The National Cancer Institute at Frederick

Poster

What is it?
Where is it?

Story on page 6.

NCI-Frederick Hosts Eighth Spring Research Festival

The more things change, the more they remain the same. For the eighth year in a row, NCI-Frederick employees have participated in and attended the annual Spring Research Festival. Thirty researchers were recognized for their poster displays in the postdoctoral, technician, and student categories. [See list of poster session winners on page 12]

The sameness of the festival was in the general composition of the festival, with researchers' posters summarizing current findings, health and safety exhibits, and displays of state-of-the-art commercial laboratory products and equipment, all jointly hosted by the National Cancer Institute at Frederick and the United States Army Medical Research and Materiel Command.

The difference was in the new venue: the big tent was located at the corner of Sultan Street and Ditto Avenue, next to Fort Detrick's H.O.T. Dome. Another difference was in a departure from the use of spring flowers to a snail symbolizing the festival.

This year, the Cloth of Gold cone snail (*Conus textilis*), one of more than 500 species of cone snails, was the SRF "mascot." The NCI-Frederick community was treated to several e-mails from "Monsieur S. Cargot," enticing them to attend the festival. While only a handful of cone snail toxins have been analyzed for their medical value, Dr. Eric Chivian, director of the Harvard Medical School's Center for Health and the Global Environment, has noted that at possibly more than 50,000 toxins, cone snails may contain "the largest and most clinically important pharmacopoeia of any genus in nature."

Researchers believe some conotoxins may be able to block the mechanisms that promote tumor cell proliferation in small-cell lung cancer, while others form the basis for a new class of fast-acting, non-addictive painkillers, 10,000 times more powerful than morphine. Still other studies indicate that cone snail toxins

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NCI-Frederick Hosts Eighth Spring Research Festival

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could be used to treat seizures, heart arrhythmias, and clinical depression.

One of the Festival sponsors, the Technical Sales Association, has donated tens of thousands of dollars over the years to recognize outstanding poster presenters in categories ranging from student to established scientist. In the first year, Dr. Howard Young, who started the SRF, persuaded Life Technologies "to donate $500 so we could give five 100-dollar awards to five postdocs for their posters. Bert Zbar came up with the idea for tee shirts for participants, and the Office of Cancer Communications had a Bethesda artist design the poster," Dr. Young said. Now NCI-Frederick's own Scientific Publications, Graphics & Media department designs the posters, tee shirts, and signs.

This year, NCI-Frederick's Science in the Cinema presented the film *Medicine Man*, about the painstaking search for natural products that are useful in treating or preventing disease. Two of NCI's real medicine men, Drs. Gordon Cragg and David Newman, led a discussion after the film of current efforts and successes in finding natural products and getting them from habitat to hospital.

Dr. Young noted that the Spring Research Festival is successful because "It really is a community effort. Many people willingly volunteer their time to make the festival work and the success of the event is a tribute to their efforts. The festival also provides staff members at all levels (student, technician, postdoc, staff scientist, principal investigator) the opportunity to present their work to their colleagues and peers in the NCI, the Army and the USDA research communities. I am grateful for the opportunity to have played a small role in initiating and establishing the event as a yearly festival."

For information about this year's Spring Research Festival, go to http://web.ncifcrf.gov/events/springfest/. ✦

New Faces at NCI-Frederick

New Hires

NCI-Frederick welcomes the following people, who joined our Facility as fulltime employees, September through December 2003.

Anil Shanker

Zachary Thomas

Debra Hogarty

Charles River Laboratories, Inc.

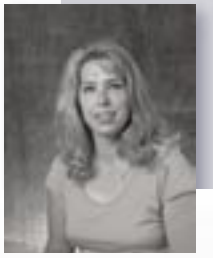
Anna Blizzard and Mary Lane

Data Management Services, Inc.

Zachary Thomas

SAIC-Frederick, Inc.

Fereshteh Abedinpour
Justus Benson
Tatiana Beresneva
Carrie Blevins
Laura Burdett
Stacy Carrington-Lawrence
Nicole Crumpler
Bishop Curry
Michael de la Cruz
William Demar
Colleen Donovan
Hideaki Dote
Kristin Dunbar
Tao Fan
Jessica Fankhauser
Gregory Ford
Kristi Fox
William Glaser
Debra Hogarty
Brian Hood
Aruldass Jesudass
John Julias
Dina Kehl
Allan Kennedy
Maureen Kennedy
Judy King
Frank Leaf
Esther Lee
Tseng Liu
Hong Lou
Jianrong Lou
Michael McMahon
Joseph Miree
Geoffrey Needham
Ana Orellana
Yongping Pan
Martina Peri
Melanie Pierce
Ying Qi
Françoise Ramsey
Sarah Rippeon
Ashley Seales
Andre Seawright
Jigui Shan
Anil Shanker
Yuuei Shu
Patricia Smith
Sandra Souders
Shoshanna Staffone
Raygene Stine
Luke Stockwin
John Trifone
Rebecca Walker
Xin Wang
Xia Xu
Mingzhu Zhu
Teresa Zuber ✦



Dina Kehl

Michael de la Cruz

Mary Lane

Poster People Profile

Lee Jenkins, OHS Associate

One of the benefits of working at NCI-Frederick is access to Occupational Health Services (OHS), which provides numerous health care services.

Coordinating the RDP

OHS staffer Lee Jenkins meets with investigators, contacts potential donors, schedules donor orientations, and helps in the Research Donor Program (RDP) educational presentations. "We probably average about 6 to 10 donors a day, compared to 3 a day one or two years ago," Mr. Jenkins said in a recent interview.

Researchers may use donors' anonymous identification numbers to request repeated use of material for a control.

As well as scheduling and coordinating requests, Mr. Jenkins searches the RDP database for "very specialized requests… donors, say, between 25 and 55. We can give them almost any demographic they need, with very specific characteristics." All donor information is anonymous and non-identifiable, as defined by the Privacy section of the Health Insurance Portability and Accountability Act.

Although blood is requested most frequently, Mr. Jenkins noted that "the most interesting request now is for saliva." Following a specific protocol, "You expectorate while rubbing your cheeks and spitting into a vial filled with Scope, or you have the Scope in your mouth and you're rubbing your cheeks at the same time for 45 seconds."

Occupational Hazard Check-ups

Sharing a database with Safety for accuracy and currency, Mr. Jenkins also attends to employees who must be regularly checked because of occupational hazards.

For example, he consolidated into two visits the "hearing conservation" group's annual checkups, the required hearing tests, any voluntary lab work connected with the annuals, and follow-up consultations. "That way they don't have to be away from work so much."

Mr. Jenkins noted that the OHS staff "work hand-in-hand with Safety and provide things like respiratory protection evaluations; it's mandatory once every two years, but we try to do it every year." Safety has access to testing dates and non-medical compliance information.

In the Off-Hours

With his friendly, outgoing nature, it's not surprising that Mr. Jenkins' favorite extracurricular activity is dancing, particularly *West Coast Swing*, a contemporary version of the 1940s swing dancing that allows great flexibility and interpretation in movement, compared to the rigid patterns of other dance forms. "They dance it to just about everything. That's why I love it so much," he said.

Mr. Jenkins has entered several competitions each year in the *Strictly Swing* and *Jack and Jill* categories since 2001. With *Strictly Swing*, you know your partner but you don't know what music will be played, while in *Jack and Jill*, you are paired with a partner at random. In both types of competition, the leader plans his/her moves based on the music, and has to be aware of the "break"—a dramatic pause at the end of a musical phrase. "You have to either know the song or know how songs are made up so you can set up your partner and yourself to hit that break in a cool way. How you react is part of what gets you points," Mr. Jenkins explained.

In his first contest in 2001, he placed third in a *Jack and Jill* competition and fifth in a *Strictly Swing* competition. At the Big Apple Contest in March 2002 he placed third in both the *Jack and Jill* and the *Strictly Swing*; in August 2003, he won first place. At the World's Country Dance Championships in Nashville this past winter, he got first place in the intermediate division, *Strictly Swing*; and in April placed first with his dancing partner in a *Jack and Jill* at the Mid-Atlantic Dance Championships.

"Another really great thing about dancing is the people," Mr. Jenkins said. "This Frederick crowd is very welcoming. When you go to these competitions, you see someone that you haven't seen in 3 months, even a year, but it's almost like you pick up where you…it doesn't even seem like you left off! With swing and country, it's really just about having a good time."

He recommends dance as a way of releasing stress. "When I am dancing, I'm not thinking about anything else. And it really is a release of all… stresses and all the hard parts of life. So many people say, 'I can't dance.' I think everyone can dance. They just don't necessarily know it ." ✦

Nanotechnology: A New Weapon in the Fight Against Cancer

Dr. Paul Nisson, Project Officer, Office of Scientific Operations

American cancer statistics are grim: More than 500,000 Americans will be diagnosed with and approximately 150,000 will die from cancer in 2004.

At the annual meeting of the American Association of Cancer Research in Orlando, Florida, in March, Dr. Andrew von Eschenbach, Director of the National Cancer Institute (NCI), discussed the centerpiece of NCI's mission: to eliminate death and suffering from cancer by 2015.

Early Detection Is Vital

Dr. von Eschenbach's mission aims to convert a death sentence into a chronic disease managed through various therapies. Pivotal to this mission's success are early detection and novel treatment. Detected at an early stage, cancer often can be treated with radiation or chemicals or removed with surgery. However, if undetected for long, it is much more likely to have spread to other sites in the body and thus be much more difficult to treat. For example, when ovarian cancer is detected early, its mortality rate can be less than 5 percent; however, if diagnosed in the later stages, mortality five years after diagnosis is greater than 90 percent.

NCI-Frederick has been addressing early detection in various ways, a notable example being the collaboration of Dr. Timothy Veenstra's Laboratory of Proteomics and Analytical Technologies (LPAT, SAIC-Frederick, Inc.) with Drs. Lance Liotta (NCI) and Emanuel Petricoin (FDA), using chemical analysis that identifies unique proteins in the blood of patients (1). The laboratory uses a mass spectrometry procedure, in early stages of clinical development, to distinguish proteins in patients' serum from those in healthy individuals.

Once cancer has been identified early enough to treat effectively, traditional treatment methods—radiation, chemicals or combinations of both—kill both cancer and normal cells, and may cause side effects such as nausea and exhaustion.

Targeting Treatment only to Cancer Cells

What if treatment could be targeted only to the cancer cells? This may be possible in the not-too-distant future through the promise of nanotechnology, and NCI-Frederick will be an active participant through the new Nanotechnology Standardization Laboratory (NSL).

The NSL, currently under construction in Building 469, is one part of the NCI's nanotechnology activities to address the 2015 goal. The project is one of many activities of the Office of Technology and Industrial Relations (OTIR) led by Drs. Anne Barker, Greg Downing, Ed Monachino, Julie Schneider and Travis Earles (2, 3) and includes the expertise of Ohio State University professor and nanotech expert, Dr. Mauro Ferrari (4). The development of the resources at NCI-Frederick would not be possible without the participation of SAIC-Frederick, Inc., employees Ellen Miller, Dennis Dougherty, and Drs. Martin Fritts and Scott McNeil. The NCI-OTIR is actively developing extra- and intramural programs to support the development of nanotechnologies that will assist in improving early detection and treatment in innovative ways: the NSL is one part of the NCI nanotechnology intramural program.

How Nanotechnology May Help Cancer Patients

Many cancers today have a very high mortality after diagnosis because we cannot detect them early enough. Nanotechnology may solve this problem.

Imagine a nanoparticle (comparable in size to a molecule such as DNA) that could sense whether or not a cancer was present in the body and could report its findings to a physician. This may sound like a sci-fi movie, but truth is indeed stranger than fiction. With the human genome sequence completed, scientists can now focus on combining nanofabrication capabilities with the insights they've gained about the universe of molecules that make up the human body.

The NSL, staffed by experts in engineering, physics, mathematics and molecular biology, will focus on nanoparticle characterization for the extra- and intramural communities and develop standards for this field. The same types of particles that detect cancer cells can deliver measured doses of a therapeutic to the affected cells, having few, if any, side effects on normal cells.

Nanotechnology and the development of the NSL at NCI-Frederick are part of the support NCI-Frederick provides to the mission of eliminating death and suffering from cancer by 2015. ✦

References:

[1] Conrads TP, Zhou M, Petricoin EF, Liotta L, and Veenstra TD. Disease diagnostics using proteomic patterns. *Expert Rev Mol Diag* **3**:411–420, 2003.

[2] http://otir.nci.nih.gov/otir/mission.html

[3] http://cancer.gov/NCICancerBulletin/NCI_Cancer_Bulletin_030904.pdf

[4] http://www.ibgp.org/faculty/profilepage.asp?ID=303

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 left. 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 **July 29th**, and the winner will be drawn in early August from all correct answers received.

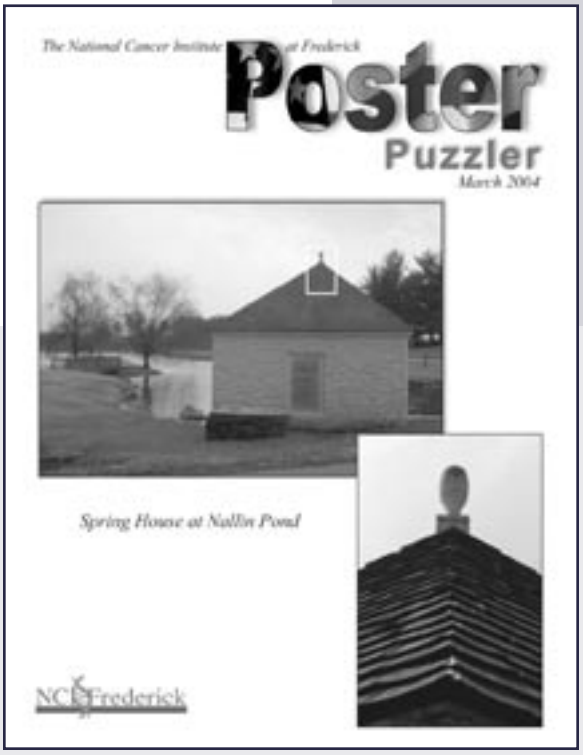
Good luck and good hunting! ✦

The March Poster Puzzler:

The Spring House, Nallin Pond, Fort Detrick

Built about 1835 (or earlier), the Spring House was added to the National Register of Historic Places in 1977. The white-washed, fieldstone building, 15' x 16', covers a small spring, the primary source of water for Nallin Pond. The Spring House was restored in 1985 as close as possible to its original design, even to the original slate tiles on the roof.

Source: http://www.dcmilitary.com/army/standard/6_04/local_news/5147-1.html ✦



Congratulations to our March 2004 winner:
Cheryl L. Mowen
Quality Control Supervisor, Biopharmaceutical Quality Control,
Biopharmaceutical Development Program

Platinum Highlight

Dr. Lihua Wang, *Laboratory of Molecular Immunoregulation*

In 1995, Dr. Lihua Wang was granted a PhD in biochemistry and molecular biology from the Institute of Biophysics, Chinese Academy of Sciences, and Dalian Medical University. She completed subsequent postdoctoral training in oncology at the Chinese Academy of Medical Sciences and Peking Union Medical College.

Dr. Wang joined the Laboratory of Molecular Immunoregulation (LMI) as a Visiting Fellow in 1997. Since 2000, she has held the rank of Scientist at SAIC-Frederick, Inc. She works in the Cytokine Molecular Mechanisms Section of LMI, where she focuses on the molecular crosstalk between nuclear receptors and cytokine receptor signaling pathways and molecular control of immune/inflammation diseases and cancer.

As described in January 2004's *Nature Medicine*, she and her colleagues have found a new way to turn off the estrogen receptor, thus inhibiting the growth of cancer cells. In a recent e-mail interview, she noted, "We demonstrate that the function of zinc fingers within the estrogen receptor DNA binding domain is susceptible to chemical inhibition by electrophilic disulfide benzamide and benzisothiazolone derivatives, which selectively block estrogen receptor binding to its responsive element and subsequent transcription. These active compounds (disulfide benzamides and benzisothiazolone derivatives) constitute promising lead compounds in the treatment of breast cancer, although they need to be more optimized for selectivity and potency."

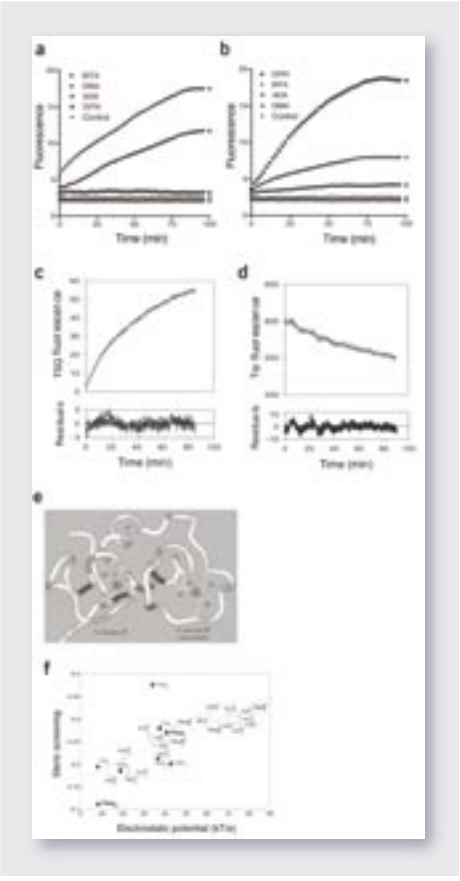
Dr. Wang believes the results of this research provide the proof-of-principle for a novel strategy for inhibiting breast cancer, targeted at the level of DNA binding, rather than classical antagonism of estrogen binding. This work, as a "brief discovery in cancer therapy," has also been highlighted in January 2004's *Nature* and *Nature Reviews: Cancer*. ✦

Wang LH, Yang XY, Zhang X, Mihalic K, Fan Y-X, Xiao W, Howard OMZ, Appella E, Maynard AT, and Farrar WL

Suppression of breast cancer by chemical modulation of vulnerable zinc fingers in estrogen receptor

Nat Med **10**(1):40-47, 2004.
Published online: 14 December 2003, doi:10.1038/nm969

Current antiestrogen therapy for breast cancer is limited by the mixed estrogenic and antiestrogenic activity of selective estrogen receptor modulators. Here we show that the function of zinc fingers in the estrogen receptor DNA-binding domain (DBD) is susceptible to chemical inhibition by electrophilic disulfide benzamide and benzisothiazolone derivatives, which selectively block binding of the estrogen receptor to its responsive element and subsequent transcription. These compounds also significantly inhibit estrogen-stimulated cell proliferation, markedly reduce tumor mass in nude mice bearing human MCF-7 breast cancer xenografts, and interfere with cell-cycle and apoptosis regulatory gene expression. Functional assays and computational analysis support a molecular mechanism whereby electrophilic agents preferentially disrupt the vulnerable C-terminal zinc finger, thus suppressing estrogen receptor–mediated breast carcinoma progression. Our results provide the proof of principle for a new strategy to inhibit breast cancer at the level of DNA binding, rather than the classical antagonism of estrogen binding. ✦



Platinum Publications

The following 30 articles have been selected from a quarterly listing of publications in 12 of the most prestigious science journals.

Biochemistry and Biophysics

Huang CC, Venturi M, Majeed S, Moore MJ, Phogat S, Zhang MY, Dimitrov DS, Hendrickson WA, Robinson J, Sodroski J, Wyatt R, Choe H, Farzan M, Kwong PD. Structural basis of tyrosine sulfation and V-H gene usage in antibodies that recognize the HIV type 1 coreceptor-binding site on Gp120. *Proc Natl Acad Sci USA* **101**(9):2706–2711, 2004.

DNA Dynamics and Chromosome Structure

Cheng JC, Weisenberger DJ, Gonzales FA, Liang GN, Xu GL, Hu YG, Marquez VE, Jones PA. Continuous zebularine treatment effectively sustains demethylation in human bladder cancer cells. *Mol Cell Biol* **24**(3):1270–1278, 2004.

Quinto I, Puca A, Greenhouse J, Silvera P, Yalley-Ogunro J, Lewis MG, Palmieri C, Trimboli F, Byrum R, Adelsberger J, Venzon D, Chen XN, Scala G. High attenuation and immunogenicity of a simian immunodeficiency virus expressing a proteolysis-resistant inhibitor of NF-Kappa B. *J Biol Chem* **279**(3):1720–1728, 2004.

Developmental Biology and Genetics

Carlson BA, Novoselov SV, Kumaraswamy E, Lee BJ, Anver MR, Gladyshev VN, Hatfield DL. Specific excision of the selenocysteine Trna(Ser Sec) (Trsp) gene in mouse liver demonstrates an essential role of selenoproteins in liver function. *J Biol Chem* **279**(9):8011–8017, 2004.

Epidemiology and Prevention

MacDonald CJ, Ciolino HP, Yeh GC. The drug salicylamide is an antagonist of the Aryl hydrocarbon receptor that inhibits signal transduction induced by 2,3,7,8-Tetrachlorodibenzo-P-dioxin. *Cancer Res* **64**(1):429–434, 2004.

Experimental Therapeutics, Molecular Targets, and Chemical Biology

Rapisarda A, Uranchimeg B, Sordet O, Pommier Y, Shoemaker RH, Melillo G. Topoisomerase I-mediated inhibition of hypoxia-inducible factor 1: Mechanism and therapeutic implications. *Cancer Res* **64**(4):1475–1482, 2004.

Genetics

Acharya U, Mowen MB, Nagashima K, Acharya JK. Ceramidase expression facilitates membrane turnover A and endocytosis of rhodopsin in photoreceptors. *Proc Natl Acad Sci USA* **101**(7): 1922–1926, 2004.

Lammerding J, Schulze PC, Takahashi T, Kozlov S, Sullivan T, Kamm RD, Stewart CL, Lee RT. Lamin A/C deficiency causes defective nuclear mechanics and mechanotransduction. *J Clin Invest* **113**(3):370–378, 2004.

Nikolova V, Leimena C, McMahon AC, Tan JC, Chandar S, Jogia D, Kesteven SH, Michalicek J, Otway R, Verheyen F, Rainer S, Stewart CL, Martin D, Feneley MP, Fatkin D. Defects in nuclear structure and function promote dilated cardiomyopathy in Lamin A/C-deficient mice. *J Clin Invest* **113**(3):357–369, 2004.

Shulenin S, Nogee LM, Annilo T, Wert SE, Whitsett JA, Dean M. ABCA3 gene mutations in newborns with fatal surfactant deficiency. *N Eng J Med* **350**(13): 1296–1303, 2004.

HIV

Friedrich TC, Dodds EJ, Yant LJ, Vojnov L, Rudersdorf R, Cullen C, Evans DT, Desrosiers RC, Mothe BR, Sidney J, Sette A, Kunstman K, Wolinsky S, Piatak M, Lifson J, Hughes AL, Wilson N, O'Connor DH, Watkins DI. Reversion of CTL escape-variant immunodeficiency viruses in vivo. *Nat Med* **10**(3): 275–281, 2004.

Immunology

Cote-Sierra J, Foucras G, Guo LY, Chiodetti L, Young HA, Hu-Li J, Zhu JF, Paul WE. Interleukin 2 plays a central role in Th2 differentiation. *Proc Natl Acad Sci USA* **101**(11):3880–3885, 2004.

Takeda K, Yamaguchi N, Akiba H, Kojima Y, Hayakawa Y, Tanner JE, Sayers TJ, Seki N, Okumura K, Yagita H, Smyth MJ. Induction of tumor-specific T-cell immunity by anti-DR5 antibody therapy. *J Exper Med* **199**(4):437–448, 2004.

Turville SG, Santos JJ, Frank I, Cameron PU, Wilkinson J, Miranda-Saksena M, Dable J, Stossel H, Romani N, Piatak M, Lifson JD, Pope M, Cunningham AL. Immunodeficiency virus uptake, turnover, and 2-phase transfer in human dendritic cells. *Blood* **103**(6):2170–2179, 2004.

Medical Science

Dave UP, Jenkins NA, Copeland NG. Gene therapy insertional mutagenesis insights. *Science* **303**(5656):333–333, 2004.

Okimoto K, Sakurai J, Kobayashi T, Mitani H, Hirayama Y, Nickerson ML, Warren MB, Zbar B, Schmidt LS, Hino O. A germ-line insertion in the Birt-Hogg-Dubé (BHD) gene gives rise to the Nihon rat model of inherited renal cancer. *Proc Natl Acad Sci USA* **101**(7): 2023–2027, 2004.

Microbiology

Dang Q, Chen JB, Unutmaz D, Coffin JM, Pathak VK, Powell D, KewalRamani VN, Maldarelli F, Hu WS. Nonrandom HIV-1 infection and double infection via direct and cell-mediated pathways. *Proc Natl Acad Sci USA* **101**(2):632–637, 2004.

Molecular Biology and Genetics

Felix K, Polack A, Pretsch W, Jackson SH, Feigenbaum L, Bornkamm GW, Janz S. Moderate hypermutability of a transgenic Lacz reporter gene in Myc-

Platinum Publications

dependent inflammation-induced plasma cell tumors in mice. *Cancer Res* **64**(2): 530–537, 2004.

Nicot C, Dundr M, Johnson JM, Fullen JR, Alonzo N, Fukumoto R, Princler GL, Derse D, Misteli T, Franchini G. HTLV-1-encoded P30(II) is a post-transcriptional negative regulator of viral replication. *Nat Med* **10**(2):197–201, 2004.

Neoplasia

Turcotte K, Gauthier S, Mitsos LM, Shustik C, Copeland NG, Jenkins NA, Fournet JC, Jolicoeur P, Gros P. Genetic control of myreloproliferation in BXH-2 mice. *Blood* **103**(6):2343–2350, 2004.

Oncogenes

Cencig S, Nanbru C, Le SY, Gueydan C, Huez G, Kruys V. Mapping and characterization of the minimal internal ribosome entry segment in the human C-Myc Mrna 5′ untranslated region. *Oncogene* **23**(1): 267–277, 2004.

Huang AM, Montagna C, Sharan S, Ni YJ, Ried T, Sterneck E. Loss of CCAAT/enhancer binding protein Delta promotes chromosomal instability. *Oncogene* **23**(8): 1549–1557, 2004.

Yang YL, Li CCH, Weissman AM. Regulating the P53 system through ubiquitination. *Oncogene* **23**(11):2096–2106, 2004.

Protein Synthesis, Post-translation Modification and Degradation

Botos I, Melnikov EE, Cherry S, Tropea JE, Khalatova AG, Rasulova F, Dauter Z, Maurizi MR, Rotanova TV, Wlodawer A, Gustchina A. The catalytic domain of *Escherichia coli* Lon protease has a unique fold and a Ser-Lys dyad in the active site. *J Biol Chem* **279**(9): 8140–8148, 2004.

Receptors

Nanda A, Carson-Walter EB, Seaman S, Barber TD, Stampfl J, Singh S, Vogelstein B, Kinzler KW, St Croix B. TEM8 interacts with the cleaved C5 domain of collagen alpha 3(VI). *Cancer Res* **64**(3): 817–820, 2004.

RNA: Structure, Metabolism and Catalysis

Kilav R, Bell O, Le SY, Silver J, Naveh-Many T. The parathyroid hormone Mrna 3′-untranslated region AU-rich element is an unstructured functional element. *J Biol Chem* **279**(3):2109–2116, 2004.

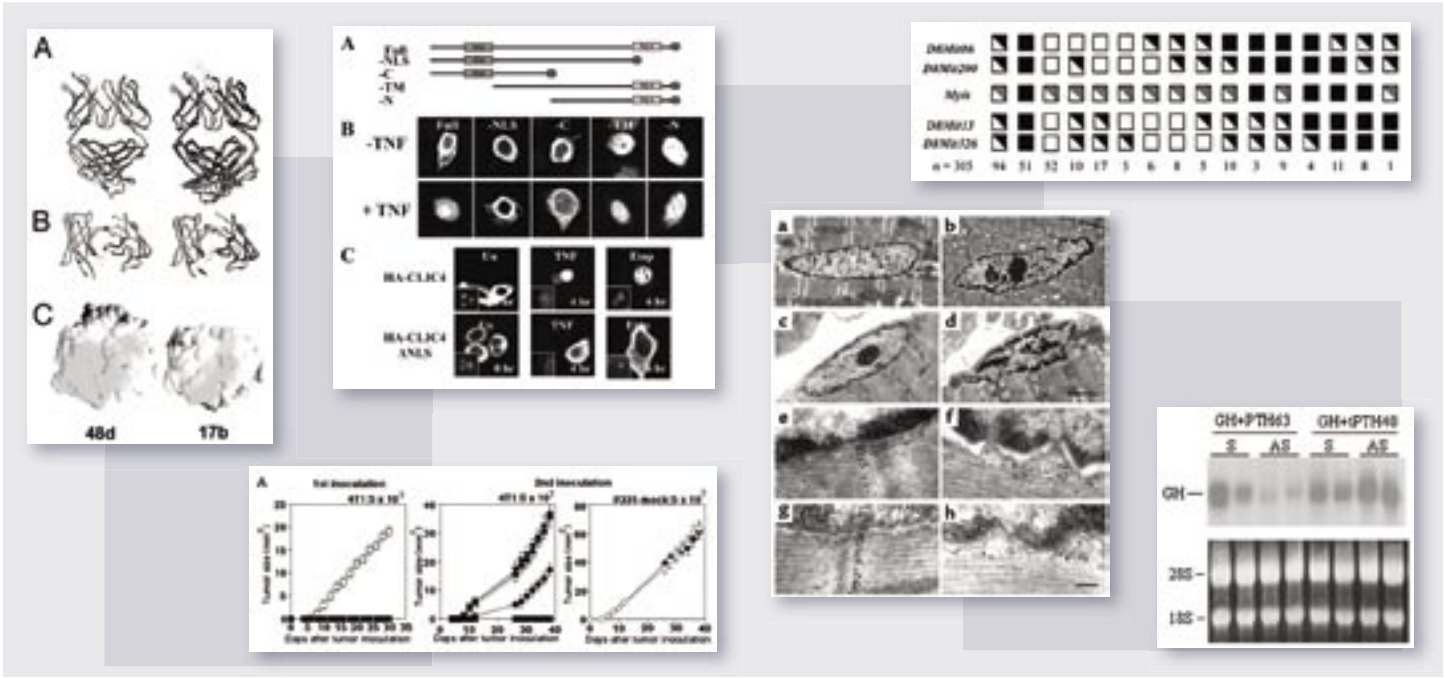
Signal Transduction

Gamero AM, Sakamoto S, Montenegro J, Larner AC. Identification of a novel conserved motif in the STAT family that is required for tyrosine phosphorylation. *J Biol Chem* **279**(13):12379–12385, 2004.

Lin Y, Choksi S, Shen HM, Yang QF, Hur GM, Kim YS, Tran JH, Nedospasov SA, Liu ZG. Tumor necrosis factor-induced nonapoptotic cell death requires receptor-interacting protein-mediated cellular reactive oxygen species accumulation. *J Biol Chem* **279**(11):10822–10828, 2004.

Suh KS, Mutoh M, Nagashima K, Fernandez-Salas E, Edwards LE, Hayes DD, Crutchley JM, Marin KG, Dumont RA, Levy JM, Cheng C, Garfield S, Yuspa SH. The organellular chloride channel protein CLIC4/Mtclic translocates to the nucleus in response to cellular stress and accelerates apoptosis. *J Biol Chem* **279**(6):4632–4641, 2004.

Waalkes MP, Liu J, Chen H, Xie YX, Achanzar WE, Zhou YS, Cheng ML, Diwan BA. Estrogen signaling in livers of male mice with hepatocellular carcinoma induced by exposure to arsenic in utero. *J Natl Cancer Insti* **96**(6):466–474, 2004. ✦



Outreach Programs Spur Facilitators as Well as Students to Research

Several *Poster* articles in past issues have focused on the important ways NCI-Frederick employees reach out to our community. In a recent discussion, Sue Wilson, Project Manager of the Scientific Library and president of WISCO, described a unique experience she had earlier this spring during her volunteer work at a local elementary school.

...everyone really ought to volunteer for this, even once a year...

Using the Socratic method of asking leading questions and waiting for responses, Ms. Wilson and her group studied algae in ten 12-inch long vials, labeled by sequential numbers and with the scientific names. The children observed things like the "meniscus," the upper surface of the liquid in the vial. "They didn't know it was called the meniscus, because we were trying to compare colors of the algae," Ms. Wilson said, adding that working with the children made her feel as though she'd returned to undergraduate school, where she had been an elementary education major, and that she was experiencing "what I thought teaching was really about."

The children's questions challenged her to think just as she was challenging them. "There was just so much give and take; everyone really ought to volunteer for this, even once a year," she said.

Ms. Wilson was so enthusiastic because as her group studied the 10 vials, they used the scientific names rather numbers. She found she had to say, "Wait a minute! Which one's that?" One of the children even corrected her pronunciation of a word.

The children's curiosity was wide-ranging as she led them to consider whether algae are plants and thus living things needing light. Later, at the question and answer period, one child asked, "How does the algae get to you when you order it from the company?"

Ms. Wilson replied that the shippers "'wrap it in a package and it comes to us on a truck.' I knew what he really wanted to know: he was concerned because if it were packed up in brown paper, why it was still alive when it got there?" The child's curiosity challenged her and spurred her to further investigations into the topics they had covered. "I didn't know that answer. So I want to find out how it is shipped and write to him at school to tell him what's involved."

Ms. Wilson says that volunteers are always needed in the Outreach Program. "The teachers don't have time to give that personalized attention we can give them because there's just too much to do in school, and not many children have an opportunity like [working with the mentors in the Outreach Program]."

...volunteers are always needed...

The Elementary Outreach Program has completed another successful year of bringing hands-on science to elementary school classrooms.

New volunteers are needed for next year, so please consider participating. The Web site will be available soon. If you would like additional information, please contact eop@ncifcrf.gov. ✦

Take Your Child to Work Day Set for July 21

Are those test tubes washed? Lab notes filed and straightened? Lab coats washed and pressed? Then you may be ready to welcome your colleagues' children in the eighth annual Take Your Child to Work Day on Wednesday, July 21. While the rest of the country's workforce brings its children to work in April, the National Cancer Institute at Frederick (NCI-Frederick) has its own celebration in July of each year.

In partnership with the U.S. Army Medical Research and Materiel Command and Fort Detrick, employees encourage children's exploration of science through a hands-on approach. The children participate in sessions that, in often humorous as well as serious ways, serve as "eye-openers" to the vital public services the children's families perform here. The organizers hope the children's participation will lead them to consider science-related careers. Every year, with increasing enrollment, more sponsored programs and volunteers are needed. People who have participated in past programs state that they found the experience rewarding, even exhilarating.

...encourage children's exploration of science through a hands-on approach.

Many behind-the-scenes employees keep TYCTWD going. Kay Kennedy and Emily Moler worked together on the program from the first year; Barbara Birnman joined them in 1998. Debbie Guy, who came to the NCI-Frederick in January 1999, continued to support the event after Ms. Kennedy retired in December 1998. Many contractor staffs have supported the event since its start. These include SAIC-Frederick, Inc.'s Facilities Maintenance and Engineering directorate; its Environment, Health and Safety directorate; and its Scientific Publications, Graphics & Media department; Wilson Information Services Corporation's Scientific Library staff; and Data Management Services, Computer Services staff. Registration for this year opened Wednesday, June 23, 2004.

...organizers hope the children's participation will lead them to consider science-related careers.

To keep your child safe, the TYCTW Day committee has developed a few guidelines (see the May "Spotlight" archived on the NCI-Frederick Web site for more detailed information). For example, a designated, responsible adult *must* be with your child at all times. Unsupervised children will not be permitted to participate in any of the day's activities. Each person will need 2 picture ID's to enter the base; you will also need to bring a *printed copy of the child's scheduled sessions* so that you can more easily find the appropriate activity meeting places.

All activities will begin and end near the Hub, where an information tent will be open from 8:00 a.m. to 3:00 p.m. in the Building 426 parking lot. Numbered signs matching the activities will be posted in front of Building 560, across the street from the Hub. You must meet your escort at the sign for the event no later than 15 minutes before the period's starting time. Transportation will be provided to those activities located a significant distance from the Hub area.

For those with special needs, arrangements can be made for transportation by contacting the Kids Day staff at kidsday@ncifcrf.gov/. ✦

Did You Know?

Eighth Annual Spring Research Festival Award Winners

Name	Laboratory	Category	Poster Title
Postdoctoral Fellows			
Dr. Aldona Karaczyn	Laboratory of Comparative Carcinogenesis	Biochemistry	Extensive modification of histone H2B in mammalian cells cultured with nickel(11)
Dr. Christopher Cote	USAMRIID, Bacteriology Division	Diagnostics and Therapeutics	Studies on the role of macrophages during infection with *Bacillus anthracis*
Dr. Cyril Berthet	Regulation of Cell Growth Laboratory	Cancer Biology	Cdk2 mice are viable
Dr. Dehe Kong	Tumor Hypoxia Laboratory	Cancer Biology Development	Identification of small-molecule inhibitors of HIF-1 DNA binding activity
Dr. Barbara Giomarelli	Molecular Targets	Drug Development and Delivery	Mucosal delivery of microbicide cyanovirin-N by commensal bacteria
Dr. Olga Timofeeva	Laboratory of Comparative Carcinogenesis	Cancer Biology	Same phosphorylation of STAT1 contributes to Wims' tumor pathogenesis
Dr. Soren Warming	Mouse Cancer Genetics Program	Cancer Biology	Evi3 and Ebfaz are frequent targets of retroviral integration in AKXD-27 B cell lymphomas
Dr. Susan Lindtner	Vaccine Branch, CCR	Molecular Biology	Identification of cellular factors mediating export of a novel RNA transport element (RTE)
Technicians			
Carrie Bonomi	Developmental Therapeutics Program	New Technology	Multifold improvements in tumor cell detection and drug screening sensitivity using luciferase-based technology
David Lucas	Laboratory of Proteomics and Analytical Technologies	Biochemistry	Global protein profiling for the identification of Nrf2-dependent proteins
Ebony Benjamin	USAMRIID, Aerobiology	Immunology	Recombinant protective antigen (rPA), administered with an experimental mucosal adjuvant, stimulates systemic immune response in a guinea pig challenge model of *B. anthracis*
Jeffrey Enama	USAMRIID, Bacteriology	Biochemistry	Asparagine deamidation causes charge isoforms of the anthrax-protective antigen rPA
Jim Sawitzke	Gene Regulation and Chromosome Biology Laboratory	Molecular Biology	Recombineering with dsDNA
Kimberly Shafer-Weaver	Laboratory of Cell-mediated Immunity	New Technology	The GrB and IFN-g ELISPOTS: Partners in monitoring cancer vaccine trials
SPC Elizabeth Bode	USAMRIID, Diagnostics Division	Diagnostics and Therapeutics	Real-time PCR assay for a unique chromosomal sequence of *Bacillus anthracis*
Sylvia Trevino	USAMRIID, Bacteriology Division	Immunology	Mechanism of protective immunity of antibodies against the capsular (F1) and virulence (LcrV) antigens of *Yersinis pestis*
Students			
Ashleigh Auth	DRP	Virology	Effects of protease mutation son HTLV-1 virion-associated polyprotein processing
Benitra Johnson	Laboratory of Experimental and Computational Biology	Virology	Elevated expression on monsialoganglioside GM3 confers resistance to HIV-1 entry

continued on page 20

Did You Know...?

These undated photos from the SPGM archives show some NCI-Frederick scientists checking research results. Can you identify the assistants in these pictures?

Top Picture: Dr. Dan Court (in middle) and two assistants review data in lab notebooks.

Bottom Picture: Dr. Primar Pramod and a summer student check experiment results. ✦

A Look Back

June 1974

Planning began for a basic research program in cancer research. The program was expected to cost about $2.5 million annually. Then known as the Frederick Cancer Research Center, FCRC (today's NCI-Frederick) was also advertising for chemists, senior lab technicians, research associates, a construction administrator, a refrigeration and air conditioning mechanic, a senior animal technician, a secretary, and a technical/scientific editor.

July 1974

The NCI renewed its contract with Litton Bionetics, Inc. (LBI), to operate and maintain the FCRC; the three-year contract totaled $11,350,000 and included a separate awards fee pool of $850,000, based on bi-annual evaluations.

A histopathology unit was transferred from Bethesda to Frederick; Dr. Betty Sanders was its monitor, while Don Cameron was the LBI supervisor.

Plans for a new program, Basic Research in Chemical Carcinogenesis, were completed and Building 538 was renovated to accommodate the new program. ✦

PALS Seeks Volunteers

The Play and Learning Station (PALS) seeks volunteers to help with our summer "olympics." If you have experience with soccer, baseball, volleyball, track and field, gymnastics, and can spend 30-45 minutes providing on-site activities in these areas for the children (ages 2-5), please contact Claudia at 301-846-5200. ✦

Fort Detrick Farmers' Market

Visit the annual **Fort Detrick Farmers' Market**, open every Tuesday, 11:00 a.m. – 1:30 p.m., June 22nd through October 26th. Same location as last year – in front of Building 549. In addition to many repeat vendors with fresh fruits, vegetables, and flowers, Sidehill Farms has joined us this year. Sidehill Farms will offer patrons fresh, vacuum-packed beef, pork, and possibly poultry. ✦

Raleigh Boaze: Trading in a Lab Coat for a Buckskin Jacket

After 40 years of government service, Raleigh Boaze is getting ready to trade in his lab coat for a buckskin jacket and head for the frontier! Mr. Boaze, a Biological Laboratory Technician in the Laboratory of Genomic Diversity, plans to retire July 2 and he is looking forward to spending more time with his family and wearing his deerskin coat and leggings. Mr. Boaze, you see, is a living history interpreter—specifically, he looks and acts the part of a frontiersman living during the French and Indian War period of American history. He plans to spend much of his free time focusing on this life-long interest, which he enjoys sharing with groups such as the Boy Scouts, 4H Club, and local schools and historical societies.

Raleigh Boaze began his career with the National Institutes of Health (NIH) on March 15, 1964. "I was the kid in the lab when I started working for NIH," says Mr. Boaze with a wry smile. In his first position, he worked in Dr. Tony Morris's laboratory (Building 29) on the Bethesda campus in what was then known as the Division of Biologic Standards. In this laboratory, Mr. Boaze was responsible for conducting extensive tests related to the efficiency of flu vaccines that were under development for both military and civilian populations.

After several years working for Dr. Morris, Mr. Boaze transferred to a hepatitis laboratory, where he used the immunodiffusion technique to test the efficiency of hepatitis detection kits produced by pharmaceutical companies. He also worked in research laboratories involved in Adeno 12, Simian Virus 20, and Simian Virus 40.

During the mid-1970's, Mr. Boaze worked for the National Institute of

Allergy and Infectious Diseases. In this capacity, he was responsible for maintaining the operation of a P4 (now known as a BL-4) containment lab that had been established to perform the initial risk assessment experiments for recombinant DNA.

In 1980, Dr. George Todaro recruited Mr. Boaze to come work for NCI-Frederick, then called the Frederick Cancer Research Facility (FCRF). During this time, Mr. Boaze worked extensively with growth hormones and phorbol esters under the guidance of Dr. Mohammed Shoyab. Eventually, as this lab evolved, Dr. Stephen O'Brien became the new Chief, and Raleigh Boaze began performing analyses for Dr. Michael Dean. In the years that Mr. Boaze has worked for the Laboratory of Genomic Diversity, he has extracted, purified, quantitated, and stored DNA from more than 13,000 individuals for many HIV genetic studies. "It has all been interesting," says Mr. Boaze. "I have learned a lot about influenza, hepatitis, and HIV, and I have enjoyed working in the lab and learning about new techniques and equipment. It's been an enjoyable career, but I think it is time to move on to other things, especially with my granddaughter on the way," he adds. Mr. Boaze and his wife, Janet, are very excited about becoming grandparents.

Their daughter, Jodi Murphy, is expecting a baby girl at the end of September, and Mr. Boaze plans to spend a lot of his free time with his first grandchild. In addition to his family, Mr. Boaze also plans to devote more time re-enacting frontier life during the French and Indian War. Mr. Boaze has studied the late 18th century for the last 15 years or so; in fact, he has an extensive library and an art collection devoted to this time period. Most of all, dressing and acting the part of a frontiersman, he really enjoys helping others understand this historical period. In this role, he wears the typical attire of a scout/hunter, including moccasins, leggings, breeches, linen shirt and a hat. Mr. Boaze also carries the tools and weapons that were required: a flintlock rifle, knives, tomahawk, ax, haversack, and a shooting bag. In addition, Mr. Boaze has built several of his own flintlock rifles and hand-carved hunting knives to go with his outfit. He really enjoys teaching history from this perspective and has spoken at many schools in both Maryland and West Virginia and given presentations at Mt. Vernon, Ft. Frederick State Park, and Williamsburg. Mr. Boaze has even served as an "extra" in a film based during this time period. True to his frontiersman role, Mr. Boaze is also an avid hunter (deer and turkey) and fly fisherman.

Between playing with his new granddaughter and serving as a living history interpreter, Mr. Boaze will certainly be one of the busiest and most interesting retirees in Frederick County! Our congratulations and best wishes go out to Mr. Boaze for a job well done and a happy and fulfilling retirement! ✦

NCI-Frederick Employee Diversity Team

Grab the Kids and the Popcorn for Free Movies with a Message

Our workplace at NCI-Frederick is a microcosm of the diverse cultures that range throughout the world (just check out our world map in the NCI-Frederick Café). For over a year, the **NCI-Frederick Employee Diversity Team** has been sponsoring films with a diversity theme, most often screened during lunch. Now the films are available on free loan from the NCI-Frederick Scientific Library for home viewing.

Please note the following:

- The movies, in DVD format only, are first-come, first-served and are on reserve at the Circulation Desk.
- You need a library barcode on your employee ID to check out or place a hold on the movies, or any other library materials. If you don't have a barcode, please visit the library to get one.
- You may call to place a hold on movies that are checked out, but if the movie you want is on the shelf, it cannot be reserved. You must come to the library to check it out right away.
- The loan period is 7 days.
- You are limited to 2 movies per checkout.

If you didn't have time to see the films when they "premiered" here, you can now enjoy these in the privacy of your own home. Take time to watch a few and discuss the important issues they address with your family. Check out any of the following:

Amistad

Avalon

Bend It like Beckham

The Commitments

Finding Nemo

Gorillas in the Mist

The Matchmaker

Monsoon Wedding

Mostly Martha

My Big Fat Greek Wedding

To Kill a Mockingbird

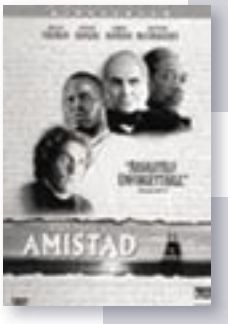
Tortilla Soup

Remember the Titans

Smoke Signals

Songcatcher

Shrek



Descriptions of these films can be found at the EDT-Frederick Web site: http://diversity.ncifcrf.gov/flash_content/default.asp. ✦

Conference Center Provides Daily Community Updates

The **Conference Center**, Building 549, now provides you with up-to-the-minute information through its Infocaster Sign Flash system, installed in mid-February. As you hurry through the lounge area of Building 549 on your way to a lecture or to the NCI-Frederick Café, take a moment to study the wall-mounted display unit.

...500-600 people see it daily.

You'll see the NCI-Frederick calendar, updated daily, as well as flyers of coming events, all on the same screen. John Phillips, Manager of the Conference Center, estimates that 500-600 people see it daily.

The Infocaster software formats material for the TV screen, whether that material is text, pictures, or video/sound files, and turns it all into a digital display. The screen can be divided into areas, with still and animated features running concurrently; text can "crawl" anywhere on the screen, à la CNN.

The actual Sign Flash system is surprisingly compact, consisting of a display screen that echoes the current images being shown on the large screen in the lobby, and a monitor that can show all of the files being cycled through the system for display.

The program has several special features: it can play back full-motion or animation videos from labs; show previews of scheduled lectures; feature live special events, such as lectures, or news broadcasts. Any of these could also be put in a window on the big screen. For example, not long ago, the display screen showed a revolving DNA strand, giving a sense of 3D, and also broadcast a CNN news report based on Tom McCloud's work at the Natural Products Laboratory. The news report was broadcast periodically for a week to ensure that many people would get an opportunity to see it.

Mr. Phillips hopes that eventually, all buildings will house similar displays, with smaller, 17" or 20" display screens showing information broadcast from a central location. "It would be nice to have all the publicity information on base centrally located," he commented.

This is a great tool... for anyone's upcoming seminar or lecture...

"As the NCI-Frederick community grows, these building displays would bring the community closer together. In addition, each building's staff will be able to add specific information to their own display, announcing specific events, such as informal gatherings," he said.

"This is a great tool, a first line of promotion, for anyone's upcoming seminar or lecture, since so many people see it," Mr. Phillips said. Among the more recent events, to name just a few, Conference Center staff have promoted the Research Technology Program seminar series, last month's Spring Research Festival, and next month's Take your Child to Work Day. Staff work closely with Scientific Publications, Graphics & Media to generate the necessary files.

Mr. Phillips and his colleagues are always looking for new content to keep the screen fresh and updated. If you have any suggestions for content or have any questions, contact Mr. Phillips at jphillips@ncifcrf.gov. ✦

Central Supply Warehouse

Vendor Catalogs Available from the Central Supply Warehouse

The **Central Supply Warehouse** now stocks catalogs from office and laboratory supply vendors that have contracts with SAIC-Frederick, Inc. Catalogs may be ordered from the Central Supply Warehouse by using the on-line supply requisition form. To obtain a current list of the available catalogues, go to: http://web.ncifcrf.gov/campus/als/supply-catalog/default.asp, and enter "Catalog" in the search field.

To expedite purchase of certain products, SAIC-Frederick, Inc., has established a large volume of Blanket Purchase Agreements (BPAs) for Facility use. The following represents a list of some of the largest BPAs currently in place. For additional information, please contact Donna Follin, Purchasing Manager, at 301-846-1124. ✦

List of Current High Usage Blanket Purchase Agreements

BPA No.	Vendor	Commodity	Expiration Date
BO4-051M	Amersham Biosciences Corp	Biologicals	3/31/05
B03-053N	Roche Diagnostics Corp	Biologicals	9/24/04
B02-021LA	Applied Biosystems	Biologicals	3/31/05
B03-036N	BD BioSciences	Biologicals/Chemicals	3/31/05
B03-023N	BD Pharmingen	Biologicals	3/31/05
B04-041M	Beckman Coulter	Biologicals/Supplies	3/31/05
B03-041N	Charles River	Lab Animals/Supplies	3/31/05
B03-004N	Biosource Intl	Taqman Probes/Oligos	3/31/05
B02-022BL	Invitrogen	Oligos	3/31/05
B04-036M	Qiagen	Oligos	9/24/04
B04-048M	Sigma Genosys	Oligos	9/24/04
B04-027M	Integrated DNA	Oligos	3/31/05
B02-022AL	Invitrogen	Biologicals	3/31/05
B03-040N	Qiagen	Biologicals	9/24/04
B03-064N	Opivotal	Office Supplies	9/24/04
B02-018PA	CADDO	Office Supplies	3/31/05

Easing Collaborations: Transferring Materials

Collaborative efforts between SAIC-Frederick, Inc./NCI-Frederick personnel and outside parties are essential to meet NCI's 2015 goal to make cancer easily treatable. To address issues connected with these collaborative efforts, the NIH developed Material Transfer Agreements (MTAs). MTAs facilitate the exchange of materials between NIH scientists and outside organizations for research purposes. With this article, the NCI Technology Transfer Branch (TTB) hopes to provide important information to help you with some of the less formal collaborations you may be planning.

Last year, the NCI TTB processed more than 1,476 MTAs, of which over 50% were for staff on the NCI-Frederick campus! NIH policy (*PHS Technology Transfer Manual*, Chapter 501) states that all research materials being transferred between NIH and a non-Federal party must be documented by an appropriate agreement that has been executed by authorized individuals. This policy protects NIH and its scientists from potential problems, such as accusations of misappropriation or theft and the ability of non-Federal parties to claim rights to an NIH scientist's discoveries.

Material Transfer Agreements

Two mechanisms transfer materials out of the NCI: (1) a license to commercial parties; or (2) MTAs to non-profits, described in more detail below.

Materials typically transferred include cell lines, bacterial strains, plasmids and vectors, cDNA, mice, and compounds. These materials are owned by the providing party and such ownership does not change when the material is transferred. Unless otherwise specified, all requests for material must be limited to materials that are owned by the provider; this includes the NCI. Thus, NCI and SAIC-Frederick, Inc., must not transfer materials received from outside parties without permission from the original owners.

An MTA notifies recipients of the terms under which they are permitted to receive and use the material, as outlined below:

1. The MTA will not permit use of the material
   - in human trials or
   - for profit-making purposes.

2. The MTA permits and expects that the recipient will
   - use the materials for research purposes only;
   - exercise care in handling the materials;
   - maintain control over the distribution of the materials;
   - acknowledge the provider in publications;
   - follow all applicable statutes and regulations; and
   - ensure freedom to publish the research results obtained using the material.

Simple Letter Agreement

NIH has recently adopted a "Simple Letter Agreement" (SLA) for the transfer of materials. It is a one-page form, pared down to the essentials, and written to be useable by a wide variety of parties in many situations. Whenever possible, NIH staff are strongly encouraged to use the SLA for the transfer of material; however, they may use either the SLA or the NIH MTA. Both can be found at http://ttb.nci.nih.gov/forms.html.

Signature authority for these transfers is important. NCI has delegated the authority to sign unmodified versions of the NIH SLA to all laboratory and branch chiefs. Please visit (http://ttb.nci.nih.gov/staff_lab.html) for more information on the delegation of authority for these transfers. NCI has only delegated the authority to sign modified NIH SLA/MTAs or outside parties' MTAs to qualified staff in the NCI TTB. It is important that all authorized signatures as noted on the agreement be received from both parties and their scientists prior to transferring any materials.

When changes are needed to the terms of the model NIH SLA/MTA, or a non-NIH SLA/MTA is received, these agreements should be forwarded to the NCI TTB for processing. The TTB staff handles all modifications and obtains appropriate signatures for these specialized SLAs and MTAs.

Each NCI and SAIC-Frederick, Inc., laboratory is assigned to a specific TTB staff member who can answer any questions regarding the use of MTAs/SLAs. If you are not sure to whom your laboratory is assigned, please refer to the TTB Web site for this information (http://ttb.nci.nih.gov/staff_lab.html), or call 301-846-5465. ✦

TECHNOLOGY TRANSFER BRANCH

Partnering with Industry for Improved Public Health

An Historical Perspective – NCI-Frederick's Repository Facilities

Last year, The NCI-Frederick repositories took in about 1.5 million new samples and shipped over 40,000 samples to investigators in the US and throughout the world. These figures are just the latest in the repositories' long and rich history of support to the research community.

1980s—First Repository Established and Unique Two-Story, Walk-in Cold Boxes Added

The first NCI-Frederick (then known as the NCI Frederick Cancer and Research Development Center) repository facility was established in 1982 by consolidating 25 freezers in an undeveloped warehouse area in Building 434 and then transferring in other freezers from cramped laboratories. To distribute operating costs equitably among the many programs owning the freezers, the facility was administered from the beginning as a shared service.

In 1987, with Building 434's low-temperature storage at capacity, an off-site warehouse on East Street was leased. Unlike Building 434, this was dedicated space to support the Drug Discovery Program (part of the Developmental Therapeutics Program) Natural Products Repository (NPR) for plant and marine specimens. The first of its kind, the Natural Products Repository consisted of 14 two-story –20ºC walk-in cold boxes.

1990s—Repository Accommodates DCE Specimen Collections

In 1990, NCI-Frederick expanded the NPR warehouse space to support long-term, non-hazardous storage and to store the Epidemiology Branch's (part of the Division of Cancer Epidemiology—DCE) specimen collections.

The dedicated component of the DCE repository was converted to a shared service in 1994. In addition, ambient, controlled-temperature storage to support the NCI Tumor Registry's paraffin block archive was added to the East Street low-temperature storage services.

In 1995, NCI constructed the Central Repository Mechanical Storage Facility, Building 1066, to store mechanical freezers from Building 434; the Central Repository now includes 172 freezers.

McKesson BioServices' emergency guidelines ensure the integrity of stored materials and also ensure that these materials are properly maintained. In an emergency, a 500-kW generator can support the facility for 50 hours before needing refueling. The 14,771 sq. ft. facility is shared with four other SAIC-Frederick, Inc., entities, two of which utilize three laboratories in the building.

By 1996, Building 434's liquid nitrogen storage capacity doubled with the expansion of liquid nitrogen plumbing onto the second floor. Today, it is the Central Repository's Nitrogen Storage Facility, with 7,050 square feet of space and 104 nitrogen freezers supplied by an 11,000-gallon bulk nitrogen tank.

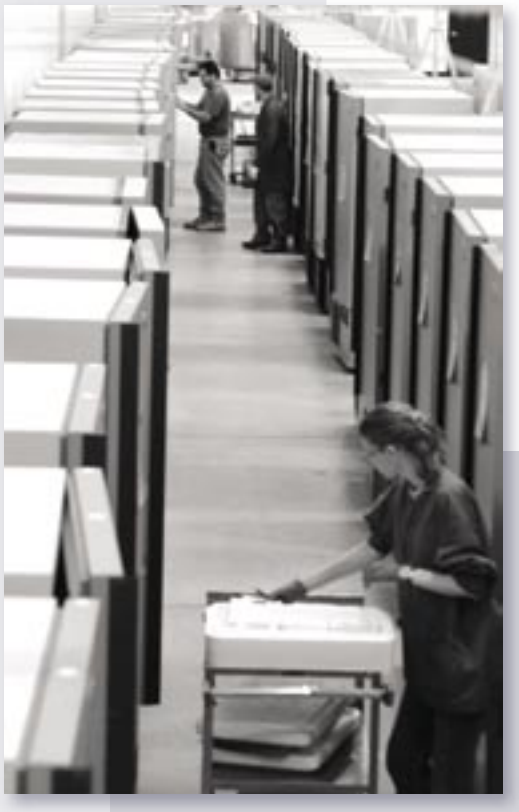
Wedgewood Repository Established in 2002

With the passing of time, surveys indicated that the East Street physical plant had serious problems, which were solved by constructing a new Natural Products Repository in Building 1073.

In 2002, NCI collections moved from East Street to the new Wedgewood Repository. The 11,000-sq. ft. NPR is home to DTP's voucher, plant, marine and fungal collections, as well as to the Division of Cancer Treatment and Diagnosis's NCI Tumor Bank. The Tumor Bank provides storage for transplantable, in vivo-derived tumor cell lines from various species.

In future issues of *The Poster*, we will highlight each of these facilities, their staff, and their services.

To learn more about the NCI-Frederick repositories, check out the April 2004 "Spotlight" article at http://web.ncifcrf.gov/news/spotlight/sl_april04.asp, as well as the new Portal and Central Repository Web page http://web/repository/default2.asp. ✦



Charles River Laboratories (CRL)

Boston Globe Ranks CRL #14 out of 100 Top Performing Public Companies

Charles River Laboratories has been ranked #14 by the *Boston Globe* in its 2004 ranking of the region's top 100 companies, the best-performing public companies of Massachusetts.

Commenting on CRL's ranking, Jim Foster, CRL Chairman and CEO, named "Entrepreneur of the Year" by *Forbes* magazine in 2003, stated: "It's an honor to be recognized for outstanding financial performance by the *Boston Globe* for the third straight year in a row. Our strong and consistent revenue growth is a direct result of our commitment to our mission: providing the portfolio of products and services that enable more efficient and faster drug discovery and development. Clearly, the power of our success is driven by each of you. You are dedicated to our mission and strive continuously to exceed customer expectations. Congratulations on this recognition, and please accept my heartfelt thanks." ✦

continued from page 12

Eighth Annual Spring Research Festival Award Winners

Name	Laboratory	Category	Poster Title
Bhiravi Tolani	Laboratory of Genomic Diversity	Biochemistry	Using trinucleotide repeats to identify human genetic diseases
Colletta Brabham-Orr	Developmental Therapeutics Program	Diagnostics and Therapeutics	Status of cdc2 phosphorylation in ovarian cancer; a potential therapeutic approach by a novel tyrophstin, NSC 405166
Erik Crawford	Laboratory of Comparative Carcinogenesis	Cancer Biology	Differential methylation of 45S ribosomal RNA promoters in the sperm: implications for chromium(III)-induced transgenerational carcinogenesis
Halina Zakowicz	Laboratory of Cancer Prevention	Cancer Biology	Mapping the domains of translation initiation protein eIF4A that are important for binding to the novel tumor suppressor Pdcd4
Julie Ann Costantino	Laboratory of Genetic Diversity	Genetics and Epidemiology	The role of the ABCA2 gene in zebra fish development
Kedest Teshome	Genomic Research Laboratory	Molecular Biology	The cloning and characterization of ABCE1, ABCF1, ABCF2, and ABCF 3 genes in zebra fish
Kerri Simpson	Laboratory of Cancer Prevention	Molecular Biology	Inorganic phosphate causes rapid changes in gene expression through an ERK1/2-dependent pathway in MC3T3-E1 osteoblasts
Meagan Horner	Laboratory of Experimental Immunology	Immunology	Fishing with phage: search for specific mouse NK cell ligands
Michael Levashov	Laboratory of Experimental and Computational Biology	Molecular Biology	Computer simulation of the convergent evolution of DNA binding sites as in the lambda cI/Cro control system
Palak Panchal	Gene Regulation and Chromosome Biology Laboratory	Cancer Biology	Does mistranslation elevate mutation in yeast?
Sarah Lookabaugh	Laboratory of Experimental Immunology	Immunology	Generating a specific monoclonal antibody that recognizes mouse CD16
Sarah O'Brien	USAMRIID, Bacteriology Division	Structural Biology and Chemistry	Novel protein-protein interactions of a contact-dependent bacterial secretion system elucidated with surface plasmon resonance and mass spectrometry

Data Management Services (DMS)

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. In this issue of *The Poster* we highlight some of the other services available from C&SS.

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 methodologies and tools to create custom software solutions to meet the unique needs and requirements of the 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 X-1060 for more 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 the mission of the NCI-Frederick. C&SS staff would be happy to meet with you to discuss your specific technology needs. ✦

Computer Software Training

The spring/summer semester of computer software training classes is already underway. Several new courses have been added to complement the extensive list of classes offered to NCI-Frederick employees. Please see the Computer Software Training Web site at http://css.ncifcrf.gov/training for more information or to register for classes. ✦

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) 24 hours per day, seven days a week. ✦

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
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Other Inquiries
Phone: 301-846-1060 ✦

RCHSPP Wins NIH Plain Language Award

Members of the **Regulatory Compliance and Human Subjects Protection Program (RCHSPP)** recently were recognized with an NIH Plain Language Award. Dr. Patty Fiero and Dr. Erik Augustson of the Tobacco Clinic are being recognized as part of a team that worked on the smokefree.gov effort, and Ms. Traci Blunt, Outreach Manager, is part of the team being recognized for the 9-A-Day campaign.

In 1998, former President Clinton signed a memo directing the use of plain language in rulemaking documents published in the *Federal Register* and in documents for the public that explain how to obtain a benefit or service or how to comply with a requirement. From that memo, the Plain Language Initiative emerged.

According to the Web site, http://execsec.od.nih.gov/plainlang/intro.html, the Plain Language Initiative requires that plain language be used in all new documents, whether written for colleagues, the public or other government entities. The argument is that clear, succinct writing improves communication, since it takes less time to read and understand. Guidelines suggest all government documents use, where possible, first or second person pronouns (we/you), active voice verbs, shorter sentences and paragraphs, tables and graphs, and that they avoid both jargon and highly technical language. ✦

SPGM Wins Communicator Awards

SPGM (Scientific Publications, Graphics & Media) staffers won two Awards of Distinction and two Honorable Mentions in the 2004 Communicator Awards, an international competition that recognizes outstanding work in all specialties in the communications field.

This year, 3,734 entries were judged in the Print Media competition. About 10% of all entries received Honorable Mention certificates, granted to those entries that meet the high standards of the industry. About 18% of the entries submitted won an Award of Distinction for projects that exceed industry standard in communicating a message or idea.

The two entries which earned Awards of Distinction are:

"Today's Commitment: Promise for Tomorrow," a full-page advertisement designed for the March 23, 2003, Frederick *News-Post* Annual Progress Edition

"Liquid Glass," a close-up photograph of *Taraxacum officinale* (dandelion), digitally enhanced, which also won an Award of Excellence in the BioCommunications Association's Bioimages 2002 competition and was selected for publication as the cover image on the *Journal of Biocommunication* (29:1).

Honorable Mentions were given for:

"NCI-Frederick Telephone & Services Directory," for cover design of the April 2003 edition.

"Reflections," a color photograph of Dr. Dominic Esposito performing a laboratory procedure in the Protein Expression Laboratory. The photo was taken between scenes during shooting of the NCI-Frederick/SAIC-Frederick, Inc., videos in summer 2003.

SPGM manager, Ken Michaels, noted that all of the entries recognized were collaborative works involving two or more contributors and commented, "Congratulations for these accolades are in order for the entire Scientific Publications, Graphics & Media staff, for it is the entire *community of artists* that breeds and nurtures creativity and fosters excellence in execution." ✦

Wilson Information Services Corporation (WISCO)

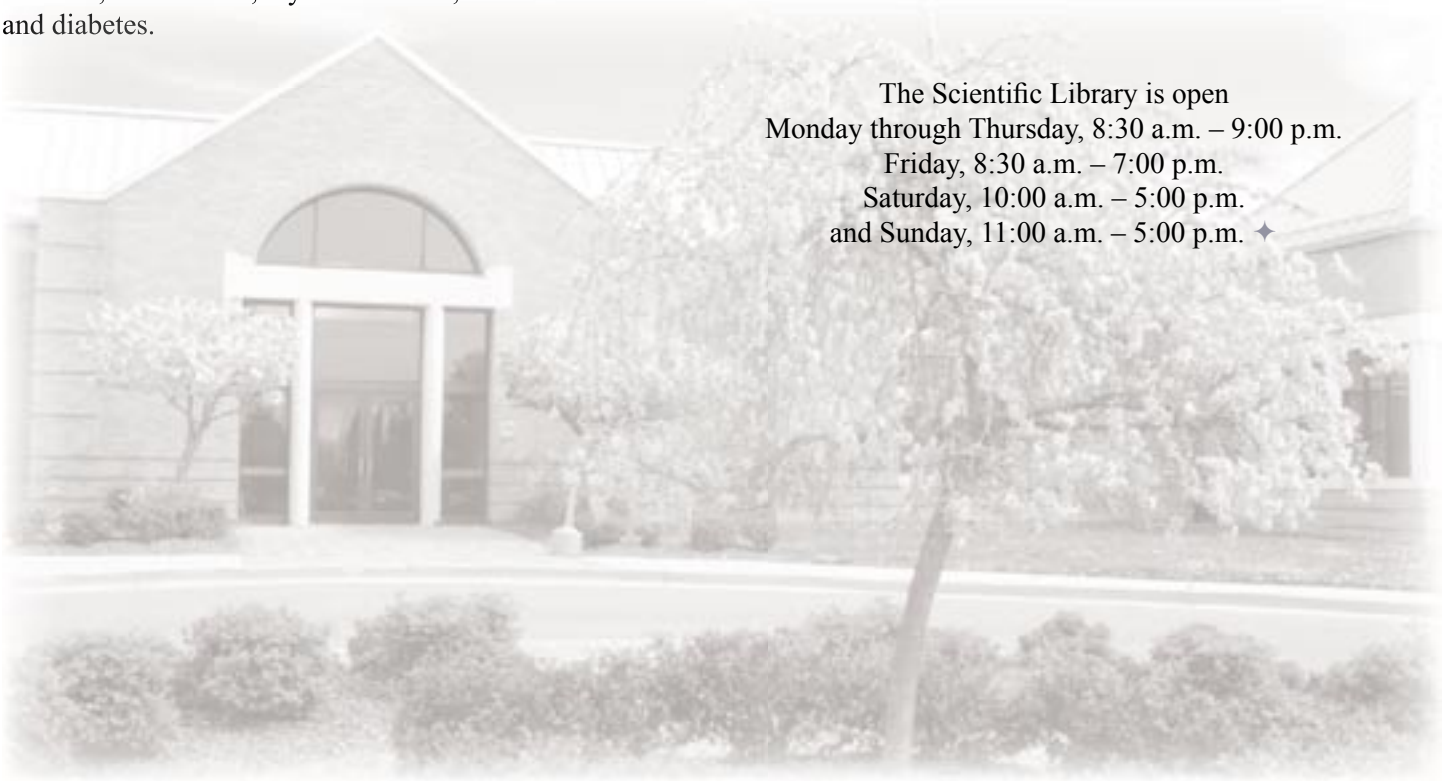
The Scientific Library offers you a wealth of information, from finding hard copy of materials you need for research to helping you navigate the Internet or search for reference materials on PubMed and other online reference lists. On your own or working with a librarian, you can use a variety of tools to answer your health questions, whether it's Internet access, an Infotrac database, health information, books, videos, audiotapes, or pamphlets.

CHI, the NCI-Frederick Center for Health Information

Also located in the Scientific Library, Reference section, is CHI, the NCI-Frederick Center for Health Information. This collection of materials is a collaborative project sponsored by the Scientific Library, Occupational Health Services, and the Employee Assistance Program. Through CHI, you can browse for information on a variety of health topics, including herbal products, alternate health, stress management, exercise, heart health, thyroid disorder, and diabetes.

In the video section, you'll also find copies of the monthly movies, either in DVD or video format, that the Diversity Team sponsors. Recently, the Diversity Team provided a DVD player to the Library so that employees can watch the films here. It is conveniently located in the Quiet Study room. These movies can also be borrowed at any time. Trigger some spirited discussions around the dinner table when you take one home to watch with the family (see article on page 15).

It's important to note, too, that the Scientific Library protects its users' privacy. According to a CHI pamphlet, "the Library will not reveal transactions indicating the use of specific resources by its individual users. Records pertaining to the use of the Library and its resources and subjects of inquiry are confidential, and shall not be disclosed either to other users, to members of the staff who are not authorized, or to other inquirers." ✦



The Scientific Library is open
Monday through Thursday, 8:30 a.m. – 9:00 p.m.
Friday, 8:30 a.m. – 7:00 p.m.
Saturday, 10:00 a.m. – 5:00 p.m.
and Sunday, 11:00 a.m. – 5:00 p.m. ✦

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http://web.ncifcrf.gov/ThePoster

Employment Opportunities

Research and Training Opportunities

Please contact the individual contractor's human resources representative or go to the contractor's Web site for up-to-date, detailed information and job requirements.

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

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

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

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

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

SAIC-Frederick, Inc. Job Openings

Animal Caretaker I: positions require completion of 8th grade and the ability to lift and carry up to 50 lbs.

Research Technicians (various laboratories): positions require BS degree or equivalent (4 years) related biomedical research experience.

Sr. Research Technicians (various laboratories): positions require BS degree or equivalent plus 2 years of related biomedical experience.

Research Associates (various laboratories): positions require BS degree or equivalent plus 4 years of related biomedical experience.

Clinical Research Associates (various levels), Clinical Monitoring Research Program: positions require minimum of BS degree (preferably in a scientific discipline, BSN, or pharmacy) and a minimum of 2 years directly related experience overseeing multiple concurrent clinical trials.

For a complete listing of all open positions, or to apply for posted openings, please visit our Web site at: http://saic.ncifcrf.gov ✦

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