetings, speaking in the community, advising students, reviewing homework, grading lab reports and quizzes, conducting seminars—these activities fill a typical week in the life of a professor of biology at a small, liberal arts college. This was the kind of information presented in the workshop on Academic Life in a Small College, at Hood College on January 18.

### *Career Development Activity*

A collaboration among the NIH Office of Intramural Training and Education (OITE), NCI-Frederick, and Hood College, the workshop provided trainees in the NIH Intramural Research Program (IRP) a glimpse of real life at a small, private liberal arts college. This workshop, which drew 60 attendees from both the Frederick and Bethesda campuses, was one of dozens of events organized by OITE every year to enrich the experience of IRP trainees by offering relevant career development activities.

### *Difference between Small and Large*

Faculty from the mathematics, biology, and physics departments offered a realistic picture of life in academia, with some eye-opening perspectives on such aspects as salaries, tenure, teaching load, research opportunities, teaching support, and even interviewing for a position. Speakers emphasized the difference between working at a small, liberal arts college, where the activity is student-centered, and a large university, where the activity often centers around research. At a small college, research must attract students, and it is done

using campus facilities, which can be limiting—and slow.

At a small college like Hood, you may be the sole representative of your discipline; in fact, you may be the entire department. You do all the prep work for labs; you get no help with grading homework, lab reports, quizzes, and exams. Your time is expected to be divided among teaching (60%), scholarship (30%), and service (10%), which covers all activities outside of the classroom.



### *The Good News Is...*

On the “plus” side, however, you develop close relationships with students and colleagues. You have responsibility for your own courses, so you’ll have the freedom to design them as you see fit. In addition, you will likely be teaching outside your specific area of graduate training and teaching students with a wide range of abilities. This environment opens new learning opportunities, and enables you to develop an array of teaching skills and participate in a variety of interdisciplinary teaching opportunities.

### *Handling the Job Interview Process*

Sound advice was also given on handling the job interview, from what to include in your letter of application to what questions to ask—and expect—during the interview. Do your homework on the institution, every member of the search committee, and anyone else you know you will be meeting. You also must be prepared to give a talk, which should represent your best work. “Let your personality

come through in the interview,” advised one faculty member.

Following a tour of the classrooms and labs, presentations covered other topics, including professional development, salaries, life at a small college, and adjunct, part-time, and visiting teaching positions. Faculty emphasized that you must have solid teaching experience to even be considered for a full-time position, so if you are interested in a career at a small college, you should take advantage of opportunities to teach as an adjunct or visiting faculty member.

### *Ask Yourself: Do I Really Want to Teach?*

The bottom line: you must ask yourself if you really want to teach. How will you know? According to the Hood College faculty, you should feel comfortable being with college students; teaching outside of your specific discipline; teaching to a wide variety of abilities; and conducting research with students. In addition, you must enjoy having close camaraderie with students and colleagues alike; working independently; and teaching small classes. At a small, liberal arts college, teaching comes first, research second. If you’re comfortable with that, go for it.

For more information about career development events, contact Julie Hartman, Office of Outreach and Special Programs, 301-846-7338; [jhartman@mail.nih.gov](mailto:jhartman@mail.nih.gov). For information on the OITE, visit the web site: <http://www.training.nih.gov/aboutoite.asp>. ♦



## Use Caution with CFL Clean-Up

By Paul Stokely

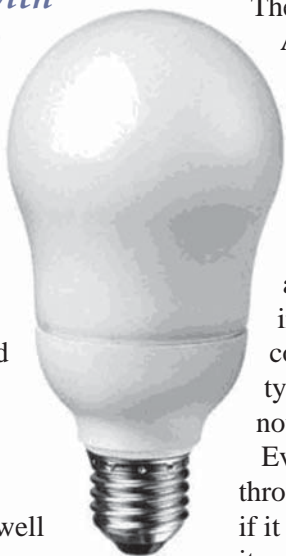
Two important issues received attention recently from the federal government: (1) In December 2007, President Bush signed the Energy Security and Independence Act of 2007, which set new efficiency standards for cars as well as household appliances, including light bulbs; and (2) federal legislation mandates that, on February 9, 2009, all full-power television broadcasters in the area will cease transmitting analog signals, requiring television viewers to either purchase newer digital TVs or buy a converter.

Both of these changes will present some long-term issues for the region. In this article, we will focus on recycling compact fluorescent bulbs, since they have become so popular in the past few years. Part II, in the June *Poster*, will highlight TV converters and e-cycling.

### Compact Fluorescent Bulbs: Pros and Cons

Compact fluorescent lamps (CFLs) offer an efficient alternative to incandescent bulbs. They require less energy to provide light; they last up to 10 times longer than incandescent bulbs, so they are also cost-efficient.

However, CFLs contain mercury, a potent and persistent neurotoxin, of special concern when infants and children are in the vicinity. CFLs contain 4 to 8 milligrams of mercury (many old-style “fever” thermometers contain 3 to 5 grams) sealed inside a glass tube. Thus, disposal of used and broken CFLs must be done carefully.



The Environmental Protection Agency (EPA), the Maryland Department of the Environment, and bulb manufacturers all publish steps to take when cleaning up broken CFLs (see “How to Clean Up Broken CFLs” below). Many manufacturers also produce CFLs with the tube inside a plastic cover which would contain any broken pieces. These types of CFLs are bulkier and may not fit into every lamp or sconce.

Even if it’s unbroken, you shouldn’t throw your CFL in the regular trash; if it were then to break in the landfill, it would emit mercury. Counties in Maryland, Pennsylvania, and West Virginia all have collection centers or events for the disposal of mercury and other hazardous wastes.

Despite concerns about exposure to mercury from broken bulbs, CFL usage continues to grow, partly because of energy savings potential and partly because of an awareness of the impact of power companies on the environment. According to the Maryland Department of the Environment *Report on Mercury and Products that Contain Mercury* (October 2004 <http://www.mde.state.md.us/assets/document/Mercury%20Report%202004%20-%20FINAL.pdf>), the largest source of mercury in Maryland’s environment is

from electric utilities, which burn coal, releasing mercury into the environment as a byproduct.

### Earth Day Events Scheduled for April 22

We can all be proud of our recycling efforts. Nationally, through the Environmental Protection Agency, we will celebrate the 37<sup>th</sup> annual Earth Day on April 22. Discover what you and other Marylanders can do to commemorate Earth Day by going to <http://www.epa.gov/region03/earthday/>. You can also check out Fort Detrick’s March observances on page 13.

Do you know how/what to recycle? Please read NCI-Frederick’s recycling procedures and policies at <http://home.ncifcrf.gov/ehs/recycling/> and <http://home.ncifcrf.gov/ehs/ehs.asp?id=79>.

Find out what local organizations, companies, and governments are doing to spur recycling; improve our lakes, rivers, and streams; lessen our dependence on fossil fuels; and improve air quality in the region. Watch NCI-Frederick e-mail announcements for communitywide and Fort Detrick seminars, rallies, and opportunities to volunteer your time in helping clean up the environment in Frederick and the surrounding counties. ♦

### How to Clean Up Broken CFLs

1. Do NOT use a vacuum!
2. Leave the room for 15 minutes.
3. Put on a pair of gloves to protect your hands.
4. If the pieces are on a *hard surface*, use a straight edge, such as cardboard or a credit card, to push the pieces into a dustpan, and empty the pieces into a sealable plastic bag.
5. If the pieces are on *carpet*, use duct tape or something stickier to collect the pieces, and place tape and all into a sealable plastic bag.
6. Take the bag and its contents to a hazardous waste collection center.

### *Winning Chili Scorches the Competition*

By Nancy Parrish



A pleasing combination of texture and spices. Not much heat in your mouth. Swallow. Now the

heat spreads almost imperceptibly over your tongue and throat, finishing with a noticeable kick (some might call it a punch). This is what made Paul Stokely's "Ring of Fire" the clear winner in the 5th Annual Chili Cook-off sponsored by Protective Services in January.

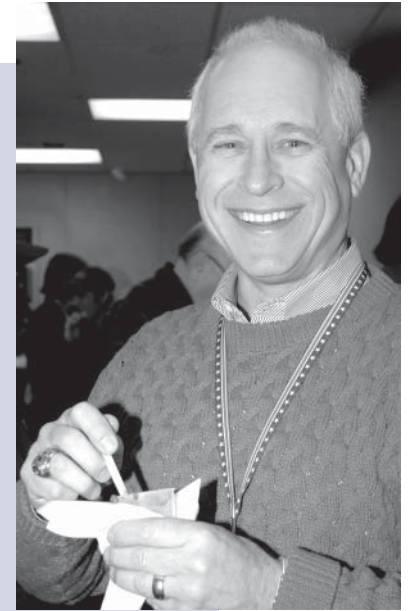
Sixteen contestants brought in their chilis to compete for the prized, 30-day reserved parking space. However, it was no contest, with Mr. Stokely's entry earning nearly twice as many votes as the two second-place winners. Mary Carol Fleming (the 2005 first-place winner) and Valerie Jackson each won a 15-day reserved parking space, and the third place, 5-day reserved space, went to J.T. Moore.

*"Plainly, she's a much better cook than I."*

Mr. Stokely credited his wife with the winning recipe. Having come in "dead last" in the contest two years ago and second-to-last a year ago, he said he didn't even want to enter this year. As the event drew closer, however, his wife encouraged him to participate. In the end, it was Sarah Stokely who created the chili "pretty much from what she could find in the 'fridge," he said, adding, "Plainly, she's a much better cook than I." Ironically, Mrs. Stokely is a vegetarian and never even tasted her creation. Mr. Stokely added

a few more seasonings the morning of the event, but he said he could not duplicate this recipe. He knows for sure that the chili contained ground beef, Italian sausage, and bacon. The authentic southwestern flavors came from ground ancho, chipotle, and piquin chilis, which Mr. Stokely had received as a gift.

Mr. Stokely was thrilled with his 30-day parking space, although he said where he works (Building 1071), parking is not a problem. However, he





## Protective Services



hoped to arrange for a space outside Building 426, where many of his coworkers are located. “Whoever pleases me will be rewarded with a parking space,” he said with a chuckle.

### *Ever Hopeful*

Tom Gannon-Miller, Manager of Protective Services, had high hopes for his chili this year because he changed recipes. His chili came in fourth from last, an improvement over previous years. Keep working on it, Tom. ♦



### *A Bit of History*

The first known chili competition was held in 1952, but competitions really took hold in 1967, when Carroll Shelby (of car racing fame) and Frank Tolbert, a journalist, held a contest in Terlingua, Texas. Shelby wanted to sell some land, and Tolbert wanted to promote his new book on chili, called *A Bowl of Red*. The competition pitted Wick Fowler, considered Texas' best chili chef, against H. Allen Smith, an “Outsider” (the term Texans give to anyone non-Texan). Although the contest was declared a draw, the publicity forever changed the way people thought of chili.

Sources: Texas Cooking Online, <http://www.texascooking.com>; <http://www.manlyweb.com/food/chili.html>.



## Poster Puzzler Winner



**Congratulations to the December 2007 Poster Puzzler winner! Karyol Poole, Regulatory Affairs Specialist, Biopharmaceutical Development Program, right, with Paul Miller, Executive Editor of the *Poster*.**

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

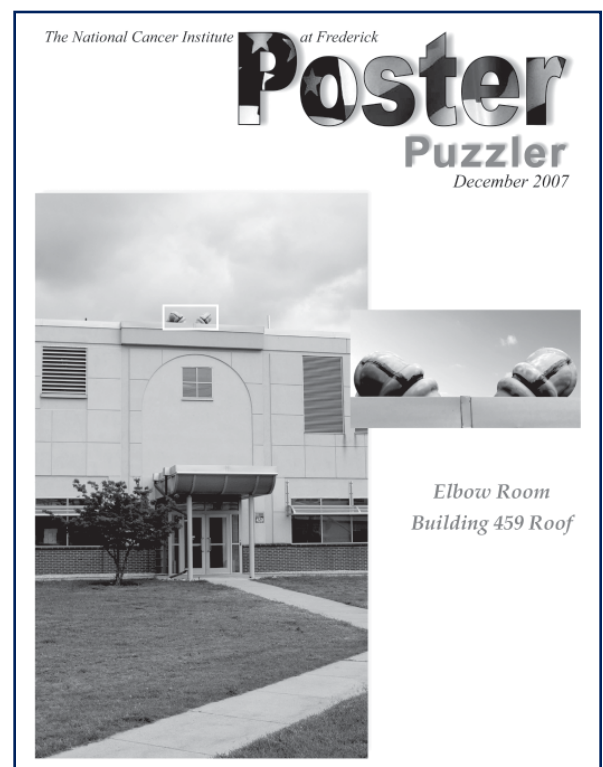
#### ***Elbow Room***

*By Nancy Parrish*

December's Puzzler is a photo of the chilled water pipes on the roof of Building 459. Installed when the building was renovated in the mid-1990s, these pipes are vital to the air conditioning system in the building because they carry water from the central chiller plant to the air handlers in the attic. What you actually see in the picture are the prefabricated insulation elbows. There are five central chiller plants on our campus, each supplying chilled water to a group of adjacent buildings through a complex system of pipes. This piping, for the most part, is overhead and looks exactly like the steam piping featured as the puzzler in the June 2005 issue of the *Poster*.

Thanks to all the participants in the December 2007 Poster Puzzler!

*Special thanks to Rocky Follin of FME for providing information for this article. ♦*



## Poster Puzzler

### What is it?

### Where is it?

Your challenge, should you decide to accept it, is to correctly identify the item and its location from the picture to the right. Clue: It's somewhere at Fort Detrick/NCI-Frederick. Win a framed photograph of the Poster Puzzler and an NCI-Frederick tee shirt by e-mailing your guess, along with your name, e-mail address, and daytime phone number, to Poster Puzzler at [poster@ncifcrf.gov](mailto:poster@ncifcrf.gov). Alternatively, you can send us your guess, along with your name and daytime phone number on one of the *Poster* forms found on the front of the *Poster* stands in the lobbies of Buildings 426 and 549. All entries must be received by **Friday, April 18, 2008**, and the winner will be drawn from all correct answers received by that date.

Good luck and good hunting! ♦



## Celebrate Earth Day at Fort Detrick on March 20

Fort Detrick celebrates Earth Day on March 20 from 10:00 a.m. until 2:00 p.m. at Strough Auditorium and the H.O.T. Dome. "A Rainforest Adventure" will be presented in the auditorium at 10:00. Representatives from the Catocin Zoo, Army Corps of Engineers, U.S. Green Building Council, General Services Administration, RIID Insect Display, and Chesapeake Bay Restoration will provide information on conservation, recycling, and more. Children's activities will include face painting, balloon sculpture, crafts, games, and prizes.

**Wondering about hybrid vehicles?** Representatives from Honda and Toyota will answer questions and

demonstrate the ins and outs of the hybrid vehicle.

**Tired of using plastic grocery bags?** Bring in at least 10 plastic grocery bags to receive a reusable grocery tote. Proceeds from the recycling of the plastic bags will go towards the Fort Detrick recycling program.

**Know how to recycle used batteries?** Visit the Environmental Management Office Hazardous Waste Display and turn in your old rechargeable or alkaline batteries.

**Win a basket of goodies!** Take the pledge to participate in the 30 Days of Green Campaign and be eligible to win a "Clean Green" basket of goodies. Drawing will be held on International Earth Day, April 22. ♦



## Poster People Profile

### *Susan Koogle: Traveling Sports Fan*

By Nancy Parrish

Ask Susan Koogle how the hot dogs are at Yankee Stadium, where the best views are at Qualcomm Stadium in San Diego, or whether they serve chowder at Banknorth Garden in Boston, and she can tell you. She and her husband Steve, who works in Acquisitions and Logistical Services at SAIC-Frederick, Inc., have been traveling to professional baseball, football, and hockey games for the 28 years of their marriage. “We started with the University of Maryland football and basketball teams, and then switched to pro teams in the 1990s,” explained Ms. Koogle.

Today, the couple’s goal is to visit every major league baseball stadium, every National Football League stadium, and every National Hockey League arena in the country. And they’re doing pretty well, having visited all but 2 of the 30 major league baseball parks (Busch Stadium in St. Louis and Rogers Centre in Toronto are still on the list), all but three football stadiums, and all but four hockey arenas. “We also go to minor league baseball...and minor league hockey games, and some college basketball, baseball, and football games.”

#### *34 Years at NCI-Frederick*

When she’s not planning a trip, taking a trip, or returning from a trip to a game, Ms. Koogle works as a Computer Operator III for Data Management Services, where she is responsible for data entry and processing shared service data. With more than 34 years of service at NCI-Frederick, she has witnessed the tremendous growth of the facility, as well as significant technological changes. When she started in the early 1970s, she keyed data for personnel, payroll, accounts payable, purchasing,

and the “animal farm,” she says, “because this place was just one company.”

Reading her personal profile is like reading a history of NCI-Frederick and its contractors. Ms. Koogle was here when Litton Bionetics was the only contractor for the facility. She was here when NCI moved the work from one contractor to five (Data Management Services for the library; Information Management Services for the computer services; Advanced BioScience Laboratories for the Basic Research Program; Harlen Sprague Dawley for animal production; and Program Resources Inc. for operations and technical support). She performed data processing for the payrolls of all five contractors, and has continued in this capacity, along with performing other data processing functions, through all subsequent contractor changes.

#### *No More Boxes of Reports*

Ms. Koogle feels one of the biggest changes she has seen over the years in her position is the reduction in the amount of keying and number of reports that have to be printed for the customers. “Back in the old days, we used to print boxes and boxes of reports from NIH at month end. We did payroll, time cards, labels, invoices, cage cards, FME reports, and many other different forms.” Now that many people have their own printers, she says, the demand for these reports has dropped off.

She also notes that the kinds of software applications in use today are significantly different from those used years ago. “In the ’70s and ’80s, everyone was programming in Cobol and Fortran, and we were keying data on computer cards. Then in the ’90s,



*Susan Koogle, Computer Operator III  
Data Management Services*

everyone got their own PCs, we keyed the data on tapes. Now everyone wants their own web site.” She has taken many classes in computer applications and web page design just to keep up with the new programs.

#### *Enjoys Contributing to the Research Effort*

Ms. Koogle enjoys the fact that her work here contributes to the research effort at NCI-Frederick. “I like entering data that might make a difference in the labs,” she commented. And she seems to have made a difference because, she says, she has received letters from customers complimenting her performance in preparing data. She also finds the interaction with people rewarding because she likes “meeting and talking to people.”

That’s a good thing because, no doubt, she meets and talks to a lot of people when watching a game with 20,000 other fans. ♦



## Write When You Get Work

### *Ryan Shulzaberger: Enjoying His Life*

By Nancy Parrish

Ryan Shulzaberger seems to have enjoyed his life ever since he was a teenager. He remembers his Werner H. Kirsten student internship in 1997–1998 as a “unique and intense experience.” By day he worked in the Laboratory of Experimental and Computational Biology with Thomas Schneider, Ph.D.; by night he played in a soul band in Washington, D.C., sometimes grabbing only a few hours’ sleep in his car before heading to the lab the next day. While most of us would think this schedule too stressful, Mr.

Shulzaberger recalls this period of his life as entirely satisfying. “Both parts of my personality (the mathematical and the creative part) were completely stimulated,” he recalled. “I truly felt like I had been maximizing my work potential, and [this] was probably one of the few times in my life where I was completely without guilt.”

#### *Drawn to Research*

The internship “gave me the opportunity to decide whether I wanted to stay in research,” notes Mr. Shulzaberger. The life of a research scientist clearly suited him. He majored in biology at the University of Maryland, while working summers and winter breaks in Dr. Schneider’s lab under the Cancer Research

Training Award program. Following graduation, he worked an additional year in Dr. Schneider’s lab before

entering graduate school. Now he is finishing up his Ph.D. in molecular biology at the University of California, Berkeley (UCB), in the laboratory of Michael Eisen, Ph.D., at the Lawrence Berkeley National Laboratory, Genomics Division, and UCB, Department of Molecular and Cell Biology.

His current research, he says, is largely

### *Internship Was Most Valuable Experience*

Mr. Shulzaberger believes that he learned much more as an intern in the laboratory than he ever would have in the classroom. “This internship prepared me for research better than anything else,” he noted. “It is the most valuable educational experience that I have had.”

He has also never forgotten the advice Howard Young, Ph.D, gave to the new interns: take your science seriously, but don’t take yourself too seriously because, when you take yourself too seriously, you’ll start pushing others away. “That is the best advice I have ever been given,” Mr. Shulzaberger says.



*Ryan Shulzaberger in the lab during his Werner H. Kirsten student internship in 1997–1998.*



*Today Ryan Shulzaberger enjoys life in California with his pal, Lucy.*

an extension of the work he did at NCI-Frederick, which applied Information Theory to the study of information transmission in molecular biology. “Much of what I did in [Dr. Schneider’s] lab was to apply his work to model multi-meric transcriptional initiation complexes, ultimately to try to develop a quantitative model of transcriptional activation,” he explains. He believes his most significant contribution has been to “experimentally verify assumptions made by this model,” and his research “is starting to move more to purely evolutionary questions.”

#### *“This is a great life.”*

Extending Dr. Young’s advice, Mr. Shulzaberger offers advice of his own to current interns: “Science can be competitive at times, but ultimately it should be collaborative. What is really important is pushing our understanding of the world. Don’t get discouraged by having your results scooped, and always encourage and challenge the work of your colleagues. This is a great life. You get paid to think all day. Have a good time. If, at any point you stop enjoying it, don’t be afraid to find something that suits you better.” ♦

# NCI-Frederick Employee Diversity Team

## Before You Go, Check Out These Travel Tips

By Maritta Perry Grau

It's spring: time to dust off the suitcase and start making travel plans. You may be thinking about the next conference you'll attend, here or abroad, or about where to go for vacation this year. Wherever you go, here are some tips to help you on your travels.

Olga Nikolaitchik, Drug Resistance Program, suggests that you "wear comfortable shoes (even if they are not fashionable)." You'll find that slip-ons will be easy to take off and put back on at airport check-ins.

She also suggests creating your own dictionary of helpful words and phrases. "That way," she says, "if you are not sure you can pronounce it correctly, just point to it when talking to locals."

Ms. Nikolaitchik uses the Web site <http://babelfish.altavista.com/tr> to find translations of words or phrases such as "Help me," "Please," "Thank you," "Do you speak English?", and "Where is the bathroom/taxi/hotel/restaurant?" You might also want to write words for simple menu items like water, milk, chicken, and rice.

Traveling to China? Think about these tips from Howard Young, Ph.D., Laboratory of Experimental Immunology. These tips apply as well to other countries, too.

- Carry several cards from your hotel that provide the hotel address/contact information in both Chinese and English. Most taxi drivers do not speak English.
- When you exchange dollars for yuan, be sure to save the receipt, because you will need it to exchange the yuan back to dollars.
- Assume that most people do not speak English, although most shopkeepers in tourist areas do know some basic English.
- Do not be afraid to bargain for purchases, even in the jewelry stores.
- You will have to go to the Chinese consulate in Washington, D.C., to get your visa, so plan to do so well in advance of your trip. Keep in mind you will need to use the visa within a specific time frame.
- Be wary of people who speak good English and want to be your private "guide" in the tourist spots.

## Share Your Travel Tips

The Employee Diversity Team has created the **Diversity Travel Database** as a way for you to share travel information with your fellow employees. You can post information about places that you have visited or where you have lived. If you want to learn more about where you are going for a conference or vacation, check out the site for others' comments; you may find contact information for someone who is familiar with the area you plan to visit.

## Travel the Internet Before You Go

Diversity Web site links:

<http://diversity.ncifcrf.gov/links.asp>  
<http://diversity.ncifcrf.gov/travel/>

State Department Travel Advisories:

<http://travel.state.gov/>  
<http://www.state.gov/travelandbusiness/>

*Health concerns?* Visit our own Occupational Health Services (OHS). OHS supplies you with immunizations, medications, travel kits, and up-to-date information about foreign destinations when you are traveling on work-related business. Contact OHS (<http://home.ncifcrf.gov/ehs/ehs.asp?id=17>; 301-846-1096) as soon as you know about your travel plans, so any necessary vaccinations can be initiated.

If you plan personal international travel, you might want to check with OHS for a list of potential hazards, recommended prescriptions, and a travel kit.

Of course, you can also check out the Centers for Disease Control and Prevention (CDC). Go to <http://www.cdc.gov/travel/default.aspx>.

Finally, before you reserve your seat on the plane, check out the airplane seating schematics at Seat Guru: <http://www.seatguru.com/>.

NCI-Frederick  
HOME | RESEARCH | CAREERS | CAMPUS | PHONE | CONTACT

NCI-Frederick Employee Diversity Team Presents  
The Diversity Travel Database

Travel Home | Search Travel Database | Add Travel Info

The Employee Diversity Team has created the Diversity Travel Database as a way for the NCI-Frederick community to share travel information with their fellow employees. Members of the NCI-Frederick community can post brief information on places that they have visited or lived. Users interested in learning more about a trip they are about to take may search the site for their destination or a nearby destination. The search will produce contact information for those who have traveled to or are familiar with that part of the world. Then all it takes is a phone call or e-mail to contact the experienced travelers.

We hope that everyone will participate in this database, as almost everyone working here has come from or traveled to somewhere else. Feel free to add your hometown, the place where you went to school, locations where you were previously employed, etc. Remember, any place may be a destination for someone.

If you are searching for a destination, please choose "Search" from the above menu. If you want to add to the database, please choose "Add" from the above menu.

Useful Links:

- [Traveling out of the country? Check with OHS before you leave](#)
- [State Department Travel Advisories](#)
- [Check out Seat Guru for the best seat on the plane](#)

NATIONAL CANCER INSTITUTE  
EMPLOYEE DIVERSITY TEAM  
NCI-Frederick

## Employee Diversity Team

*Edward Bouchet*



### *African American Scientists' Accomplishments Noted*

You've probably heard of George Washington Carver, but do you know who Mae Jemison is? How about Edward Bouchet? Exhibits on African American scientists were displayed in the Conference Center lobby and in the NCI-Frederick cafeteria in Building 549 during February.

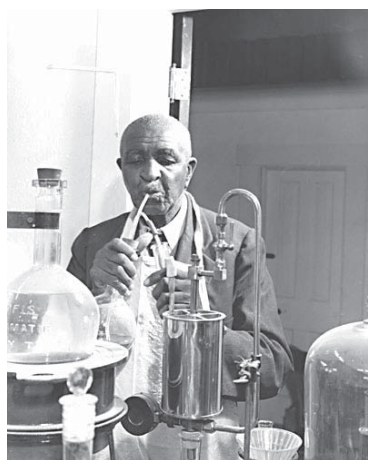
Visit the Diversity Team display case at the back of the cafeteria to see our current exhibits. Look for entry forms to win two Regal Theatre movie tickets. Correctly answer all of the questions listed on the Famous African American Scientists entry form; place your entry form in the contest box next to the display case.

Winners will be selected at the end of March by a random drawing from all correct answer sheets received in March. ♦

*Mae Jemison*



*George Washington Carver*



*Guion Bluford, Jr.*



### *Web Sites of Note*

Throughout our newsletter, you'll find web sites listed that provide you with more information than we can put in our stories. You're probably aware that there are many days, weeks, and months that are devoted to recognition of particular health care issues. While we can't list them all, we've selected a few that seem most pertinent to NCI-Frederick.

#### **March:**

*Multiple Sclerosis Awareness Week (March 10–17):* <http://www.nationalmssociety.org/>  
*National Colorectal Cancer Awareness Month:* <http://www.preventcancer.org/colorectal/>  
*Workplace Eye Health and Safety Month:* <http://www.preventblindness.org/>

#### **April:**

*Multiple Sclerosis Walk, April 6:*  
[http://www.nationalmssociety.org/site/TR?pg=team&fr\\_id=8843&team\\_id=106958](http://www.nationalmssociety.org/site/TR?pg=team&fr_id=8843&team_id=106958)  
*Cancer Control Month:* [www.cancer.org](http://www.cancer.org)  
*National Donate Life Month:* [www.organdonor.gov](http://www.organdonor.gov)

#### **May:**

*Lupus Awareness Month:* [www.lupus.org](http://www.lupus.org)  
*Melanoma/Skin Cancer Detection and Prevention Month:* [www.aad.org](http://www.aad.org)

Interested in learning which health issues are recognized throughout the year? Go to <http://www.healthfinder.gov/library/nho/>, the source for the web sites noted above.



# New Faces at NCI-Frederick

## NCI-Frederick Welcomes New Staff

Sixty-six people joined our facility in October, November, and December 2007.

### NCI-Frederick welcomes...

Medhanit Bahta  
Sarah Beachy  
Anna Brzuszkiewicz  
Marco Cardone  
Ilya Dukhovlinov  
Jill Ford  
Princy Francis  
Jinesh Gheeya  
Yon Ju Ji  
Barry Johnson  
Dawn Koh  
Jie Li  
Ning Li  
Clarymar Ortiz-Melendez  
Julie Tang  
Qiang Wang  
Yi Wang  
Stephanie Watkins  
Yueh Wu  
Xiankun Zeng

*Amy Cutshall*



*Dawn Koh*



*Medhanit Bahta*



### SAIC-Frederick, Inc., welcomes...

Laufey Amundadottir  
Thorkell Andresson  
Marru Arellano  
Muhammad Ashfaq  
Heba Barazi  
Tandelayo Beale  
Wei Bu  
Marissa Clopper  
Wayne Crews  
Amy Cutshall  
Lynn Darby  
Sarah Evans  
Curtis Ford  
David Fox  
Michael Furniss  
Vidalyn Garado  
Oley Griffith  
Daniel Hartman  
Fangxue He  
Sherry Howard  
Jung Ho Jun  
Lynette Kelly  
Xiao Liu  
Sandra Maxwell  
Kevin Newell  
Gary O'Bryan  
Nicholas Panaro III  
Lal Puia  
Richelle Putman  
Ying Qi  
Peter Schad  
Vijay Shah

*Douglas Nichols*



*Jason Bryant*



### Data Management Services welcomes...

Douglas Nichols  
Jason Bryant

### Charles River Laboratories welcomes...

Brenda Williams

*Wayne Crews*



*Richelle Putman*



## News from Around the Facility

### *Fitness Challenge Kicks Off January 10*

The NCI-Frederick and Fort Detrick communities are once again challenged to lose a ton of weight; walk, run, or bike around the world; and perform one year (in hours) of other exercise activity during 2008. Prizes are awarded each month for the greatest number of pounds lost; miles walked; miles run; miles biked; and hours performed of other fitness activities. To be eligible for prizes, you must create an account on the Fitness Challenge web site and record your progress in the Fitness Tracker. For more information, visit the Fitness

Challenge web site: <http://saic.ncifcrf.gov/fitnesschallenge/>. ♦



*At the January 10 official weigh-in, participants received a free drawstring backpack, along with important information about the challenge.*

### *Who Ya Gonna Call?*

So that Facilities Maintenance and Engineering can respond quickly to equipment breakdowns and repairs, you need to call the Trouble Desk (301-846-1068), particularly when you need help with equipment that requires a priority response, such as:

- Oxygen deficiency alarms
- Major utility leaks
- Air handler alarms
- Panel alarms

- Animal room conditions
- Laboratory utility failures

- Autoclaves
- Cage washers
- Tunnel washers
- Rack washers

- Freezers
- Incubators
- Walk-in boxes
- Bio-safety cabinets
- Chemical/fume hoods

If you need to request help with a non-critical equipment breakdown or have a request for general support, you can phone the above number or e-mail the Trouble Desk at [trbldesk@ncifcrf.gov](mailto:trbldesk@ncifcrf.gov). ♦

### Now Serving

### *Have It Your Way at the Café*

*By Maritta Perry Grau*

Whether it's a pick-me-up of coffee or tea, a breakfast or lunch, you can have it your way at the NCI-Frederick Café in Building 549. If you're one who plans ahead, you can check out the menu online at [www.detrick.army.mil/calendar/lunchmenu.pdf](http://www.detrick.army.mil/calendar/lunchmenu.pdf), or pick up a menu in the café.

Didn't have time for breakfast? Stop in for breakfast sandwiches, Danishes, muffins, bagels, and cinnamon buns.

For lunch, choose from soups, the salad bar, hot entrees, sandwiches, pizza, and desserts.

Thirsty? The café offers Starbucks coffee and tea, as well as other hot or cold drinks.

Let the NCI-Frederick Café cater your next meeting or special office event. Call 301-846-1750.



The café is open Monday through Friday, 8:00 a.m.–9:00 a.m. for breakfast; 11:00 a.m.–1:30 p.m. for lunch. ♦

### *Correction*

In the article "Flu Shot Provides the Best Protection" (December 2007, pp. 18–19), we incorrectly indicated that the statement, "If you get an influenza shot, there is a small risk of getting sick with the flu," is false. The statement is actually true: if you get a flu shot, there is still a risk that you may get the flu because the vaccine does not protect against all strains of the influenza virus. However, if you get an influenza shot, there is no risk of getting the flu *from the shot*. ♦

### *Koci Reaches 25-Year Service Milestone with the Central Repository*

*By Judith Franke and Kathleen Groover*

Janis Koci's 25 years with the NCI-Frederick Central Repository is really a history of the repository itself. After beginning her career at NCI-Frederick working on RNA and DNA extractions with Dr. George Todero in 1980, Ms. Koci moved to the Central Repository, supervising one other employee. Then located solely in Building 434, the Central Repository provided mixed temperature storage: vapor phase liquid nitrogen and -80° C. The Central Repository had been established to reduce overcrowded storage of specimens and samples in the laboratories.

As the Repository Services grew to include a dedicated archive facility off-base, Ms. Koci's responsibilities grew, too. She supervised NCI's Division of Cancer Epidemiology and Genetics' (DCEG's) East Street Repository until, in January 2003, the facility was relocated to a new state-of-the-art facility at 4600 Wedgewood Boulevard, just off Buckeystown Pike in Frederick.

With that move, McKesson BioServices, now Fisher BioServices, assumed management of the Central Repository facilities. Ms. Koci was the "go-to" person at many levels within the network of organizations providing specimen and data collection for the NCI-Frederick Repository.

In 2004, Ms. Koci became an Inventory Analyst, working on special projects for SAIC-Frederick, Inc., and DCEG. She provided invaluable assistance because of her unique position within the Central Repository Service Program. For example, she worked closely with SAIC-Frederick, Inc., and NCI to define the studies, and with the principal investigators,

linking them to appropriate CAS codes in the electronic database, a project that took nearly six months. In addition, Ms. Koci was instrumental in transferring data from the Repository's old CENREP database to the new BSI database. Her thorough knowledge of the two data systems aided in the resolution of many problems and issues to create a smooth transition.

When Ms. Koci was asked to describe the biggest change she's experienced in the repository business during her career, she replied, "The ability to keep data on a computer rather than in a logbook certainly has made the growth of the repository possible. Being able to electronically sort has made searching for a sample number so much easier." Ms. Koci stated that the Repository staff first started using e-mail for sample requests in 1983.

*"I want to...always try to do what is best for the samples... [and] the investigator."*

Asked, "What do you like best about working for the repository?" she answered, "Helping investigators do their job. I realize that patient samples are irreplaceable and precious to both the patient and the investigators. I want to be sure to always try to do what is best for the samples, while also meeting the need of the investigator. One of the changes that I put into place early on was the way couriers brought fresh blood up from NIH.



*Janis Koci*

Couriers had transported open boxes with open cups that, if dropped, could break and create a hazardous spill. I found a locking pail and Hefty-brand locking freezer containers." Thanks to Ms. Koci, the couriers then could transport vacutainers safely, without risking a hazardous spill.

Ms. Koci enjoys searching the NIH web site for the latest news about the studies whose samples are housed at the Central Repository. The PLCO Study, for example, is one study that publishes findings fairly often. The Repository has many PLCO specimens, and Ms. Koci is proud that Repository employees have helped the progress of such valuable research. ♦



## Advanced Technology Research Campus Explored

By Frank Blanchard

SAIC-Frederick, Inc., is exploring possible sites for a new building outside of Fort Detrick in which to consolidate drug development and technology programs that are now scattered among 33 buildings on campus. NCI-Frederick will not be moving away from Fort Detrick, just expanding some of its operations into the new space. The facility will support a concerted effort to accelerate the development of new treatments for cancer patients.

## NCI-Frederick Researchers Profiled on FNPTV

By Maritta Perry Grau



Local cable Channel 10 has run several profiles of NCI-Frederick research scientists; the profiles

are also available on the FNP Web site. Look for Dr. John Gilly, Biopharmaceutical Development Program, at <http://www.fnptv.com/AHF/index.htm>; his segment starts about 15 minutes into the show. You'll also find Laboratory of Cancer Prevention scientists Dr. Bill Farrar (Jan. 22 show), and Elaine Hurt (Jan. 29). On the FNPTV home page, scroll down to "Healthy Frederick," then to the date you want to see.



## SAIC-Frederick, Inc., to Represent NCI-Frederick at BIO2008

By Maritta Perry Grau

SAIC-Frederick, Inc., will join other major sponsors at the Maryland pavilion for the BIO2008 international convention, being held this year in San Diego, CA, June 17–20. This year's theme is "Heal, Fuel, Feed the World." Among the presenters will be the Biopharmaceutical Development Program's Dr. John Gilly. This is SAIC-Frederick, Inc.'s third year at the convention and second year as a major sponsor.

## Want Reimbursement? Get Verification

By Maritta Perry Grau

You might have noticed a small increase in your January 25 paycheck. If you looked at the fine print, you'll have noticed that it said "HCM \$xx.00"—that was your first reimbursement for enrolling in a local health club. SAIC-Frederick, Inc., is so strongly committed to helping its employees get physically fit that it made arrangements for reduced-cost memberships with local health clubs and is quarterly reimbursing those costs to employee members.

Reimbursement is simple. First, you send the enrollment form and a copy of your health club contract to Andi Gnuschke, a project manager in the Contract Management Office. Then, you work out at least twice a week at the club—make sure that the club records your presence.

Remember that **by April 15**, you will need to send a usage report to Ms. Gnuschke. This usage report should cover the period January 1 through March 31. You can obtain a printed report from your health club, or if your club doesn't provide you with one, you can complete a usage report form (available from Ms. Gnuschke), marking the days you attended, and have it signed by an official from that health club.

Ms. Gnuschke has asked that you only use the usage form if your gym does not have the capability of printing a usage report.

Send your report by interoffice mail to  
Andi Gnuschke  
Contract Management Office  
Thomas Johnson Drive  
Frederick, MD 21702

If you send your report electronically, e-mail her at [gnuschkea@mail.nih.gov](mailto:gnuschkea@mail.nih.gov). ♦

## Scientific Library Sponsors Reading Diversions Book Club

An OR nurse suffered dermatitis of her hands from repeated use of the harsh sterilizing solution. A surgeon asked the Goodyear Company to make a few pairs of thin rubber gloves to protect her hands during surgery. Gradually, people realized that the use of gloves by operating staff prevented infection in surgical patients.

The use of thalidomide resulted in horrifying deformities in children between 1957 and 1962. Thanks to some creative-thinking scientists, many years later thalidomide has been shown to be effective in cancer treatment, especially in multiple myeloma.

While studying the reproductive system using vaginal smears from humans and animals, Dr. George Papanicolaou observed cancer cells in healthy people. This seemingly minor observation led to the development of the Pap smear test, a test that has moved cervical cancer from being the #1 cancer killer in American women to #7.

These three examples, and many more, are outlined in the first book discussed in the Scientific Library's newly formed Reading Diversions Book Club. Club members discussed the book *Happy Accidents: Serendipity in Modern Medical Breakthroughs* by Morton A. Myers (New York: Arcade Publishing, 2007). The author notes, "Many of the most important breakthroughs in modern medicine have routinely come from unexpected

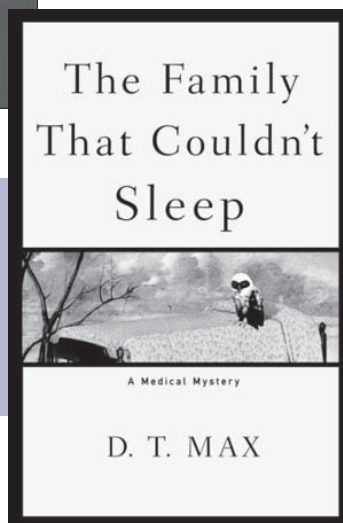
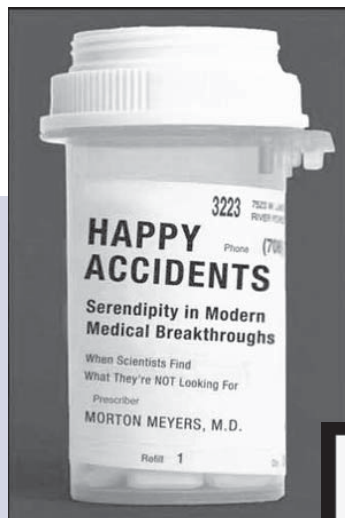
sources in apparently unrelated fields...and have depended crucially on luck, accident, and error....While serendipity is essential to discovery, it is nothing without the human beings who know an opportunity when they see one" (p. xiii).

**Reading Diversions** is a special Scientific Library collection of books written in an informative and entertaining way. People read these books for scientific interest rather than for scientific research.

The **Reading Diversions Book Club**

meets every 4–5 weeks over lunch to discuss the book selections. Reading choices are agreed upon by the members, based on the Reading Diversions collection. A list of titles is available from the library's online catalog.

Book Club members are eagerly



anticipating the second book selected for discussion: *The Family That Couldn't Sleep: A Medical Mystery* by D. T. Max. This book begins with the story of an Italian clan whose members die from a mysterious inability to sleep. The author traces

science's tortuous path toward understanding prion disease, a category that includes scrapie in sheep, bovine spongiform encephalopathy (BSE) in cows, and kuru, a disease spread by cannibalism.

Anyone is welcome to join the Reading Diversions Book Club. If this activity interests you, please call the Scientific Library at 301-846-1093 for more information. In addition, you can visit the book club's web site, <http://www-library.ncifcrf.gov/bookclub.aspx>. On the site, we post meeting dates and time, information about each book, and discussion questions.

## Celebrate National Library Week April 14–18

Have you written a book, either science-related or otherwise? Do you have a favorite book that you read over and over again, and love to share with others? Are you a fan of informational games like *Jeopardy*? If you answered "yes" to any of these questions, the Scientific Library's annual National Library Week celebration is perfect for you!

This year we will celebrate National Library Week during the April 14–18 workweek. We hope to include a *Jeopardy* Tournament, an Authors' Day, an Open House, and to create personalized READ posters.

Events are still being organized at press time, but we will have the entire schedule of activities available from our Web site at <http://www-library.ncifcrf.gov>. We invite you to go there for specific information. Plan now to join us for this annual week-long celebration of our library.

# Wilson Information Services Corporation (WISCO)

## Center for Health Information Adds Cooking Light

Looking for healthy recipes? Now you can borrow issues of the popular magazine *Cooking Light* from the Center for Health Information (CHI). Previously, this magazine could only be used in the library. Now, if you have a library barcode (remember that with the new NCI-Frederick ID tags, you must replace your old barcode), you can



check out a copy and read it at home. *Cooking Light* is a monthly magazine that provides recipes for healthy eating and guides to healthy living. Soon, you will also have available the *Cooking Light Annuals*, yearly compilations of the monthly magazines.

Stop by the library's CHI in Building 549 any time and check out an issue of *Cooking Light!*

## WISCO Employees Celebrate Milestones

During their 2007 Winter Function, several WISCO employees received length-of-service awards. Their total service is 60 years!

Congratulations to

**20** years

Steve Jones

**10** years

Yolanda Goines

Donnie Hipps

Lee Redmond

Elena Zdanova ♦



Winners of the Halloween Photo Contest won NCI-Frederick golf shirts. Shown here, with Paul Miller, Executive Editor of the Poster, left, are Karen Allen, Shawn Brown, and Julie Hartman.





## The Poster Staff

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

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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.

### Charles River Laboratories

[www.criver.com](http://www.criver.com)

### Data Management Services

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

### National Cancer Institute at Frederick

[www.training.nih.gov/postdoctoral](http://www.training.nih.gov/postdoctoral)

### SAIC-Frederick, Inc.

[saic.ncifcrf.gov](http://saic.ncifcrf.gov)  
[www.saic.com](http://www.saic.com)

### Wilson Information Services Corporation

[www-library.ncifcrf.gov](http://www-library.ncifcrf.gov)

## Upcoming Events and Dates to Note

April 18: Poster Puzzler Entry Deadline

March 20: Earth Day celebration, Strough Auditorium and H.O.T. Dome, 10:00 a.m.–2:00 p.m.

May 13: Third Annual Cancer Nanobiology Think Tank

May 14–15: 12<sup>th</sup> Annual NCI-Frederick–Fort Detrick Spring Research Festival

May 26: Memorial Day

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

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

*Comments or suggestions for The Poster may be directed to [web.ncifcrf.gov/ThePoster](http://web.ncifcrf.gov/ThePoster).*

The National Cancer Institute at Frederick

# Poster

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