The National Cancer Institute at Frederick

Poster

What is it?
Where is it?

Story on page 16.

The Science of Discovery

NCI Scientists Discover How T-Cell Leukemia Viruses Evade Body's Defense Mechanisms

David Derse, Ph.D., HIV Drug Resistance Program, Center for Cancer Research, and his colleagues have discovered how human T-cell leukemia virus type 1 (HTLV-1), which infects about 20 million people worldwide, evades one of the body's natural defense mechanisms. An active infection with HTLV-1 leads to T-cell leukemia in up to five percent of all cases worldwide.

The study, appearing online the week of February 5, 2007, in the *Proceedings of the National Academy of Sciences* (*PNAS*), focuses on the enzyme APOBEC3G (hA3G), part of the human body's arsenal of defense from viral invaders. When a virus infects a cell, it replicates its genetic material and packages it into new virus particles. Dr. Derse learned that the enzyme could not perform its normal function of inhibiting viral replication because it could not enter the virus particles.

However, when the researchers mutated certain amino acids in the virus nucleocapsid protein, more hA3G was incorporated into the virus particles. This, in turn, enhanced the ability of hA3G to inactivate the virus. When hA3G becomes incorporated into the viral particles, this can start a process that degrades and deactivates the virus itself.

"This finding should aid researchers in their basic understanding of the mechanisms of circumventing viral longevity, and possibly assist in preventing some types of cancer," said NCI Director John E. Niederhuber, M.D.

Although a number of human and nonhuman viruses that cause cancer or AIDS are susceptible to hA3G, some viruses seem to have learned how to avoid this cellular defense mechanism. For example, both HTLV-1 and the AIDS virus, HIV-1, known to infect T lymphocyte white blood cells, have developed ways to avoid hA3G. And, interestingly, each virus has developed a different method to thwart hA3G.

An active infection with HTLV-1 usually occurs decades after the initial infection. As a result, most therapies focus on the cancer rather than the virus. By enhancing the cell's intrinsic

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In This Issue

continued from page 1

defense mechanisms or by interfering with viral resistance to those defenses early in infection, it may be possible to decrease the incidence of HTLV-1-associated leukemia. Similar strategies for combating HIV-1 are also being studied.

One outstanding question in the field continues to be about how hA3G gets packaged into the virus particle. Dr. Derse said, "The next step will be to look at other viruses in relation to HTLV-1 and examine the mechanisms for evading the body's natural defenses. Our ultimate goal is to try to find a way to block the virus from being active in the body, but before we can do that, we must have a better understanding of how the virus evades the natural defenses in the cell that should be fighting off infection."

For more information on Dr. Derse's research, please go to http://ccr.cancer.gov/Staff/staff.asp?profileid=5504.

For the full article in *PNAS*, go to http://www.pnas.org to read: 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." 104(8):2915-2920 (Published online before print February 13, 2007, 10.1073/pnas.0609444104). ✦

Check It Out!

A multitude of health care recognition dates are observed throughout the year. Visit the following Web sites for information on:

National Donate Life Month (April 1–30)

U.S. Department of Health and Human Services
http://www.organdonor.gov/

HIV Vaccine Awareness Day (May 18)

NIH/National Institute of Allergy and Infectious Diseases
http://www3.niaid.nih.gov/news/events/HVAD

National High Blood Pressure Month (May 1–31)

NIH/National Heart, Lung, and Blood Institute
http://www.nhlbi.nih.gov/

National Cancer Survivors Day (June 3)

National Cancer Survivors Day Foundation
http://www.ncsdf.org/

Vision Research Month (June 1–30)

Prevent Blindness America
http://www.preventblindness.org/

For information on the following NCI-Frederick programs, visit:

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

NCI-Frederick Committees
http://web.ncifcrf.gov/campus/committees/

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

Community Cancer Centers

Bringing Treatments Closer to Home

By Frank Blanchard

NCI Director John E. Niederhuber, M.D., is using NCI-Frederick to launch a three-year pilot program of community cancer centers to give more patients greater access to the latest advances in cancer care and treatment without having to leave their home communities.

The director's initiative is designed to complement existing NCI programs, such as the Cancer Centers Program and the Community Clinical Oncology Program, in extending the benefits of research-driven cancer care to more patients.

SAIC-Frederick, Inc., will manage the pilot, which will begin later this spring. The community-based program will complement and expand upon the existing NCI Cancer Centers Program, which supports 61 major academic and research institutions nationwide that conduct broad-based, interdisciplinary cancer research.

Today, only 16 percent of Americans diagnosed with cancer have direct access to these centers. For the remaining 84 percent of patients, NCI-designated cancer centers may be too far away, too removed from family and other support systems, or inaccessible for other reasons. These patients receive care in their home communities in private-practice oncology settings.

NCCCP Pilot Has Fourfold Purpose

Starting with approximately six test sites, the NCCCP pilot will focus on:

- Improving cancer health care delivery in community settings to a wider range of geographic, racial, ethnic, and socioeconomic groups;
- Increasing the number of patients who participate in clinical trials;
- Creating an electronic communications network for community-based cancer providers to exchange information and best practices on cancer prevention and treatment; and
- Implementing standards for collecting and storing donor specimens for cancer research.

Pilot to Explore New Approaches to Therapy

The NCCCP pilot will explore standards for collecting biospecimens for NCI-sponsored research, the adoption of electronic medical records, the use of telemedicine to improve research, clinical care and access, and the advancement of caBIG (cancer Biomedical Informatics Grid), an Internet-based cancer research information network. This could become a nationwide data repository on screened patients, high-risk patients on prevention trials, cancer patients actively being treated, and cancer survivors.

Over the past five years, major reports mandated by Congress and the administration indicate the nation's fragmented health care system fails to provide adequate information and access to effective cancer prevention, diagnosis, and treatment services promptly and equitably. This is especially true among underrepresented and disadvantaged populations, people of lower socioeconomic status, residents of rural areas, and members of other underserved populations for whom a disproportionate burden of cancer continues to be documented through cancer surveillance networks.

The NCCCP pilot will explore new approaches to overcome these health care disparities, particularly for cancer screening and treatment. Pilot sites will have a strong track record of community outreach programs that include formal relationships organized to reach people who do not have health care services.

Pilot Sites Linked to Academic Research Centers

NCCCP pilot sites are not planned at major academic institutions, but they would form ties with academic research centers. This would allow the pilot program to establish a comprehensive programmatic presence in more geographic areas, giving patients—especially senior citizens and underrepresented and disadvantaged populations—direct and easy access to cutting-edge research and optimal care.

There is evidence that cancer patients diagnosed and treated in a setting of multi-specialty care and clinical research may live longer, have a better quality of life, and have a greater chance of cancer cure. Over the course of the pilot, the sites will expand their research relationships and their patient referral activities, thus enhancing the quality of both clinical research and health care delivery.

The success of the pilot will be determined with the aid of an independent program evaluator who will be hired under a separate NCI contract. The evaluator will conduct qualitative and quantitative data analyses and issue recommendations. ✦

Thinking Outside the Box

Six Receive Innovation Awards

By Maritta Perry Grau

Six NCI-Frederick investigators were among those recognized with Innovation Awards at the January Principal Investigators' Retreat.

John Beutler, Ph.D., Molecular Targets Development Program, Center for Cancer Research (CCR), received an award for his

grant proposal, "ERAD and UPR as Leverage Points in Myeloma." Dr. Beutler's work is a new, more selective way of affecting protein degradation. Anticancer agents such as Velcade inhibit the proteasome, which is responsible for breaking down a large number of proteins after they have been tagged with ubiquitin. This alters the levels of proteins in the cell (both up and down) and leads to cell death.

"If we can find agents which only block one of the previous steps, in this case addition of ubiquitin to the target protein by the protein gp78, which only tags a small number of proteins, we should be able to exert a much more narrowly focused leverage on the cancer cell," Dr. Beutler said. "We are using two complementary techniques to search for inhibitors, a cell reporter gene assay and a cell-free fluorescence polarization assay. Since Velcade is useful in myeloma, gp78 inhibitors may also be useful and less toxic."

Amy Jacobs, Ph.D., Nanobiology Program, CCR, received an award

for her proposal, "Targeting of Nanofusion Machines to Cancer Cells." Dr. Jacob's group is developing innovative liposomal delivery systems which will be targeted to deliver drugs to cancer cells and which will also be fusion-active. They hope that the direct capacity for fusion with the plasma membrane will make payload delivery more predictable and controllable.

"Nanofusion machines, being both targeted and fusion-active, will have unique advantages in cancer treatment. Along with enhanced efficiency of delivery of liposomal contents, targeting specificities can be easily incorporated that will increase protection for other healthy tissue," Dr. Jacobs pointed out.

Oyindasola Oyelaran, Ph.D., Laboratory of Medicinal Chemistry, CCR, won an award for "Comparative

Microarray Profiling of Human Sera to Identify Glycan Cancer Biomarkers." Microarray technology can be used to compare samples such as, for example, DNA arrays for gene expression profiling or glycan arrays for profiling carbohydrate-binding proteins.

Dr. Oyelaran noted, "We have developed a glycan microarray to analyze serum samples with the goal of identifying carbohydrate-based cancer biomarkers. By looking at differences in the levels of anti-carbohydrate antibodies, we can get some information about the differences in the levels of the molecule that the antibodies recognize, i.e., the carbohydrate antigen. If we are able to find real differences in expression levels, these antibodies could be developed into biomarkers for diagnosis, monitoring, or prognosis, or the carbohydrate antigen could be used for vaccine development."

The array technology enables the researchers to compare differences in multiple components and multiple samples simultaneously, "so the actual biomarker that we will be looking for is not a single thing, but a collection. This approach contrasts monitoring the expression level of a single marker, which although informative, can lead to false positives and/or negatives. By looking at multiple components, the chances of finding reliable distinguishing patterns increase," Dr. Oyelaran said.

Dr. Oyelaran added, "If we can find reliable biomarker patterns that clearly distinguish subgroups of populations, this research has the potential to lead to better tools for diagnosing, monitoring treatment, watching for recurrence, and predicting response to therapy. In addition, carbohydrate-based cancer vaccines could be developed from our findings."

Thinking Outside the Box

Jason Rausch, Ph.D., HIV Drug Resistance Program, CCR, wrote his application on "Evolving

Sequence-specific Integrases and Methyltransferases by in vitro Compartmentalization and Selection."

He explained that developing integrase- and/or methyltransferase-zinc finger fusion proteins that target specific sequences within the human genome would constitute a significant scientific advance in the fields of gene therapy and epigenetics research. However, primarily due to limitations in conventional cloning and screening techniques, only a few such constructs have ever been tested. In addition, while improvements in DNA targeting were reported in these cases, each construct also retained considerable non-specific integrase or methyltransferase activity.

Dr. Rausch's innovation uses techniques (presented in his proposal) to simultaneously screen literally millions of enzyme variants, with selection based both on targeted binding/activity and the absence of non-specific binding/activity. "The IVC-based selection methodology is novel, and some of the strategies described herein for linking phenotype with genotype are unique," he said.

In his research, Dr. Rausch hopes to "evolve chimeric integrase- and methyltransferase-zinc finger enzymes that possess a high degree of target specificity." The plan is to express enzyme variants derived from these libraries in vitro, using *E. coli*, wheat germ, or reticulocyte lysates suspended within an oil-and-water emulsion, forcing the gene/gene product variants to segregate into individual aqueous compartments.

According to Dr. Rausch, "This recently developed approach, referred to as in vitro compartmentalization (IVC), offers distinct advantages over more traditional screening/selection strategies such as phage display, ribosome display, etc., the most remarkable being that genes/gene products can be selected on the basis of enzyme *activity* rather than simple binding."

He continued, "Of course, the specific means of linking genotype and phenotype, i.e., selecting a particular enzyme variant on the basis of activity, while simultaneously selecting the gene that encodes the enzyme, are critical to the success of this approach. To my knowledge, however, directed evolution has never been applied in this manner to either of these enzymes, and some of the proposed methods for linking phenotype with genotype are unprecedented."

The fifth recipient, **Rosalba Salcedo, Ph.D., Laboratory of Experimental Immunology, Cancer and Inflammation Program, CCR**, received a grant award for her

proposal, "Role of IL-2 and IL-27 in Inhibition of Neuroblastoma Residual Disease." Dr. Salcedo explained that while IL-2 is used in the treatment of patients with neuroblastoma, its effects are at best modest. One negative aspect of IL-2 therapy is the induction of T-regulatory cells. Therefore, approaches to improve current therapies by rationally combining drugs with complementary biological activities are urgently needed.

"We found that IL-27 has the ability to suppress tumor-infiltrating T-regulatory cells, which are increased by IL-2 therapy. Using a murine model of disseminated neuroblastoma, we found that the therapeutic combination of IL-2 and IL-27 potently inhibited neuroblastoma metastasis to bone and liver, resulting in at least 80% complete responses," she said. The research proposal is an exciting one because, potentially, targeted delivery of IL-27 to the tumor could improve the current IL-2 therapy used in children with neuroblastoma.

Yili Yang, Ph.D., Laboratory of Protein Dynamics and Signaling, CCR, received an innovation award

for "Identifying Proteins That Are Mutually Regulated by Ubiquitylation and Sumoylation." ✦

Another Innovation: 3D Modeling

Molecules You Can See, Feel, and Touch: From 2-D on the Computer to 3-D in Your Hand

By Maritta Perry Grau

Pick it up. Turn it around. Examine it from all sides. You might see something in this computer-created, three-dimensional model that will spur your research in a new direction.

Scientific Publications, Graphics & Media (SPGM) for the past two years has been developing a relatively inexpensive process by which certain molecular models can be reproduced, not only as images, but as models you can actually touch and hold in your hand.

3D Models Economically Feasible

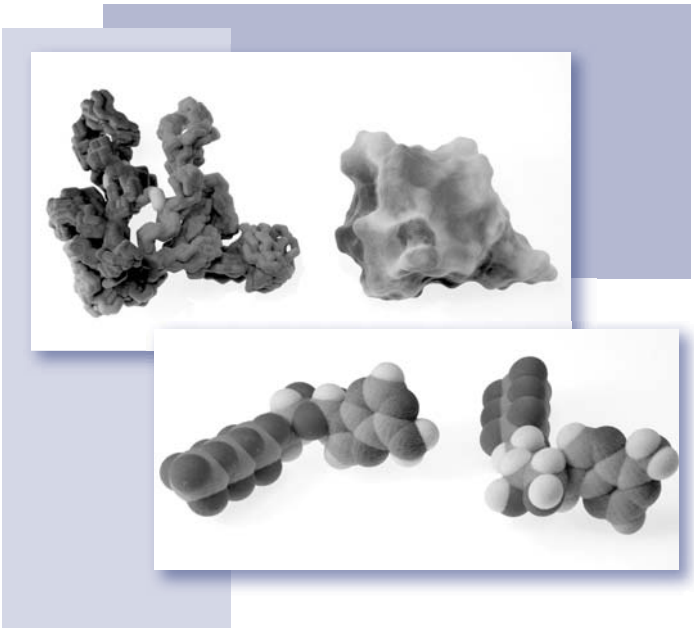
Through a process called stereolithography, SPGM's Z printer (from ZCorporation, Burlington, MA) produces three-dimensional models in a practical, economical fashion. Gone are the days of expensively producing a model by cutting, carving, or fusing various materials to achieve height, width, and depth. Instead, the Z printer uses conventional inkjet printing technology to build its models from scratch in an 8" x 8" x 10" box. It uses inkjet print heads to distribute precise quantities of glue and colored dye across successive layers of powder, building up the model one very thin layer at a time. The result is a molecular model that you can pick up, touch, and examine from all sides.

Model types that the machine can build include ball and stick, spacefill, surface, and backbone; you can request any size that will fit within the printer build box. Printable files can be created from a number of computer-assisted drawing programs, molecular model viewing programs, and Protein Data Bank files.

3-D Models Provide New Insights

Not only are these models relatively inexpensive, but they can be useful in a number of ways.

One expert, Dr. Art Olson, Chief of the Molecular Graphics Lab at The Scripps Research Institute, claims that even researchers who have worked with a particular molecule for years will immediately learn something new when they hold a model of the molecule in their hand.



Models can be useful in a number of ways, such as in demonstrating lessons to student interns, explaining certain principles to colleagues, or helping to illustrate the findings of current research during conferences and at poster sessions. "You could put it in a little box, throw it in your briefcase or coat pocket, and take it with you to your next conference," suggested Ken Michaels, SPGM manager.

Robust, Strong Models Work Best

SPGM people have learned that some models, such as ribbon structures, are not well suited for imaging with this technology.

Successful models are:

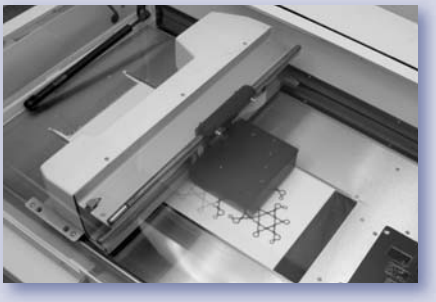
- *Structurally robust:* Fragile, delicate threads and connections between components of the structure sometimes cannot hold the parts together.
- *Solid objects:* Translucency is not an option with this technology, and objects cannot be shells; they must be solid volumes.
- *A single volume:* All parts of the structure must be connected in a continuous surface in solid contact with other parts of the model.

SPGM professionals, with two years of experience with the Z-Corp 3D modeling technology, have developed experience in assessing the suitability of biomedical structures for modeling. The group has "developed guidelines for determining the characteristics of structures suitable for rendering with this technology and are available to assist NIH investigators with appropriate applications," said Mr. Michaels.

To see—and hold—examples of the Z-Corp 3D models, visit SPGM in Building 362, Miller Drive. For information, contact Tammy Schroyer, senior illustrator and 3D modeler, at 301–846–1058, or e-mail her at tschroyer@ncifcrf.gov. Sample models produced by the Z Printer will also be on display in the Building 549 Conference Center lobby. ✦

Another Innovation: 3D Modeling

How Z-printing Works

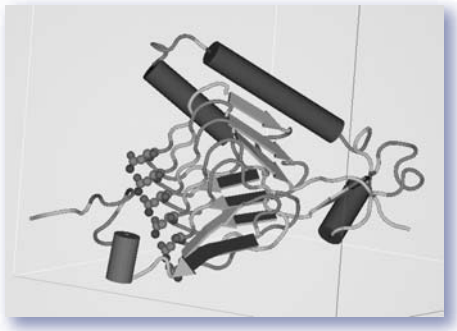


1. The 3D printer at work. Each pass of the print heads distributes precise quantities of glue and colored dye.

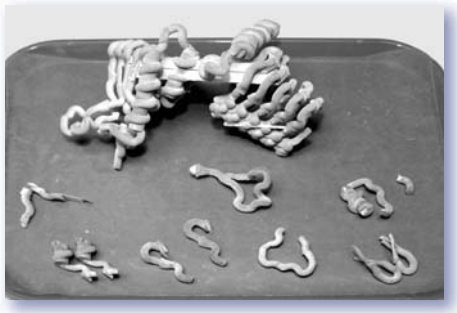
2. The completed model is surrounded by powder in the build area.

3. After excess powder is brushed away, the model can be removed from the build area. ✦

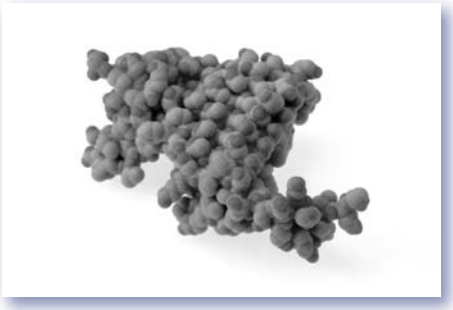
Case study



1. Original virtual reality modeling language (VRML) file sent by the customer, output from visual molecular dynamics (VMD) software. Although the Z-printer software printed the file without incident, the structure could not support itself and crumbled in the printer's build box.

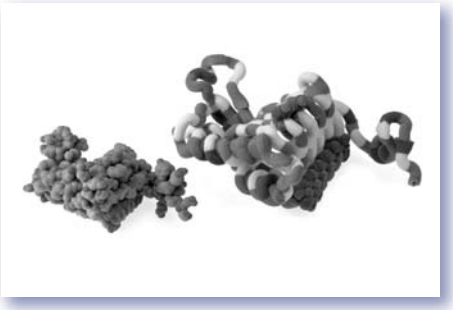


2. The customer created a new file, thickening the strings—the weakest elements—to strengthen them. The "cartoon" arrows in the original file, however, resulted in file corruption when sent to the printer. Even though the thicker elements were more substantial, the connections were still too weak to stay together.



3. The customer then sent a new VRML file of the structure, this time as a spacefill, which printed perfectly. Unfortunately, though, the spacefill representation doesn't show the features of greatest interest.

4. After two more attempts to print modified variations of the structure with cartoon arrows removed and connecting strings thickened, this version resulted. Although still delicate and requiring careful handling, it stays in one piece when removed from the printer.



5. A comparison of the two successful renditions of the structure. The object is Galactoside O-acetyltransferase, a Beta-Helix. Parallel β-helices are a subclass of β sheet proteins and are composed of repetitive left-handed or right-handed coils. The coils can have two or three connected parallel β-strands. The three-dimensional structure of a β helix is shown in the 3D model with the backbone structure shown in cartoon. Parallel β-helices illustrate stacking of chemically similar residues to form aliphatic, aromatic, and polar stacks. The de novo Asparagine Ladder is highlighted by the space-filled model. ✦

Unlocking the Secrets of Left and Right: A Developing Role for Cellular Motor Proteins in Determining Handedness through Selective Chromosome Segregation

By Lisa Simpson and Dianna Boissy

We begin life in perfect symmetry as a fertilized egg. This single orb divides into two identical cells, then four, then eight, and so on until a change occurs. The dividing cells differentiate along a left-right axis known as "handedness." Our hearts end up on the left, our livers on the right. Even the two sides of the human brain are different. This gives rise to a lingering mystery in developmental biology. How can cells that are copies of each other know if they belong on the left or the right?

NCI-Frederick's Dr. Amar Klar, Gene Regulation and Chromosome Biology Laboratory, Center for Cancer Research, and his colleague, Dr. Athanasios Armakolas, Hippokrateion Hospital of Athens Laboratory of Surgical Research, have shed some light on this question. Their findings, in the January 2007 issue of *Science* ("Left-Right Dynein Motor Protein Implicated in Selective Chromatid Segregation in Mouse Cells"), suggest a subtle mechanism of control that contradicts conventional thinking about the randomness of DNA inheritance during cell division.

A decade ago Dr. Klar theorized a new phenomenon to explain odd organ placements in a strain of mice whose organs develop on the wrong body side. Because of a genetic flaw, these animals are deficient in a protein (LRD) that may move DNA strands into the correct alignment for cell division. The researchers hypothesized that this protein may set the stage for left-right body axis during development by selectively aligning the DNA.

How Dividing Cells Share Their DNA

In plants and animals, double-stranded DNA in the cell nucleus is wound tightly into chromosomes. Normally, most cells contain two genetically identical copies of each chromosome, a homologous pair. Since chromosomes carry the genes for an organism's physical traits, this means that there are two copies of every gene (one per chromosome).

As cells prepare to divide, the double strands of DNA in each chromosome are unwound (one strand is called the Watson [W] strand and the other Crick [C], after James Watson and Francis Crick). The strands are separated and duplicated. Each newly copied DNA molecule then rewinds into a chromosome, yielding two where there had been one; the duplicated pair, now called "sister chromatids," remain attached. One chromatid, called WC′, contains the older, original Watson (W) strand and a new Crick (C′) strand that was made using the W strand as a template. The other chromatid, called W′C, contains the older, original Crick (C) strand and a new Watson (W′) strand, made using the C strand as a template.

After DNA replication, the cell prepares to divide, and the WC′ and W′C sister chromatids line up opposite each other down the middle of the cell, like opposing football teams on the line of scrimmage. Each cell carries two copies of each chromosome, so there will be two WC′ and two W′C chromatids for each chromosome pair. When the cell divides, the sister chromatids pull away from one another into the daughter cells, which can randomly inherit any combination of the two chromatids during each round of cell division: two WC′ types, two W′C, or one of each. Traditional genetics holds that the combination of chromatids inherited can vary each time the cell divides, since the WC′ and W′C chromatids should be identical. However, Drs. Klar and Armakolas' findings indicate that this is not the case in all cell types.

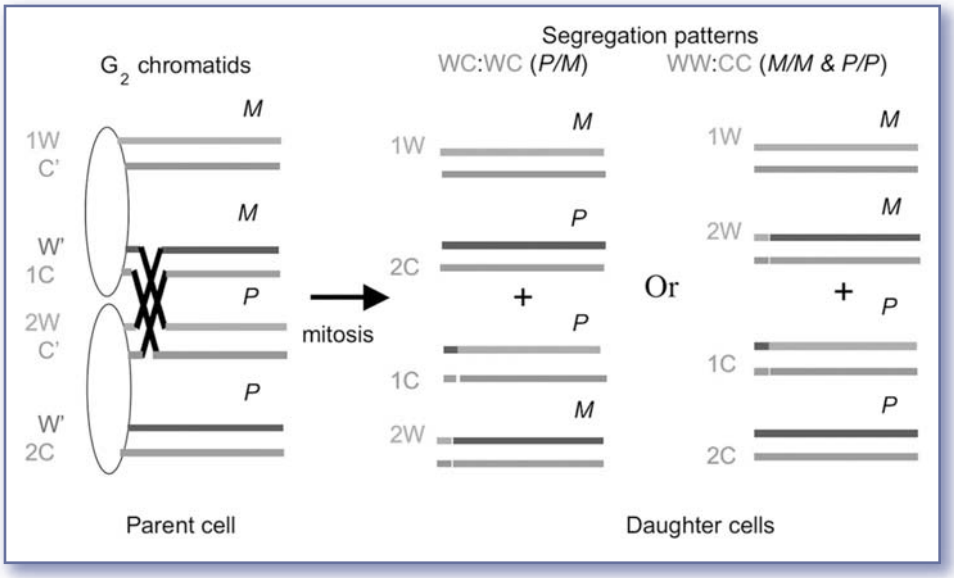
Sister Chromatids Guided to Specific Daughter Cells by LRD

Earlier work by Drs. Klar and Armakolas (*Science*, 311:1146–1149, 2006) showed that the segregation of the sister chromatids of chromosome 7 is not always random in mice. In some cell types, one daughter cell always inherits both chromatids that carry the older, original Watson strand, and the other daughter cell always inherits both chromatids that contain the older, original Crick strand. This inheritance pattern is an unlikely event if the chromatids segregate randomly. In their January 2007 *Science* paper, they used the same cell system to show that artificially reducing the amount of LRD protein caused the cells to switch from selective to random chromatid segregation.

Science Today

Dr. Klar suggests that, in some cases, the gene for a particular trait is active on one chromatid, but inactive on the other. Selective chromosome segregation would allow both copies of the chromosome with the activated gene to be delivered to one daughter cell and both copies of the inactivated gene to the other.

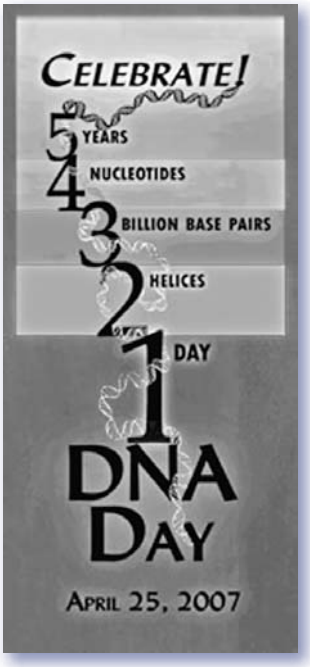
This is the first report connecting a motor protein to selective chromosome segregation and begins to outline a molecular mechanism for this mode of developmental control. The importance of this mechanism in early development will require further study. "The real neat part of this mechanism," Dr. Klar says, "is that the double helix structure of DNA might naturally provide a basis for cellular differentiation." ✦



Diagrams of Chr 7 strand segregation patterns following mitotic site-specific recombination. Klar, A. and Armakolas A. Science, *311:1146–1149, 2006.*

DNA Day

National DNA Day: Double Anniversary Celebration



April 25 marks a double anniversary celebration: National DNA Day, commemorating the completion of the Human Genome Project in April 2003; and the discovery of DNA's double helix. Celebratory activities have been planned to inspire future scientists.

National DNA Day is sponsored by the National Human Genome Research Institute, in cooperation with the American Society of Human Genetics, Genetic Alliance, and the National Society of Genetic Counselors.

For more information, visit http://www.genome.gov/10506367. ✦

Platinum Highlight

Ligia A. Pinto, Ph.D.
Head, HPV Immunology Laboratory

Dr. Ligia A. Pinto earned her Ph.D. from the Faculty of Medicine in Lisbon, Portugal, in 1995, after completing her dissertation work in the laboratory of Dr. Gene Shearer at the Experimental Immunology Branch (EIB)/NIH. Dr. Pinto came to the EIB in 1993 as a graduate student to conduct research on the cellular immunology of HIV infection. She continued her studies as a postdoctoral fellow at the EIB until joining the Clinical Services Program in 2001 as the head of the Human Papillomavirus (HPV) Immunology Laboratory.

Dr. Pinto's laboratory is dedicated to the investigation of immune responses to HPV in vaccine trials and in natural history studies of infection. "The overall aim of our studies," says Dr. Pinto, "is to gain a better understanding of the immune determinants of protection from HPV infection, persistence, and associated disease."

Dr. Pinto and colleagues have demonstrated an association between persistent HPV infection at the cervix and systemic immune impairment in older women. Their findings argue that compromised host immunity may have a role in the pathogenesis of HPV infection. "However," notes Dr. Pinto, "future studies will be needed to establish whether a weakened immune system is caused by or is the cause of persistent HPV infection." Dr. Pinto's group is currently working on defining additional markers of and the mechanisms underlying the alterations in the host immune response seen during HPV infection. This information, notes Dr. Pinto, "may help to develop strategies to control HPV persistence and progression to cervical cancer." ✦

García-Piñeres A.J., Hildesheim A., Herrero R., Trivett M., Williams M., Atmetlla I., Ramírez M., Villegas M., Schiffman M., Rodríguez A.C., Burk R.D., Hildesheim M., Freer E., Bonilla J., Bratti C., Berzofsky J.A., and Pinto L.A.

Persistent Human Papillomavirus Infection Is Associated with a Generalized Decrease in Immune Responsiveness in Older Women

Cancer Res 66(22):11070–11076, 2006

The development of cervical cancer and its precursors is linked to persistent infection with oncogenic types of human papillomavirus (HPV). Host immune responses seem to be determinants of risk for this disease. However, little is known about the immunologic determinants of HPV persistence. Here, we examined the association between lymphoproliferative responses to antigens/mitogens and persistent HPV infection in women older than 45 years. Women included in this study were participants in a 10,000-woman population-based cohort study of cervical neoplasia in Costa Rica. Women older than 45 years and HPV DNA-positive at a screening visit were selected as cases (n = 283). We selected a comparably sized control group of HPV DNA-negative women, matched to cases on age and time since enrollment (n = 261). At an additional clinical visit, women were cytologically and virologically rescreened, and cervical and blood specimens were collected. Proliferative responses to phytohemagglutinin (PHA), influenza virus (Flu), and HPV16 virus-like particle (VLP) were lower among women with persistent HPV infection (median counts per minute [cpm]: 72,849 for PHA, 1,241 for Flu, and 727 for VLP) than for the control group (median cpm: 107,049 for PHA, 2,111 for Flu, and 2,068 for VLP). The decreases were most profound in women with long-term persistence and were only observed for the oldest age group (65 years). Our results indicate that an impairment in host immunologic responses is associated to persistent HPV infection. The fact that effects were evident for all studied stimuli is suggestive of a generalized effect. ✦

Cervical cancer
- Second most common cancer in women, worldwide
- Claims 250,000 lives each year

Human papillomavirus (HPV)
- More than 100 HPV types known
- About 15 oncogenic HPV types responsible for virtually all cervical cancers

Source: http://www.cancer.gov/cancertopics/factsheet/

Platinum Publications

The following 38 articles have been selected from publications in 12 of the most prestigious science journals during the past quarter.

Apoptosis

Thangaraju M, Gopal E, Martin PM, Ananth S, Smith SB, Prasad PD, Sterneck E, Ganapathy V. SLC5A8 triggers tumor cell apoptosis through pyruvate-dependent inhibition of histone deacetylases. *Cancer Res* 66(24):11560–11564, 2006.

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Student Achievements Recognized

Student Interns Semifinalists in Intel Talent Search 2007

By Nancy Parrish

Two Werner H. Kirsten student interns were among the 300 semifinalists in the Intel Talent Search 2007 for the Junior Nobel Prize. Teddy Kamata of Frederick High and Jarrett Remsberg of Middletown High were selected from more than 1,700 entrants in the competition. The two seniors won $1,000 each and brought home another $1,000 to their schools.

Mr. Kamata's project, entitled TLE/Groucho: A Novel Protein Interactor for EphrinB1, focused on understanding the signaling mechanism of a particular cell surface molecule called ephrinB1, which plays a role in tumorigenesis. "We identified TLE/Groucho, a transcriptional corepressor, as a downstream target of ephrinB1," Mr. Kamata explained. "We then characterized the interaction between ephrinB1 and TLE/Groucho and studied the functional significance of the interaction. This provides a link between ephrinB1 signaling at the cell surface to an important transcriptional mediator of signaling in the nucleus."

Mr. Kamata works in the Laboratory of Cell Development and Signaling, Developmental Signal Transduction Section, with mentor Dr. Ira Daar and supervisor Dr. Tagvor Nishanian. He plans to study biochemistry in college with the ultimate goal of conducting biochemical research in neuroscience. When he's not making discoveries in the laboratory, Mr. Kamata likes to make music, playing piano in his free time. He also enjoys reading and playing chess.

Jarrett Remsburg (L) and Teddy Kamata.

Mr. Remsberg's research objective is to develop new selective and potent inhibitors of cancer cell growth. Under the mentorship of Dr. Nadya Tarasova, he works in the Molecular Aspects of Drug Design section of the Structural Biophysics Laboratory. His project, entitled Structural Analogs of the Second Intracellular Loop of Smoothened as Potent Inhibitors of Hedgehog Pathway, involved making "many synthetic derivatives of the second intracellular loop of Smoothened protein and testing activity against melanoma, breast, and prostate cancer cell lines," he said. "Some of these compounds caused cancer cells to die, even at very low concentrations."

Mr. Remsberg plans to study biological engineering at the Massachusetts Institute of Technology. His goal is a Ph.D. in engineering with a concentration in biopharmaceutical design. In addition to excelling in science, Mr. Remsberg excels in animal husbandry. He owns registered Brown Swiss and Holstein dairy cattle, which he shows at state, regional, and national levels. He serves on the Maryland State Junior Fair board and is president of the Maryland Junior Brown Swiss Association. In his free time, he says, "I love to play billiards, dance, golf, and hang out with my friends at NCI." ✦

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/wellbeing, 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.

Café Too!

The recently renovated Café Too! is located in the Community Support Center, Building 1520, just off Porter Street, open from 7:00 a.m. until 1:00 p.m. Enter through the Community Activities Support Center (near the Fort Detrick Library). Café Too!

serves a continental-style breakfast and lunch sandwiches. Café Too! is also accessible in the off-hours, although then you must rely on vending machines for snacks and drinks. ✦

Spring Research Festival

Gila Monster Selected for Spring Research Festival

By Nancy Parrish

Each year the Spring Research Festival organizers select a plant or animal to highlight its healing properties, as well as to remind us of the interconnectedness of all life on our planet. The Gila monster has been chosen for the 2007 Spring Research Festival because of its contribution to an important new treatment for a devastating disease found in nearly 250 million people worldwide.

Out of the Mouths of Monsters

The Gila monster's bite can deliver a toxic blow to anyone who disturbs it. But in the late 1980s, Dr. John Eng, an endocrinologist in Solomon A. Berson Research Laboratory, Veterans Affairs Medical Center, Bronx, New York, discovered that the Gila monster's venom contains a hormone that stimulates insulin production in humans. Today, a synthetic version of the hormone is used to produce a drug known as Byetta®, which helps control blood sugar levels. Dr. Eng's discovery has led to treatment that is producing positive results for the hundreds of thousands of type 2 diabetes patients using Byetta® since its release in 2005.

Festival Provides "State of the Science"

The goal of the Spring Research Festival, according to the Web site, is "to acquaint our neighbors, both scientist and citizen, with the basic nature of our research, the discoveries we have made, and the challenges we face in the fight against cancer, AIDS, and infectious diseases that may be a threat to U.S. citizens around the world."

NCI Director to Speak

Dr. John Niederhuber, Director of the National Cancer Institute, will deliver the keynote address at 1:00 on Wednesday, May 16. He also plans to visit the poster exhibit. The two-day event will feature a variety of speakers, movies, a health and safety exhibition that includes various health screenings, and the Commercial Science and Technology Expo. Framed certificates will be given to poster winners at the student, technical, and postdoctoral levels of research. The Spring Research Festival is open to NCI-Frederick and Fort Detrick communities, as well as to the public. ✦

SPGM Increases Poster Production Capacity

By Nancy Parrish

Scientific Publications, Graphics & Media (SPGM) recently increased its capacity for producing one-piece scientific posters with the addition of a new wide-format printer.

With a second printer, SPGM can produce more posters in less time, according to Ken Michaels, manager. "This will be especially helpful in handling peak workloads, such as the Spring Research Festival," he said.

Preparing for the Spring Research Festival?

SPGM staff can assist with all aspects of modular and one-piece poster production. Whether you're preparing your own poster and need to have it printed, need help finishing a design you started, or need a complete design, SPGM is ready to help. ✦

Mark Your Calendars and Check the Web

The Spring Research Festival will take place on May 16 and 17 next to the Community Activities Center on Porter Street. More information, including how to register for a poster presentation or as an exhibitor, can be found on the festival Web site, http://web.ncifcrf.gov/events/springfest/default.asp. Information is updated regularly, so be sure to check back often. ✦

Scientific Publications, Graphics & Media
Give us a call – we can help.
Building 362, Room 8
301–846–1055 • 301–846–6563 (fax) • spgm@ncifcrf.gov ✦

Take Your Child to Work Day

Secrets of Success

By Nancy Parrish

"To Bee or Not To Bee," "It's Not Easy Being Green," "Scene of the Slime"—these are the names of just some of the Take Your Child to Work Day (TYCTWD) programs that have been presented by Wilson Information Services Corporation (WISCO). How does WISCO keep coming up with such creative ideas for this event year after year? The *Poster* recently chatted with Sue Wilson, Principal Manager, and Robin Meckley, Instructional Resources Librarian, to find out how they do it.

Get Everyone Involved and Have a Theme

WISCO's enthusiastic staff all contribute to the program. "Working on this event is different from the day-to-day work we do here," commented Ms. Meckley, adding, "and you feel like you're doing something that's fun." They begin with a theme, which is always centered around science. "We keep it to science because we don't want to give the impression that we just 'play' on our jobs. We want the children to know what we actually do when we work," said Ms. Meckley.

Sometimes they use the theme from the Spring Research Festival, or they choose a theme that coordinates with the Elementary Outreach Program, which is designed to complement the school curriculum. "We'd like to develop something for each of the grades in the Outreach Program, so that we may provide the teachers and the children with resources they may come back to," explained Ms. Wilson. Once a theme is selected, committees are formed to work on specific tasks.

Tailor Your Program to Your Work

Because WISCO manages the library, all activities are centered around research. Most children know how to use the Internet, but "we want to teach them that you can't believe everything you see on the Web," said Ms. Meckley. They emphasize that "there's a lot of science to be found on the Web; that the library can be fun; and that we love our jobs. We're always trying to 'sell' science."

And they do a good job. WISCO's program has been a sellout every year since TYCTWD began 11 years ago. The general format of the program is the same each year: when the children enter the library, they must follow a path that takes them through the library to a photo station, where they have their picture taken with theme-related props before entering the Technology Training Lab. While the children are working in the lab, the library staff print a certificate or other "giveaway" with the child's photo on it. Once in the training lab, the children are presented with questions on the computer, on a site that has been specially designed for the theme. Answers to the questions can be found only by going to one of the linked Web sites.

The program is open to children from age 6 to 13, and because an adult always accompanies the child, even the little ones are able to participate. "We are always conscious of the younger ones," commented Ms. Meckley. She added that they play music in the background because it adds a little life to the program, makes the atmosphere more relaxed, and keeps the noise down while the children are doing their projects.

Keep It Simple, and Have Fun!

When asked what advice they would give to labs considering participation in the event, Ms. Wilson responded, "Have a theme. Keep it small and simple. Do one or two sessions and see how it goes. And be sure to have a 'hands-on' project because the kids like it best when they're actually doing something." Ms. Meckley advises against having too many handouts, or anything that takes a lot of time. The children should be able to complete the task in the time allotted. Her final recommendation: "If you're not enjoying it, that will come across to the children. If you can't come up with an idea, ask the [TYCTWD Planning] Committee—they are a great help. Do a dry run to check the program and the timing; use music; have fun with it!"

For information about the Scientific Library, visit the Web site, http://www-library.ncifcrf.gov/. ✦

Take Your Child to Work Day Is July 11, 2007

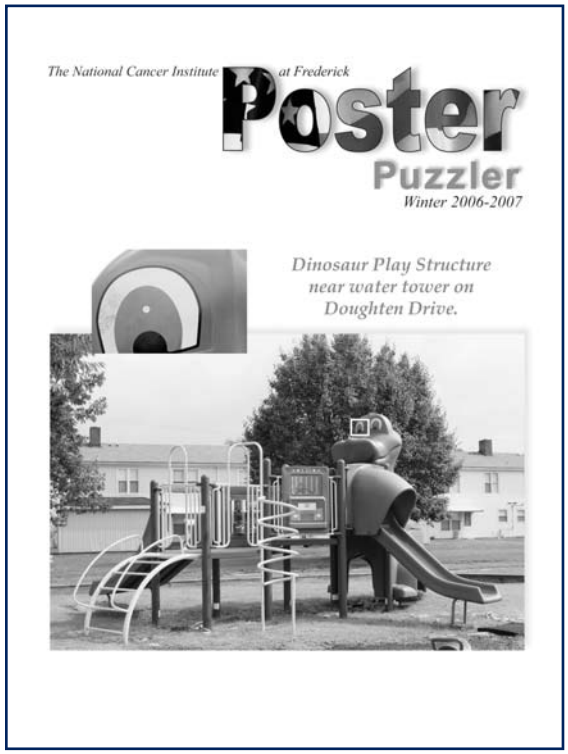
For information or assistance with setting up a program or booth, contact a member of the Planning Committee:
Telephone: 301–846–7400; E-mail: kidsday@ncifcrf.gov
Or visit the Web site: http://kidsday.ncifcrf.gov/ ✦

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 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, April 27, 2007**, and the winner will be drawn from all correct answers received by that date.

Good luck and good hunting! ✦



Congratulations to our Winter 2006–2007 Puzzler winner: Kurt Zimmerman, who works in Property Accountability, Acquisition and Logistical Services. ✦

The Poster Puzzler:

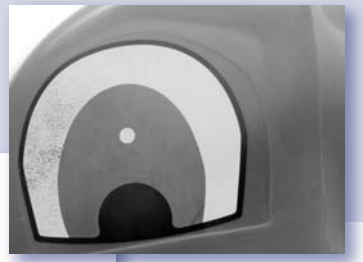
"Purple Dinosaur!"

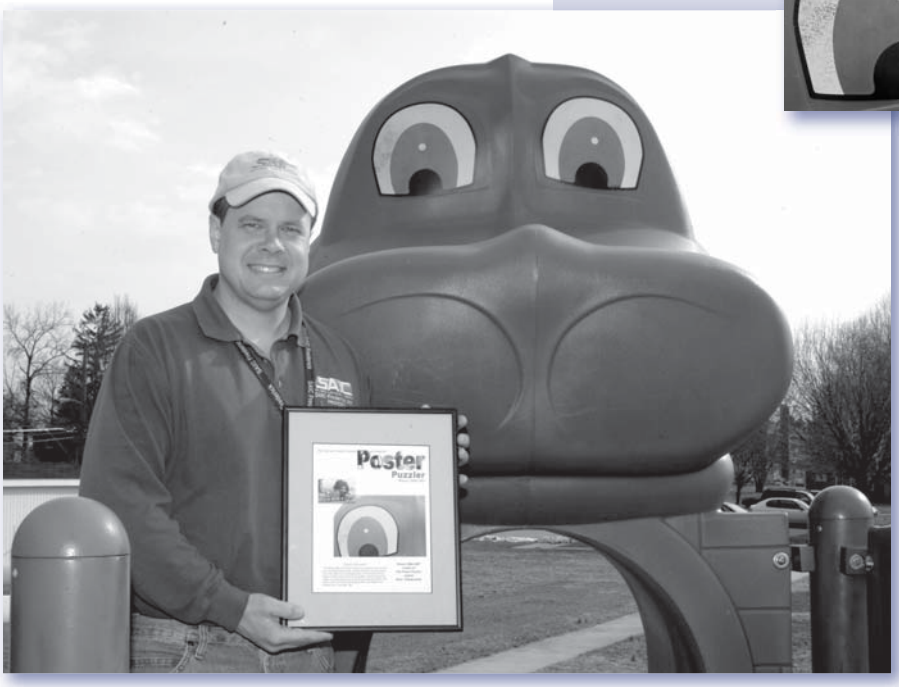
By Nancy Parrish

If these weren't the first two words that popped into your head when you saw the Poster Puzzler last month, you probably weren't one of the folks who submitted a qualifying entry. The Winter 2006–2007 Poster Puzzler is an extreme close-up of the eye of the purple dinosaur play structure located on the playground next to the water tower on Doughten Drive. This friendly-looking creature stands in quiet vigil over the brightly colored structure and creates an inviting presence for even the most reluctant climber. The smile in these eyes most likely brings smiles to the children who climb all over—and under—it.

Thanks to all participants in the Winter 2006–2007 Poster Puzzler! ✦

Poster Puzzler Winner

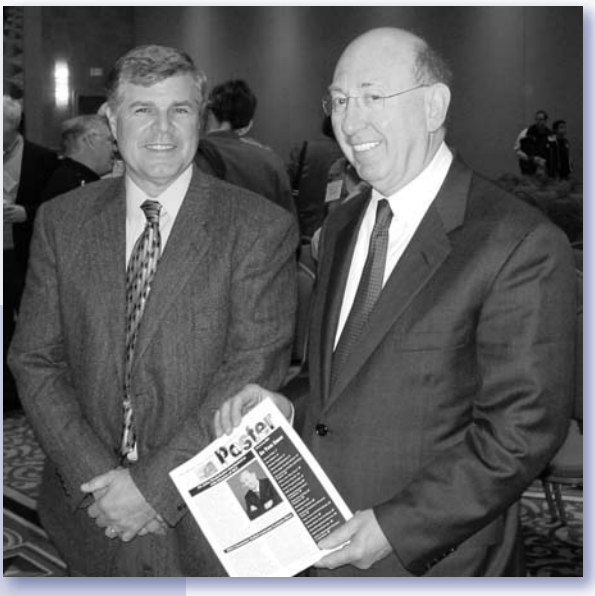




Congratulations to the Winter 2006–2007 Poster Puzzler winner!
Kurt Zimmerman, Warehouse Specialist, Property Accountability. ✦

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. ✦



Above, Robert Wiltrout, Ph.D. (left), Director, Center for Cancer Research, NCI, with John E. Niederhuber, M.D., Director, NCI, holding the Poster *at the recent Interdisciplinary Principal Investigators' Retreat.* ✦

ARC Announces Personnel Changes

By Nancy Parrish

Lori Holliday, manager of the Administrative Resource Center (ARC), recently announced changes in her staff.

L to R, Cheryl Osborne and Jo Anne Mealo with ARC Manager, Lori Holliday.

Jo Anne Mealo started as an administrative technician in January 2007. Ms. Mealo has a strong administrative background, with five years of secretarial experience at the National Human Genome Research Institute, following five years as a facility accountant for nursing homes. She works with Administrative Officers Valerie Turnquist and Tanya Sappington to assist the Structural Biology Laboratory, the Gene Regulation and Chromosome Biology Laboratory, the Laboratory of Protein Dynamics and Signaling, the Laboratory of Medicinal Chemistry, and the Laboratory of Cell and Developmental Signaling. "I feel like I am part of a larger effort. I hope to make a difference for people with cancer and their families because I know firsthand what it's like," she commented, speaking of her husband, who recently lost his battle with multiple myeloma. When not in the office, Ms. Mealo relaxes with her four dogs and also enjoys painting.

Cheryl Osborne, who has been with ARC for two years, is transitioning from assisting in the Travel Core to becoming an administrative clerk. Currently working part-time, Ms. Osborne is a junior at Hood College, majoring in business management, with a minor in marketing. With Administrative Officers Betsy Brawner and Lisa Virts, Ms. Osborne will work with the Cancer and Inflammation Program and the Mouse Cancer Genetics Program, as well as with the Laboratory of Cancer Prevention. She anticipates having more contact with the laboratories and feels her greatest challenge will be learning all the systems and policies.

When not studying or working, Ms. Osborne likes to spend time with friends and family. During football season, she's glued to National Football League (NFL) broadcasts. A former cheerleader, Ms. Osborne said, "I love the NFL. Football is my passion."

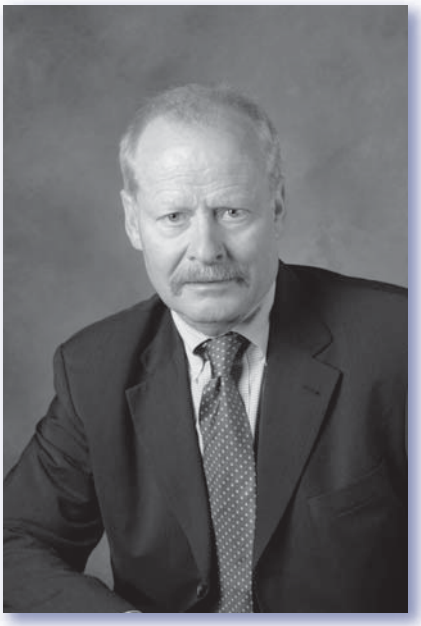
ARC Provides Broad Range of Administrative Services

Ms. Mealo and Ms. Osborne are part of a 17-member staff dedicated to providing administrative services to nearly 1,500 NCI-Frederick employees in 17 laboratories and 4 major programs. Ms. Holliday operates the ARC with a single mission: to keep as much administrative work as possible off the scientists' desks. "We're a one-stop shop," she said. The ARC provides all administrative services for their assigned labs, such as coordinating IDs for new employees; providing health benefits information; coordinating the hiring of new employees; helping the labs set up and track their budgets; and everything in between. Even if a lab needs something that ARC doesn't normally provide, Ms. Holliday explained, "we'll find a way to get it done."

For more information about the ARC, contact Lori Holliday at 301–846–1414 or hollidayl@mail.ncifcrf.gov. ✦

Timothy Harris: An Energetic Man for an Energetic Program

By Maritta Perry Grau



Tim Harris, Ph.D., director of the Advanced Technology Program (formerly the Research Technology Program) brings energy and drive to everything he does: He works hard and he plays hard. "People could accuse me of lots of things, but lack of energy is not one of them," he said with a chuckle in a recent interview.

A Londoner from a family of scientists, Dr. Harris came to the United States in 1993. "I'm a genomic technologist—a biochemist and a technologist. I enjoy working in the high-tech lab sciences arena. One of the reasons I'm at SAIC-Frederick, Inc., is that I have a great interest in genetics and genomics. I want to get in there and see how the science is done and contribute that way. Not many jobs anywhere on the planet have the breadth and interest that this one does."

He is excited about the possibilities of the proposed Advanced Technology Research Park. "We could tailor-make the facility to fit what we do, which is to be a technology resource for the NCI and for others. But," he cautioned, "we will not work with the other customers at the expense of our major customer, which is the NCI, at Bethesda and at Frederick."

Energetic Hobbies for an Energetic Man

Some people go on vacation to relax, perhaps laze on a beach, reading a book or checking out the local "scenery." Dr. Harris's vacations send him plunging into the depths of the sea, soaring above the clouds, or frenetically racing on terra firma.

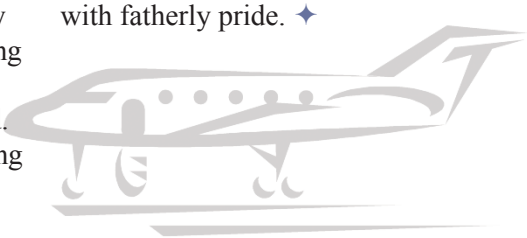
He enjoys SCUBA diving, and he has a pilot's license, although not with an instrument rating. His next goal: "I'm going to learn to fly helicopters. Helicopters would be really fun."

However, his favorite sport is race-car driving. "My favorite without any question! I find it the most exhilarating thing out there; it beats flying and SCUBA diving hands down," he said. He has attended several Porsche racing schools "just to teach myself how to drive Porsches fast. It's not the going fast that is so exhilarating, it's the braking," he said. "The brakes are just fantastic! You could be doing over a hundred and coming into a right-angle bend, and you know you've got to slow down to about 30 miles an hour, and you brake as late as you can because you want as much kinetic energy through the corner as you can get.."

Naturally, Dr. Harris has his own Porsche, which he brought with him from California. However, during bad weather, his Porsche remains in the heated garage. "It's an old 993, an unusual car; there's only 1,400 of them in the United States."

Musing on the various sports he enjoys, he noted that if all he did was play, "I'd probably find it all rather trivial if I didn't have the intellectual stimulation you get from the technology and research."

Dr. Harris's late father, a chemist and biologist, was one of the first researchers to grow the Rous sarcoma virus in rat cells. His mother is a retired geologist, and his sister a retired immunologist. Of his four children, all in college, the eldest will soon qualify as a general practitioner in the northeast of England. "All have done well; they've done great," he said with fatherly pride. ✦



Poster People Profile: Martha Summers

Martha Summers: Information with a Smile

By Nancy Parrish

The friendly face you see behind the desk most mornings at the Scientific Library belongs to Martha Summers, one of the document delivery technicians. And her smile is genuine—when asked what she likes best about the job, she answered in two words: "the people."

She likes working at the front desk because, as she explained, "By being the first staff member a patron sees, I am afforded the opportunity to connect with them and to find out what research is going on at the NCI campus." Personal contact with patrons is an important part of her job, she said, because "the one-on-one interaction is a powerful tool in figuring out the information needs of the NCI community." As a document delivery technician, Ms. Summers' responsibilities include day-to-day circulation tasks and delivery of in-house article requests. She feels the library's small, specialized environment provides the advantage of offering a variety of projects to work on.

"Burying" the Card Catalog

When she was hired 13 years ago, Ms. Summers first worked on the automation of the library's card catalog. She said, "I remember helping the library's cataloger with this project. Each record in the system had to be customized to meet the library's needs, and it was my job to add or delete certain information as specified by the cataloger. This was an enormous project that started long before I was employed at the library, and it was very exciting to see it completed." And, she added, "the on-line catalog was up and running in late October, just in time for Halloween, so the library staff had a mock burial for the old card catalog."

She has also seen the transformation of document delivery from paper copies to electronic transmission.

Martha Summers
Document Delivery Technician, Scientific Library

"Everything was done manually, for the most part." She did use a data entry system called Wilbur, but, she said, it was "not as forgiving" as our software today. "If I made a mistake, I would have to contact Computer Services to remove the error."

Information Resources to Boggle the Mind

Ms. Summers is fascinated with the amount and accessibility of information today. "It is mind-boggling to think of the information that is right at our fingertips," she said, but she also feels the amount of information presents its own challenges. Library staff are obligated to "make sure that the information people retrieve from the Internet is credible and accurate."

A Woman of Many Talents

Active throughout the NCI-Frederick community, Ms. Summers serves on the Take Your Child to Work Day committee, the Café Users Group, and the Campus Improvement Committee. Over the years she has participated in the Elementary Outreach Program, and she helps with Dr. Howard Young's summer student lecture series by locating various publications for the students.

Information is not all that Ms. Summers digs for. She also happens to be an enthusiastic gardener. She and her husband Jon (a photographer for Scientific Publications, Graphics & Media) are renovating the property surrounding their home in Pennsylvania. She noted that the property, purchased four years ago, "was neglected, but we knew it had marvelous potential. We have spent the past few summers getting the landscaping under control. It's a good thing that gardening is my favorite hobby," she commented. Ms. Summers also belongs to a culinary club, and loves to visit art museums and collect art, interests which she fulfills on her travels. Last year she and her family visited England, and she just returned from a trip to Thailand this past February. She and her husband celebrated their 20th wedding anniversary last November. They have a son, who is in eighth grade. ✦

Honoring Black Americans

By Maritta Perry Grau

Throughout the year, the Employee Diversity Team supports numerous activities that help focus on the wonderfully diverse culture that is the NCI-Frederick. This past winter, the team helped with several endeavors to honor black Americans.

Motivational Speaker

In January, some members of the team attended a Fort Detrick ceremony at Strough Auditorium to commemorate Martin Luther King, Jr., Day.

In his opening remarks, Colonel Timothy Lamb commented that guest speaker Dr. Victoria Dixon was a "strong representative of putting Dr. King's dream in practice."

During her talk, Dr. Dixon said that her favorite King speech is "I've Been to the Mountaintop," a presentation eerily prescient of what would happen the next day—April 4, 1968, when he was assassinated. Dr. King is quoted as saying, "Like anybody, I would like to live a long life…. I've seen the promised land. I may not get there with you. But I want you to know tonight, that we, as a people, will get to the promised land."

Dr. Victoria Dixon, motivational speaker

Four of the eight local soldiers who performed in Light in the Window.

"The play's the thing…"*

Our Army garrison friends surprised us all with a new dimension: not only can they fight and play hard, but they also are skilled at drama.

As part of the Army's Black History Month celebrations, several soldiers presented a play, *Light in the Window*, followed by a powerful rendition of "Amazing Grace," performed by Warren Dorsey. *Light* was inspired by the life of John Newton, an early nineteenth-century English slaver who renounced his livelihood (and later wrote "Amazing Grace" about his life-altering experience).

*William Shakespeare, *Hamlet*, II:ii, l 633.

The Rosa Parks Story

The Scientific Library joined the Employee Diversity Team to present *The Rosa Parks Story* as part of NCI-Frederick's Black History Month celebration. Ms. Parks has been nationally recognized for her courage when she refused to give up her seat on a bus to a white man, setting off one of the first Civil Rights demonstrations of the 1950s and leading to many legislative reforms in treatment of all minorities and women.

As with other movies, *The Rosa Parks Story* was screened over a two-day lunchtime slot. Watch your e-mails for the April and May movies.

African-American Scientists Highlighted in Display

You might also have noted the profiles of African-American scientists, both contemporary and historical, on display in Building 549 and at the Army Headquarters. These included **Benjamin Banneker** (1731–1806), a noted engineer, astronomer, and architect; **Guion "Guy" Bluford** (1942–), Ph.D., the first African-American astronaut to fly in space; **Edward Alexander Bouchet** (1852–1918), the first African-American physicist; **George Washington Carver** (1865?–1943), an agriculture researcher; **Rebecca Lee Crumpler** (1831–1895), M.D., the first African-American female medical doctor; **Charles Richard Drew** (1904–1950), M.D., who determined that plasma could be stored at room temperature and who developed blood banks; **Mae Jemison** (1956–), M.D., the first black woman astronaut and now an entrepreneur; **Ernest Everett Just** (1883–1941), Ph.D., a cell biologist; **Charles Henry Turner** (1867–1923), Ph.D., a zoologist; **Daniel Hale Williams**, M.D. (1856–1931), credited with performing the first successful open-heart surgery; and **Roger Arliner Young** (1889–1964), Ph.D., the first African-American woman to earn a doctorate in zoology. ✦

Shocking Statistics with a Dose of Optimism

By Nancy Parrish

The statistics were frightening and the meaning was clear: As a civilization, we have contributed to global warming, and we are now suffering the consequences. However, we have a small window of opportunity to make changes, and if we act now, today, we may be able to reverse the current path we're on toward global environmental disaster.

This was the message delivered on March 1 by Werner H. Kirsten student intern Hanna Poffenbarger in her presentation based on former vice president Al Gore's documentary, *An Inconvenient Truth*. Ms. Poffenbarger was one of 1,000 people who trained in Tennessee as part of Mr. Gore's Climate Project to raise awareness of the problem.

Ms. Poffenbarger explained that gases such as carbon dioxide (CO_2), methane, and nitrous oxide, trap infrared waves that are radiated from the earth's surface, much like the panels of a greenhouse. This "greenhouse effect" normally keeps the earth's climate stable. However, we are generating these gasses in volumes so staggering that we have actually changed the chemistry of the earth's atmosphere. With more of these "greenhouse gases" being released, higher levels of radiation are being trapped, and the surface temperature of the earth has begun to rise.

This increase in surface temperature is having devastating effects on global climate, which in turn affects plants and wildlife the world over, Ms. Poffenbarger said. She continued with unrelenting images and statistics:

Glaciers are receding, disrupting both sea life and wildlife.

Weather patterns are changing and the oceans are warming, leading to more and bigger storms, and causing devastating floods and scorching draughts.

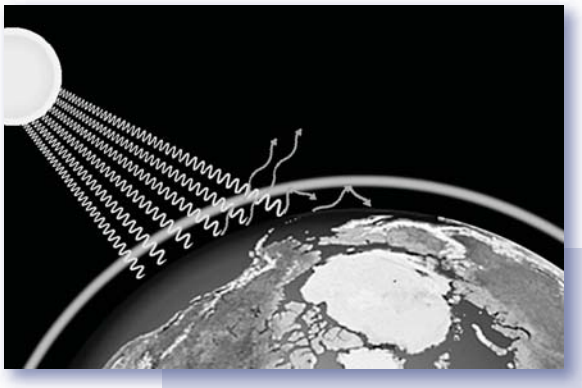
The Arctic ice shelf is breaking up at an accelerated rate, threatening the polar bears with extinction.

Land-based ice, such as that found in Greenland, is also breaking up, threatening to cause a dangerous rise in the sea level and widespread coastal flooding.

Invasive species are living longer and inhabiting wider ranges, resulting in the decimation of many native species of plants and wildlife.

Coral reefs are dying due to the change in water temperatures, with a concurrent loss of marine life.

The number of new vectors for infectious diseases is increasing, and insect-borne diseases are able to spread at much faster rates.



Greenhouse effect: Gases such as carbon dioxide, methane, and nitrous oxide, trap infrared waves that are radiated from the earth's surface.

Image courtesy of The Climate Project

Collision between Our Civilization and the Earth

Describing it as a collision between our civilization and the planet, Ms. Poffenbarger said the problem is due to three major factors. First, the global population explosion is putting a tremendous strain on the environment. Second, the scientific and technological revolution is accelerating the planet's rate of destruction. People are continuing old habits using new technology, but they are not using this technology wisely. For example, where once a shovel was used, high-tech earth movers are literally changing the face of the planet; enormous fishing nets have replaced hand-held ones, enabling over-fishing and depletion of our seas. Finally, our way of thinking is contributing to the problem. Until now, these changes have been taking place slowly, and we have been unaware of the devastating effects our technological advances have had on our environment. We must start to consider the health of our planet when making changes for economic progress.

Our Window of Opportunity

The good news, according to Ms. Poffenbarger, is that we can work together to reverse these destructive trends. "We can do this!" she said. Each of us can make personal changes in the way we live our lives. "We have a small window of opportunity to do this, if we act now," she said. "We do not want to look back and say, 'We should have stopped this problem while we could.'"

Increasing End-Use Efficiences at NCI-Frederick

The biggest culprit in global warming, Ms. Poffenbarger said, is CO_2, which results from burning fossil fuel (oil, natural gas, and coal), wood, and wood products. According to the Natural Resources Defense Council, coal-burning power plants and auto

continued on page 23

Global Warming

continued from page 22

emissions are the largest sources of CO_2 in the atmosphere. After the presentation, she provided the following suggestions for reducing our energy use at NCI-Frederick:

- Keep blinds and curtains open to allow passive solar energy into room. Close them at night to keep heat in.
- Make sure computers are set up to use the energy-save option.
- Turn off lights and equipment when not in use. If lights aren't needed, keep them off.
- Keep refrigerators and freezers away from heat sources. Check the condition of coils and seals periodically.
- As light bulbs burn out, replace them with compact fluorescent bulbs.
- Order materials with the least amount of packaging.
- Avoid running the tap.
- Walk, don't drive, to a nearby location. Carpool and use the shuttle whenever possible.
- Recycle! NCI-Frederick has an extensive recycling program (see article below). Check the Web site for complete information: http://home.ncifcrf.gov/ehs/recycling/default.asp.

Office or lab groups should work together to determine what changes may be made in their specific areas. Changes such as increasing recycling activities or adjusting the thermostat could make a significant impact on energy consumption. Just talking about solutions will remind people to make more environmentally conscientious decisions. Finally, NCI-Frederick could set an energy reduction goal and measure progress throughout the year.

For more information about global warming, The Climate Project, or to arrange for a presentation, you may contact Ms. Poffenbarger at 301–846–5214 or poffenbargerh@ncifcrf.gov. ✦

Celebrate Earth Day April 22

By Nancy Parrish and Paul Stokely, Environment, Health, and Safety

"Scales and Tales" exhibit at the 2006 Earth Day event at Fort Detrick.

Earth Day Events Close to Home

Fort Detrick held an Earth Day Celebration on April 5, 10:00 a.m.–2:00 p.m., in the H.O.T. Dome. Food, games, and exhibits were available for your enjoyment.

Community Earth Day celebrations will be held in Frederick on April 21 in Baker Park and at the Common Market Natural Foods Co-op. Both events will feature food, presentations, and exhibits. Watch your local newspapers for details.

Information on how you can protect the environment can be found on hundreds of Web sites, including http://www.earthday.net/, www.EarthDay.gov, and http://www.epa.gov/earthday/.

Renew Your Commitment to Recycling

At NCI-Frederick, we are fortunate to participate in an extensive recycling program, developed in cooperation with the U.S. Army Garrison, which helps us reduce waste and shrink our "environmental footprint" on the earth. Complete information may be found on the following Web sites:

Chemical recycling: http://home.ncifcrf.gov/ehs/ehs.asp?id=79
Fort Detrick Environmental Management Office: http://www.detrick.army.mil/emo
General recycling: http://home.ncifcrf.gov/ehs/recycling
Waste management: http://home.ncifcrf.gov/ehs.asp?id=66

Speak Out about Your Concerns

If you have any questions or comments about NCI-Frederick recycling or other environmental efforts, please call the Waste Management office at 301–846–5718.

Watch for Updates on Environmental Efforts at NCI-Frederick

A January 2007 executive order requires all federal agencies to implement an Environmental Management System (EMS) to identify and mitigate an organization's environmental impact; the EMS focuses on energy use, green purchasing, waste generation, and vehicle efficiency.

The NCI-Frederick EMS, established in 2006, will seek to expand its scope in 2007. Watch for more information on the NCI-Frederick EMS in future issues of the *Poster*. ✦

NCI-Frederick/Fort Detrick Fitness Challenge Is Back

By Lee Jenkins,
Occupational Health Services

The NCI-Frederick/Fort Detrick Fitness Challenge is back for 2007. Although our first year was highly successful, we've added a few exciting incentives to help achieve even better results this year.

Monthly Prizes to Be Awarded

Each month, from February through November, participants finishing at the top of each of the three Challenge categories will be rewarded for:

- The greatest number of pounds lost;
- The greatest number of miles traveled; and,
- The greatest number of hours spent performing other fitness activities.

Prizes include free magazine subscriptions, fitness mats, gym bags, and ankle weights. Only those participants who have officially recorded their monthly weight with Occupational Health and Safety (OHS) will be eligible for the weight loss competition, and each participant can win only one prize throughout the year.

Regional Fitness Events Offer Something for Everyone

In addition to the NCI-Frederick/Fort Detrick fitness-related events listed on the FitEvents page of the Fitness Challenge Web site, now you can easily find regional fitness activities by clicking on "Other Events" from the home page. Activities listed on this page range from dance or yoga classes being offered to marathons being held throughout the mid-Atlantic region. There's something for everyone.

Find Food, Fitness, and Friends on the Web Site

Don't worry. We've kept many of the same great features from last year's Challenge. You'll still find fitness tips and healthy recipes every month. Also, the on-line Fitness Tracker allows you to track your personal progress and compare with others, while the "find-a-buddy" feature helps you to partner up with a workout buddy.

OHS is excited about the success of this program, and we consider ourselves fortunate to be able to help our fellow employees achieve positive lifestyle changes. It's never too late to join, or re-join, this facilitywide effort. Be sure to create an on-line account so that your progress, and that of your organization, will be officially recorded.

For Additional Assistance or Information

To learn more about the Fitness Challenge, or for assistance with your personal fitness program, check the Web site, http://saic.ncifcrf.gov/fitnesschallenge/, or call Occupational Health Services, at 301–846–1096. ✦

PROGRESS REPORT

The goals of the 2007 Fitness Challenge are to lose a ton of weight (2,000 pounds); walk, run, or bike around the world (25,000 miles); and do a year's worth of hours (8,760) of other exercise. According to the Fitness Challenge Web site, as of March 16, 2007, we have lost 363 pounds, covered 8,592 miles, and performed 1,417 hours of other types of exercise. The table at right shows per-person averages by organization. ✦

Organization	Per Person Averages*		
	Pounds	Miles	Hours
Charles River Laboratories	0.57	6.55	0.74
National Cancer Institute	0.35	5.15	0.99
NCI-Frederick Café	2.00	5.38	1.00
Wilson Information Services Corporation	5.12	1.97	0.78
SAIC-Frederick, Inc.:			
Advanced Technology Program	3.34	2.47	1.00
Applied Developmental Research	2.00	3.40	1.19
Basic Science Program	3.35	2.77	1.10
Biopharmaceutical Development Program	2.07	3.22	1.07
Clinical Research Directorate	6.93	2.14	1.37
Contracts & Administration	2.43	2.89	0.64
Environment, Health & Safety	3.12	2.83	1.32
Facilities Maintenance & Engineering	1.25	4.40	1.08
Laboratory Animal Science Program	1.08	2.28	1.42
Vaccine Clinical Materials Program	6.00	20.14	0

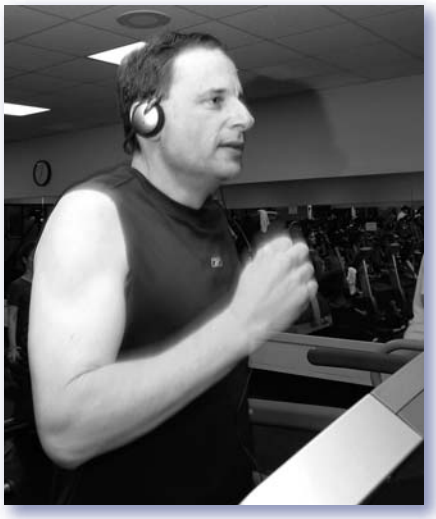
**Data taken from the Fitness Challenge Web site as of March 9, 2007.* ✦

2006 Fitness Challenge Winner

Club 21 and 7-UP: Unconventional Goals

By Nancy Parrish

Donald Harne, Contracting Officer for NCI-Frederick, was the overall winner of the 2006 Fitness Challenge, losing



22 percent of his body weight. While he did not qualify for the cash award, his determination and self-motivation are worthy of special recognition.

Creating Club 21

In 1993, Mr. Harne decided to lose weight. Never having been particularly athletic, he started jogging on a treadmill. To make it more interesting, he set a goal for himself, which he called Club 21: run 3 miles in 21 minutes. Once he was able to maintain a Club 21 pace, he lost 30 percent of his weight in 11 months, dropping from 233 to 163 pounds.

The Gauntlet Is Thrown

In 1997 he suffered a stress fracture, causing him to cut back on his running. Soon his weight started creeping back up. Toward the end of 2005, he was recounting his weight-loss history to a co-worker, who responded with a searing remark: "I would never have let myself get into the shape you're in."

"Right then and there," Mr. Harne recalled, "I made my decision to lose weight." About the same time, Larry Arthur, Ph.D., president of SAIC-Frederick, Inc., issued the 2006 Fitness Challenge to the SAIC-Frederick, Inc., community, and NCI-Frederick employees soon joined in.

Greatest Challenge Came from Within

The biggest challenge, however, came from Mr. Harne himself: to achieve his Club 21 pace again before reaching age 50 (which was a year away). At first, it took him 45 minutes to run 3 miles. By April, he had shaved his time to 26 minutes, but, he said, his weight was still "up there." Once he broke the 26-minute barrier, however, his weight began to fall off, and, by the end of May, he had reached an 8.5-minute-mile pace and had lost 26 pounds.

An emergency appendectomy brought his running to a sudden halt in early June. Released from the hospital a week later, he was running 2 miles by the end of June. By summer's end, he had regained Club 21 status. Then he devised a new challenge: run 7 miles in the same number of minutes as your age. In Mr. Harne's case, this would mean running 7 miles in 49 minutes, or keeping up a 7-minute mile pace for more than twice the Club 21 distance. Calling it "7-UP," he achieved this pace in early November.

The Club 21 Playlist

Mr. Harne attributes his success to his iPod Shuffle. Using this tiny digital music player, he created his own Club 21 playlist of more than 130 songs to listen to while he runs. So significant is the music that he remembers what was playing at every running milestone. For example, he crossed the seven-mile mark for his 7-UP achievement while listening to "Go Your Own Way" by Fleetwood Mac. In mid-November, with Smashing Pumpkin's "Bullet with Butterfly Wings" urging him on, he smashed through his own Club 21 pace, running 3 miles in 19 minutes 57 seconds.

What Motivates Him

In addition to Club 21 and 7-UP, Mr. Harne has removed all candy and other junk food from his house. "I just pretend I'm on *Survivor*," he said. He has given away all his "fat clothes," so that tight waistbands or pinching collars will immediately signal extra pounds.

The strongest motivator, however, comes from the endorphins (substances produced by the brain during strenuous physical activity that create an elevated mood or "high"). Now that he regularly experiences the runner's high, he said, "I can only go for about 48 hours before I need a 'hit' of endorphins."

Mr. Harne supplements his running program with weight training at the CPT Jennifer J. Shafer Odom Fitness Center. "The gym is one of the greatest benefits we have here," he said. ✦

Tips from Donald Harne's Program

- Set goals and stick with your program.
- Combine healthy nutrition with any kind of exercise you enjoy. Just make sure it makes you sweat!
- Use an iPod Shuffle or any other device that will take your mind off the pain or drown out your own panting.
- Drink at least 1 liter of water daily (coffee and soda don't count). Flavored seltzer water is a good alternative to plain water.
- Keep a log of your activity.

[Editor's note: Be sure to consult with your doctor before beginning an exercise program.]

Anne Hartley, M.D.: Great Expectations

By Nancy Parrish

Anne Hartley, M.D., has learned that what you expect to do and what you end up doing can sometimes be surprisingly different. As an intern in the Werner H. Kirsten Student Intern Program in 1993–1994, she thought she would do what was expected of her: earn a Ph.D. in a life science and become a research scientist, like her father, James Hartley, Ph.D., Director, Protein Expression Laboratory.

But life has a way of taking some interesting turns.

As a high school senior in 1994, Anne Hartley expected to become a research scientist.

After graduating from Frederick High School in 1994, she attended Cottey College, a two-year women's college in Missouri, and expected to transfer to a coeducational school. However, she enjoyed the women's college experience so much, she transferred to Randolph-Macon Women's College (RMWC) in Lynchburg, VA.

At RMWC, she fell in love with evolutionary biology and anticipated pursuing a Ph.D. in the field. But the summer before her senior year, she participated in the Research Experience for Undergraduates (REU), a program sponsored by the National Science Foundation, which changed her life. She confessed she was attracted to the program primarily because of its location at Colorado State University, Fort Collins, CO. "I got to see a cool part of the country," she recalled. What she didn't expect, however, was finding an attraction of a different sort: during that summer, she met the man who would ignite her interest in medicine. He would also later become her husband.

A Change in Focus

After graduating from RMWC in 1998 summa cum laude, Phi Beta Kappa, she returned to Fort Collins, where she worked as a lab technician studying human T-cell leukemia virus, type 1 (HTLV-1). Working in a laboratory changed her focus, she said, as she realized that "I didn't want to be doing bench work indefinitely." She was drawn to her future husband's enthusiasm for medicine and found she wanted to "work more actively with a variety of people." It was then that she decided to attend medical school.

The following year, Dr. Hartley and her future husband moved to Chicago, where he attended medical school. She worked as a pulmonary lab technician, studying non-small-cell lung cancer, while preparing for the medical college admissions test. Two years later, she entered medical school at Rush Medical College.

The three-year break between college and medical school gave her a chance to determine what was important to her. "I think the break made me really appreciate being back in school. I absolutely loved it!" she commented, adding, "It was definitely the right decision for me."

Now married, Dr. Hartley is a first-year resident in internal medicine at Mt. Carmel, a small community hospital in Columbus, OH. She and her husband anticipate returning to Chicago following their residencies.

Reflections on Her Internship

One of Dr. Hartley's favorite memories of her internship in the Laboratory of Experimental Immunology is the food table in the office of her mentor, Howard Young, Ph.D. It was always filled with treats and, according to Dr. Hartley, "It was a nice place to take a break and chat with Howard."

Dr. Anne Hartley with husband, Dr. Jeff Rastatter, who inspired her to enter medicine.

She attributes the edge she had in some of her college classes to her experience as a student intern: "One of my first labs was to run a DNA gel. Piece of cake!" More important, she said, is the confidence in science the experience gave her, and the doors it opened for her. "I think [the internship] was integral in my getting accepted to the REU summer program…where I met my husband and really changed the course of my life," Dr. Hartley reflected.

"It's Okay to Change Directions"

Her advice to current students: "Don't be afraid to change course!" Dr. Hartley's career path was not a straight line, but she ultimately found a career she loves. She realizes that the pressure she felt to enter the research profession was self-imposed, brought on by "my own narrow thinking!" She now believes in keeping an open mind, advising, "It's okay to change directions. You've got lots of time. Explore!" ✦

A Remarkable Career

Louis E. Henderson, Ph.D. AIDS Vaccine Program

By Lisa Simpson

Louis E. Henderson, Ph.D., Senior Principal Scientist and Scientist Emeritus at the Center for Cancer Research (CCR) AIDS Vaccine Program (AVP) has retired after more than 30 years of notable research achievements at NCI-Frederick.

Dr. Henderson was the first to determine how to inactivate retroviruses without changing their exterior structure, which is essential for their safe laboratory study and use as killed-virus vaccines. This technique enabled the development of a killed-virus HIV vaccine for use in human clinical trials.

Dr. Henderson also discovered that retroviruses modify their proteins by myristylation, a process critical to their ability to use the host cell's membrane to produce more infectious virus. A major advance in understanding the retroviral life cycle, this discovery led to the study of myristylation inhibitors as potential antiretroviral therapeutic agents.

In the mid-1970's, he and Raymond Sowder, longtime Basic Research Program (BRP) and AVP colleague, invested several years modifying the then-new technique of reversed phase high pressure liquid chromatography (HPLC) to purify whole retroviral proteins, despite the scientific consensus that HPLC was unsuitable for this task. According to Mr. Sowder, when Dr. Henderson first presented the successful purification of whole proteins from the Moloney Murine Leukemia Virus, his findings were met with disbelief. However, within a year, other investigators started using this technique, now a standard laboratory protocol.

George Pavlakis, Ph.D., head, Human Retrovirus Section, Basic Research Laboratory, CCR, first met Dr. Henderson more than 20 years ago in the BRP. "His immense knowledge of retroviral proteins was a valuable resource to us and he was always there to patiently explain their intricacies any time we needed him," said Dr. Pavlakis.

Louis Henderson, Ph.D., (L) and Larry Arthur, Ph.D., talk over old times at Dr. Henderson's retirement reception.

Dr. Henderson's experiments and suggestions often led to important discoveries in other labs. "Several of my most important papers describe experiments that were really suggested by Lou or Lou's earlier results," commented Alan Rein, Ph.D., head, Retrovirus Assembly Section, HIV Drug Resistance Program, CCR. Dr. Rein explained that after Dr. Henderson noticed a particular conserved amino acid sequence in retroviral nucleocapsid proteins, their research with Robert Gorelick, Ph.D., head, AVP Retroviral Mutagenesis Section, CCR, and other collaborators, showed this region to be a key part of the nucleocapsid zinc-finger domain, a vital component in the life cycle of almost all retroviruses, and a target for the development of antiretroviral agents.

Dr. Henderson also mentored many young scientists, according to Dr. Gorelick, whom Dr. Henderson hired as a postdoctoral fellow in 1985. "He is very passionate about virology and protein chemistry and was able to convey his enthusiasm to you. He always had many ways of viewing a particular problem or project and really took the time to make sure you completely understood what it was about."

Dr. Henderson obtained his Ph.D. from the University of Colorado, Boulder, followed by research fellow stints at Harvard, Chalmers University in Sweden, and Yale. He joined the BRP in 1976 to work with Dr. Stephen Oroszlan in the Protein Chemistry Section. In 1989, he began to work with the then-director of the AVP, Dr. Larry Arthur (now president of SAIC-Frederick, Inc.).

At a January retirement reception held in Dr. Henderson's honor, Dr. Arthur presented him with a framed letter of appreciation. According to Dr. Arthur, when a project posed a problem or a question, Dr. Henderson "would be as tenacious as anyone I've ever seen in trying to get an answer" and was "a scientific driving force" for the AVP.

Reflecting on his career at NCI-Frederick, Dr. Henderson said he feels blessed to be part of a society "where an obsessive problem-solver can work among like colleagues doing what he loves to do. I feel like the taxpayers of this country have let me spend my life making a living playing in a sandbox. I can only hope that in time some of it will prove beneficial and help to repay my debt." ✦

New Faces at NCI-Frederick

NCI-Frederick Welcomes New Staff

Fifty-eight people joined our Facility in October, November, and December 2006.

NCI-Frederick welcomes…

Sergey Apasov
Prasenjit Bhaumik
Cedric Cagliero
Kasim Diril
Ashraf El Fiky
Michal Legiewicz
Henry Schaefer ✦

Prasenjit Bhaumik

Qiang Chen

Sarah Franks

Kasim Diril

Michal Legiewicz

Ashraf El Fiky

SAIC-Frederick, Inc., welcomes…

Kihong Ahn
Yessica Alarcon Maza
Chad Andersen
Randy Brooks
Scott Burdette
Chelsea Chase
Anney Che
Qiang Chen
Jared Cole
Thomas DiMaggio
Lisa Dodge
Lauree Duvall
Doris Evans
Sarah Franks
Mercy Gathuka
Barry Gause
Madeline Gayowski
William Gonzalez Rodriguez
Xiuchan Guo
Raymond Harvey
Susan Henshke
Leo Jenkins, Jr.
Priyadarshini Kapoor
Kyung Kim
Joseph Kir
Barbra Larkin
Paula Layton
Janice Lescalleet
Amanda Linebaugh
Kate Luyegu
Otis McRae
Dexter Moore
Dwayne Neal
Timothy Ouellette
Sandra Paul
Raghavendra Philkana
Kara Pietroski
John Powers
Hope Salvo
Aramba Selvi
Michael Stockman
Qi Na Tan
Lai Thang
Biak Thluai
Suneetha Thomas
Barbara van der Schalie
Mathias Viard
Dawn White
Michael Young
William Yutzy
Cuiping Zhao ✦

Chelsea Chase

Data Management Services (DMS)

Data Management Services: 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 http://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 (http://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: http://css.ncifcrf.gov/helpdesk/software.asp or contact the Computer Services Helpdesk to borrow the software or request installation assistance. ✦

Contacting C&SS

Computer Services Helpdesk
Web: http://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 ✦

SAIC-Frederick, Inc.

ATP Highlight of BIO2007

By Maritta Perry Grau

For the second year, the Advanced Technology Program (ATP) will promote ATP and other SAIC-Frederick, Inc., programs through Maryland's pavilion at the May 2007 Annual International Convention of the Biotechnology Industry Organization (BIO) in Boston.

The display will emphasize that SAIC-Frederick, Inc. operates the translational research center of the

National Cancer Institute and is accelerating the delivery of new treatments to patients with cancer and AIDS. Translational research capabilities range from basic research to advanced technologies and pharmaceutical development to clinical trials management.

Attending will be Timothy Harris, Ph.D., Director of ATP; Carl Garland, Ph.D., ATP Business Operations Director; Charmaine Richman, Ph.D., Scientific Administrator for SAIC-Frederick, Inc.; John Gilly, Ph.D., new Deputy Director of the Biopharmaceutical Development Program; David Bufter, Director of Cotnracts and Administration; and Frank Blanchard, Director, Public Affairs. ✦

Steve Harshman: SAIC-Frederick, Inc., Quality Control Director

As part of anticipating and meeting our customer's (NCI) requirements and expectations, SAIC-Frederick, Inc., has recently established a Quality Assurance Office. Steve Harshman will work with the directorates, ensuring that we provide high-quality products and services to NCI.

Mr. Harshman pointed out that since our primary customer is NCI, "The world marketplace doesn't know what we can do or how we can do it. But with the WFO/EA, we're starting to work with other customers. There will be a marketplace view of SAIC-Frederick, Inc., so it's very important that we do all we can to ensure that it's a very positive view of both SAIC-Frederick, Inc., and NCI-Frederick. Being able to demonstrate you have high-quality programs and that you provide excellent customer service are important factors in the contract services business."

Be sure to read a longer profile of Mr. Harshman in the upcoming April *News & Views*. ✦

Research Technology Program: What's in a Name?

What's in a name? Quite a lot, as Shakespeare would tell you and as Tim Harris, Ph.D., the new Research Technology Program's director, will also tell you. Make that the *Advanced* Technology Program: Dr. Harris recently announced a change in name from the decade-old Research Technology Program to Advanced Technology Program. After much discussion and consideration, the name was changed, Dr. Harris said, to reflect a more up-to-date description.

"There are now more components to the program than there were before. Recent additions include the Nanotechnology Characterization Laboratory (NCL), headed by Scott McNeil, Ph.D.; the Core Genotyping Facility (CGF), located in Gaithersburg, with Meredith Yeager as Scientific Director; and the Viral Oncology Section (VOS) Core Laboratory, led by Denise Whitby, Ph.D., and Bette Conde, Ph.D. The increased capability that these groups bring necessitated a broader descriptor for the program. It was not lost on us, of course, that ATP is the molecule that provides energy to cells, so we felt that the ATP was perhaps a more energetic description than the RTP," Dr. Harris said. ✦

Get Fit for the Frederick Marathon

The annual Frederick Marathon takes place May 5–6. Check the Web site for details on race times and places (http://www.frederickmarathon.org/). Races include a 26K full marathon, a half-marathon, a team relay, or a twilight 5K race, and a "Progressive Marathon," that began in January. In this event, you run 25.5 miles within a 14-week period (January–May), keeping a mileage log sheet (form available from the Web site) to track your progress. On May 5th, all participants in this race will run or walk the last seven-tenths of a mile together and cross the marathon's finish line.

The May Marathon will also include a Sports Expo with vendors selling products and offering special services. After the race, you can join the 27th-Mile Party at Grove Stadium. The Web site promises drinks, cookies, doughnuts, bagels, and fruit for runners. ✦

How You Say It Is More Important Than What You Say

Do you suffer from stage fright?

If so, you are not alone. The number-one fear most people have is that of speaking in public. Heights, snakes, and spiders intimidate many of us, but the anxiety caused by standing on a stage, looking out at a sea of faces in the audience, can be just as debilitating. You can probably avoid climbing and can escape from assorted critters, but if you are a scientist, making presentations is something you can't avoid.

Are you being promoted to a position that involves public speaking? Do you have an important presentation coming up?

If you answered "yes," the Scientific Library can help you overcome your fear, create a positive impression, and enhance your credibility and delivery. We now have a videotaping system in the Technology Training Laboratory that is available to anyone wanting to prepare for a presentation.

Researchers at the University of California at Berkeley have found that when it comes to being an effective public speaker, how you look and how you sound are far more influential than the words you say. Eye contact (or lack thereof), body language, stance, and tone of voice have as much to do with your success in presenting as your skill with PowerPoint. Looking great and sounding great really help get your message across.

By practicing in front of a camera, you can see and hear yourself as others see and hear you. Watching a film of yourself helps you identify weaknesses and capitalize on strengths. Experts suggest that you should practice and critique videos of yourself at least four times before presenting. To help you, the library is open every day of the week, even at night and on weekends. So make use of our new facilities. ✦

Library Hours:

Monday – Thursday
8:30 a.m. to 9:00 p.m.
Friday – 8:30 a.m. to 7:00 p.m.
Saturday – 10:00 a.m. to 5:00 p.m.
Sunday – 11:00 a.m. to 5:00 p.m.

Orientation & Instructional Classes

Finding Health Information Online
Tuesday, April 17, 2007;
10:00 a.m.–12:00 p.m. or
2:00 p.m.–4:00 p.m.

New Class! Ovid Overview
Monday, April 23, 2007;
10:00 a.m.–12:00 p.m.

Introduction to Web of Science/ PORPOISE
Tuesday, May 1, 2007;
10:00 a.m.–12:00 p.m.

National Center for Biotechnology Information (NCBI) Classes

Principles of PUBCHEM
Tuesday, March 13, 2007;
Times to be decided

GENBANK Quick Start
Tuesday, April 10, 2007;
12:30 p.m.–3:00 p.m.

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http://web.ncifcrf.gov/ThePoster

Employment Opportunities

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

Charles River Laboratories
http://www.criver.com

Data Management Services
http://css.ncifcrf.gov/about/dms.htm

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

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

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

Upcoming Events and Dates to Note

Scientific Writing Workshop: April 16, 18, and 20, 2007

Spring Research Festival Poster Seminar: April 18, 2007

Earth Day (U.S.): April 22, 2007

NCI Symposium on Chromosome Biology: April 26–27, 2007
https://cms.palladianpartners.com/cms/1162932206/home.htm

Eleventh Annual NCI-Frederick/Ft. Detrick Spring Research Festival: May 16–17, 2007

Armed Forces Day: May 19, 2007

Memorial Day: May 28, 2007

Flag Day: June 14, 2007

Take Your Child to Work Day: July 11, 2007

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

The National Cancer Institute at Frederick

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