*The National Cancer Institute at Frederick*

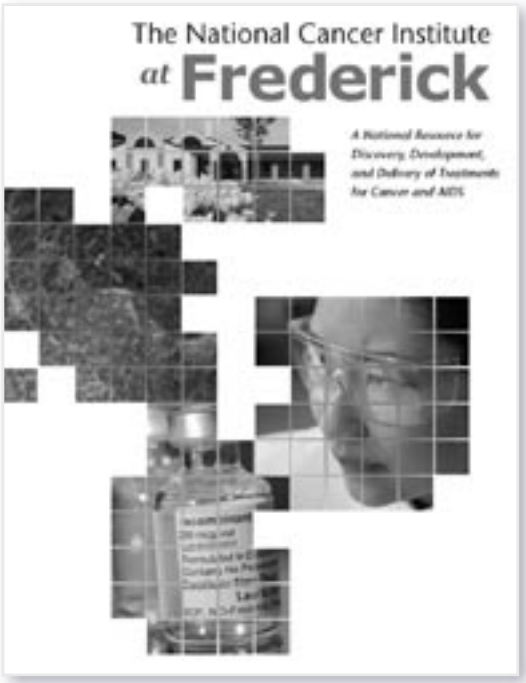
# Poster

*What is it?*
*Where is it?*

*Story on page 6.*

## NCI-Frederick Produces First-Ever Facilitywide Executive Summary

Have you ever tried to explain to someone outside the NCI-Frederick community what you do here? Why it's important? Have you ever answered questions about the overall mission of NCI-Frederick, tried to explain what research is being done in areas other than your own? Chances are, you've found yourself groping for words.




Now there's a chance to explain, clearly and succinctly, much of what we do. This year, NCI-Frederick is producing its first-ever, facilitywide executive summary. Each year the four contractors—Charles River Laboratories, Data Management Services, SAIC-Frederick, Inc., and Wilson Information Services Corporation—write annual reports summarizing their goals, accomplishments, and plans for next year. These are "rather significant annual reports, but it's difficult for anyone to read one, let alone all, and get a true flavor of NCI-Frederick," said Dr. Craig Reynolds, Director, Office of Scientific Operations, in a recent interview.

However, the new executive summary will select "the most salient points of interest to people working here, in the local community, or at the higher levels of administration in the NCI or NIH, and roll those pieces up into a smaller document with some illustrative graphics to convey the results of our year's work and effort," according to Dr. Reynolds.

### *Contractor Input*

The executive summary has been a work in progress for several months. After meeting with Dr. Reynolds, SAIC-Frederick, Inc., and SAIC Corporate representatives developed a basic format. The designers met with personnel from all four contractors, listening carefully to their explanations of their goals, significant accomplishments, and plans for next year, and incorporated these details into the text. Meanwhile, the staff at Scientific Publications, Graphics & Media worked on final layout and design.

*continued on page 2*

**September 2004**

## In This Issue



NCI Frederick

# NCI-Frederick Produces First-Ever Facilitywide Executive Summary

*continued from page 1*

An added bonus is that the contents of the executive summary have influenced what contractors are putting in their annual reports. "Once we started to work on the executive summary and identified what we wanted to put into the executive summary, it was easier for us to figure out what we wanted in each of the annual reports. I think that when people feel they're writing an annual report for a particular purpose—that somebody will read it, that it's going to be used for other purposes, like the executive summary—people will be much more enthusiastic about doing it, and they'll probably take it more seriously," Dr. Reynolds said.

## *Executive Summary Designed for Broad Audience*

Dr. Reynolds believes the executive summary will be useful in many ways, from meetings with local officials or nationally known dignitaries, such as the mayor of Frederick or Secretary of Health and Human Services Tommy Thompson, and any others who might need to familiarize themselves with NCI-Frederick. "I look at how I would have used it for last year. I'm anticipating just as many things happening in the next year, where I'll be able make it part of a package for visitors. We've tried to design the executive summary so that most of the writing is reader-friendly: people in the local community, who do not have a science background, could read and understand most of it. It also includes enough detail and 'nuts and bolts' science to interest the scientific reader, such as other institutes or NCI. It's a difficult, middle-of-the-road thing to do to reach such a varied audience, but I think we have done an excellent job," Dr. Reynolds commented.

He added that it will also be a very useful Human Resources tool in recruitment. "We can say, 'Your specific job may not be here, but this is what your job will contribute to.'"

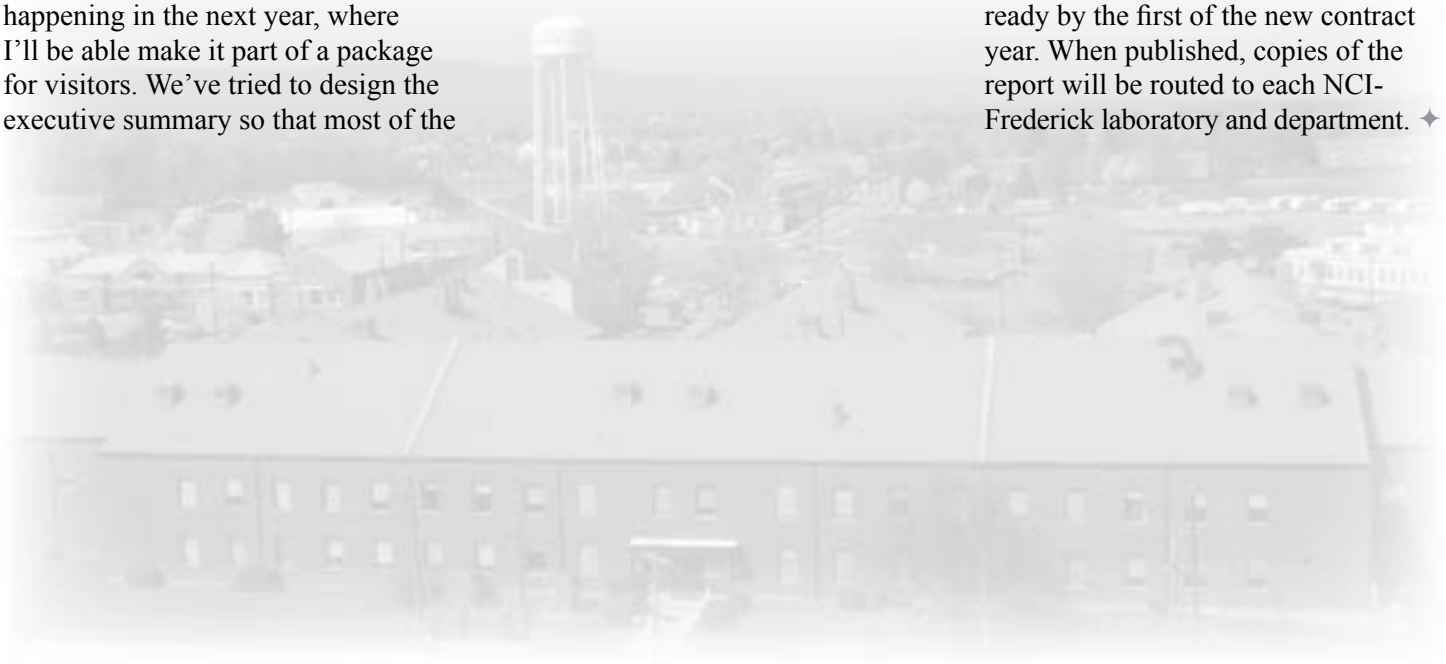
## *NCI-Frederick Adapts Quickly to Changing Needs*

Dr. Reynolds calls NCI-Frederick a "fluid" facility, skilled at changing quickly to meet any goals that NCI sets, whether for the 2015 mission or for another need yet to be determined. "That's one of our unique capabilities: since NCI-Frederick is primarily a contract operation and a federally funded research and development center, it's specifically designed to be quickly mobile, to meet those needs rapidly. As the nation's need for cancer and AIDS research changes, we are in the unique position to move quickly to accommodate whatever change is needed. As a result, we're responding to unique challenges, we're moving, we're changing all the time. That's not a bad thing; that's a good thing."

Dr. Reynolds stressed, "Often, you fear change, thinking that if you're asked to change, that it means that what you did before wasn't very good. At NCI-Frederick, if you're doing something very well, you'll be asked to do new things. So in fact, change in this particular environment is a reflection that you do things very well and you're being rewarded for how well you do things. In this environment, doing the same thing over and over, not changing, not responding to current needs, is not a reflection that you're doing a good job. I think that when people ask you to do new jobs, to meet new needs, that's the sign that you're really doing well."

Because the executive summary will necessarily change each year to be current with the contractors' annual reports, the summary will also provide another avenue of information for NCI-Frederick staff.

The executive summary is in the final stages of preparation and should be ready by the first of the new contract year. When published, copies of the report will be routed to each NCI-Frederick laboratory and department. ✦



# New Faces at NCI-Frederick

Eighty-eight people joined our Facility as full-time employees, January through April 2004.

## *NCI-Frederick welcomes…*

Catherine Adamson
Mary Cantwell
Paola Caprari
Anna Chan
Magdalena Golebiowska
Karine Goussett
Zlatka Kostova Lenard
Shilpa Kulkarni
Benjamin Luttge
Utpal Munshi
Yasuhiro Ozawa
Palak Panchal
Gurjeet Singh
Munehisa Takahashi
Kedest Teshome
Yien Che Tsai
Prajakta Varadkar
Allan Weissman
Cuihong Yang
Hua-Feng Zhang

*Prajakta Varadkar*

*Carrie Burtner*

*Benjamin Luttge*

*Catherine Adamson*

## *SAIC-Frederick, Inc., welcomes…*

Desline Barber
Marcelino Bernardo
David Bienus
Gerald Bryda
Carrie Burtner
Jacqueline Carlin
Hong Chen
Verna Curry
Rennay Dewberry
Yaritza Diaz
James Dykes
Robert Eackles
Roni Eastep
Rebecca Erwin-Cohen
Dino Garcia-Rossi
Aaren Gonzales
Kristina Gosnell
Liam Harmon
Hartwig Harms
Philip Hatch
Curtis Henrich
Charles Hopkins
Sawako Ishikawa
Randall Johnson
Tara Kenny
Z. O. Keskin
Reginald Kidd III
Tamara Kinna
Lakunle Lasebikan
Steven Lescalleet
Christina Macarthy
Stephen Marsh
Lisa Maslan
Gregory McKenzie
Louise McKenzie
Robert Meyer
Blossom Morgan
Rhonda Morgan
Taras Oleksyk
Carlei O'Neal
Margaret O'Toole-Lualdi
Jodi Penn
Sean Plunkett
Tianqing Qiu
Luis Rodriguez
Sabrina Rossi
David Rothschild
Ana Saez Perez
Tracy Safran
Corinne Shaffer
Michael Shaw
Nancy Shea
Yuriy Shebzukhov
Maria Singarayan
Nyana Singh
Kaethe Skye
Colin Stefan
Phyllis Taliaferro
Eileen Thompson
Sandy Torres
Charles Trubey
Andrew Warner
Beverly Weigand
Xiaolin Wu
Ming Yi
Candice Zeigler
Petrus Zwart

## *WISCO welcomes…*

Alan Doss ✦

*Hua-Feng Zhang*

*Anna Chan*

*Roni Eastep*

*Paola Caprari*

*Tamara Kinna*

*Bob Meyer*

*Cuihong Yang*

*Gurjeet Singh*

# Poster People Profile

*[Editor's note: As the new fiscal year begins, we're taking a slightly different slant with our Poster People Profile, giving you a chance to tell us what you do at NCI-Frederick. Often, we'll include a second profile, what you do (too).]*

## *What Do You Do?*
## *Ethel Armstrong*

*What do you like best about your work here at NCI-Frederick?*

I enjoy the fact that what I contribute can make a difference in someone's life. Each day I am presented with new challenges that test my ability and creativity. I think of myself as a "Super Sleuth," digging for information around the world. Whenever something new is being done here, I am sure that the researchers will need my assistance.

Of course, we have ongoing research that keeps my interest at a high level as well. I am especially proud of the relationship that the area hospitals in Baltimore and D.C. place in us when they need urgent patient care information. They know that our Interlibrary Loan Department will respond quickly. This extends our support to the communities outside the facility.

*How long have you worked at NCI-Frederick? In what capacity?*

When I started 22 years ago, the facility was operated solely by Litton Bionetics. Interlibrary Loan at that time had one position. My title at that time was "Interlibrary Loan Associate."

*What is your specific job title and what are your duties now? What training or education do you have for your current job?*

My title now is "Manager, Interlibrary Loan." Part of my duties now are to coordinate the work flow in the department. That includes managing incoming and outgoing requests as well as training. I spend a great deal of time locating hard-to-get items as well as items we do not own in the Scientific Library. We borrow a lot of material so that the researchers can keep up with what is going in their area of research. My training in this area was initiated at the Johns Hopkins University. The medical setting there was great preparation for the duties I would assume at NCI-Frederick. We had only one automated system years ago, in contrast to today, where we use a variety of systems to acquire information. Needless to say, the Internet has been the most dramatic. Other systems include OCLC and Docline. Such systems undergo constant change, and therefore, constant training is needed to keep up with the enhancements. Training provided by the Medical Library Association as well as area network providers such as Fedlink, Palinet, and Capcon is helpful.

*How do the demands of your job now differ from what you did when you first began working here?*

My position has changed dramatically with the increased use of the Internet. Information gathering and verification are reduced sometimes to minutes and hours rather than days. Because of our fast-paced society, users expect, and receive, information much more rapidly than before. This does increase the demand on our service, but we have been successful so far in meeting the challenge. Years ago, when an article arrived in a few days via the U.S. mail, we were thrilled. As time went on, the Fax machine was the most wonderful thing. Today, with the exception of books, we receive most of our items electronically. I cannot imagine how today's user would have survived.

*What have been the most interesting or exciting changes you've seen here, either in your job or in the facility as a whole?*

An exciting change for me is to see how the facility has grown. We used to be in the shadow of NIH in Bethesda, but now we have our own identity. The building of the Conference Center and the Library has contributed much to that success, along with the wonderful work done here by all NCI-Frederick staff. We can now host speakers and conferences. A few years ago, I was able to host the Maryland Association of Interlibrary Loan Librarians Meeting here at the Conference Center, and they toured our Library and saw what a wonderful facility we have here.

*In what ways have you participated in the life of NCI-Frederick—committees, awards, or recognition, etc.?*

I have served on the Safety Committee and presently serve on the NCI-Employee Diversity Committee. Most recently, I have been a part of the first Occupational Health Services book and panel discussion groups, which focused on autism, in conjunction with the Scientific Library and NCI-Employee Diversity Committee. I participate in NICHOL, National Institutes of Health Consortium of Libraries. I am the Chair of the

Maryland Association of Interlibrary Loan Librarians. I also serve on the Membership Committee of the Maryland Library Association.
I was also recognized at the American Library Association Conference in Dallas, Texas, several years ago for placing the 15-millionth request via the OCLC Interlibrary Loan Subsystem. A plaque was given to the facility for that achievement, and it hangs in the library today. I have also been recognized by the Maryland Library Association for presentations given at several conferences held in Ocean City, Maryland. ✦

## *What Do You Do, Too?*

## *Junior Berry*

*What do you like best about your work here at NCI-Frederick?*

I like the diversity of work and people at NCI-Frederick. We work with people from many different countries, cultures, and backgrounds. Despite our differences, we all share a wonderful sense of community here. I would be so proud if one day I could say that I helped to maintain the computers that developed a cure for cancer, AIDS, or both. We all share mutual technological frustrations. It is challenging to keep up with the ever-changing world of computers. We are lucky to work in an environment with so many prestigious, intelligent, and educated scientists. What makes our work even more enjoyable is the fact that we have enough room here on the Frederick campus to be comfortable and patient with one another. I have made a lot of wonderful friends here. It is a very nurturing and creative environment.

*How long have you worked at NCI-Frederick? In what capacity?*

I started working at NCI-Frederick in March of 1997. At the time I was only a part-time intern; over the years I've progressed to a full-time Tech III.

*What is your specific job title and what are your duties now? What training or education do you have for your current job?*

As a Microcomputer Specialist III, I am the PTC (Primary Technical Contact) for Buildings 427 and 428. My common tasks usually include quoting new PCs for purchase, installing new software/hardware, troubleshooting problematic PCs, repairing them, and maintaining the 427 Contracts server. In addition to 427/428, I cover other areas as needed. Most of my education isn't formal, but hands-on. I've been using a computer since I was in grade school. During high school and college I took several programming classes (Basic, FORTRAN, Pascal, Visual Basic, and C+); even though I'm not a programmer, having the insight does prove useful at times. While working here, I have taken several Microsoft classes, have gotten A+ certified and a wealth of hands-on experience.

*How do the demands of your job now differ from what you did when you first began working here?*

Looking back to 1997, the biggest change I see in terms of job demands can be summed up by the word "growth." The number of computers and computer users has more than doubled since the day I started. In addition, the types of diverse technologies have grown as well. When I first started, Windows 95 and Windows 3.11 were running on the desktops. PCs didn't have CD-ROMs standard; Zip drives were running through parallel ports. Now we have Windows XP and CD-ROM burners with almost every new PC; LCD monitors are popping up everywhere. Things have gotten better, but sometimes this progress in technology can make things harder when they break. I am fortunate to work in an organization that has more than kept pace with our customers' growth. We have actually been able to cut our response time down and provide even better service as our demands increased. I think we are so successful because of the personal growth that we all experience by working as a team. We do our best to be an integral part of the NCI team and not just a service provider.

*What have been the most interesting or exciting changes you've seen here, either in your job or in the facility as a whole?*

I would have to say, without a doubt, that the most exciting thing for me was the chance to take a tour of Building 470 before it was dismantled. Watching it come down was interesting, too, although its becoming a parking lot was somewhat anti-climatic.

*In what ways have you participated in the life of NCI-Frederick—committees, awards, or recognition, etc.?*

I dabble in photography as a hobby, so the past few years I've volunteered to take pictures for Take Your Child to Work Day. ✦

# 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 **October 15**, and the winner will be drawn from all correct answers received by that date.

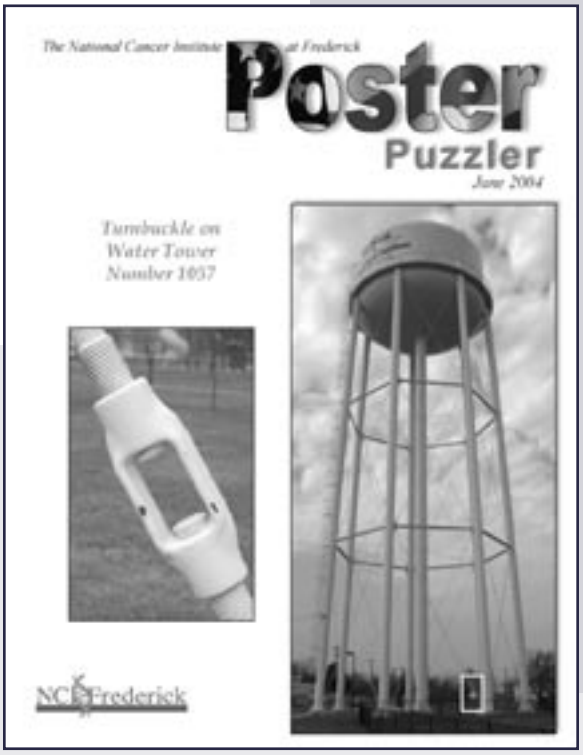
Good luck and good hunting! ✦

## *The June Poster Puzzler:*

### *Turnbuckle on Water Tower Number 1057*

June's Puzzler is a close-up of a turnbuckle in one of the 42 cross-ties supporting the legs of Water Tower #1057, behind Building 549. Built in 1958 by the Chicago Bridge and Iron Company, the water tower stands approximately 160 feet high and has a capacity of 500,000 gallons of water (that's over 2,000 tons).

Designed by the Army Corps of Engineers, the three water towers on campus provide an uninterrupted water supply for Fort Detrick during working hours. Pumps are used to fill the towers at night, and any interruptions to the water supply from the water treatment plant on the Monocacy would not be felt for at least 24 hours. The towers have undergone three "makeovers" since they were built, starting with a red-and-white checkerboard pattern, changing in the seventies to mint green, which lasted until about 10 years ago, when they were painted as you see them today.




Thanks to all the participants in the June Poster Puzzler!

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

Congratulations to our June 2004 winner:
**Greg Clarke**
Facility Manager,
Biopharmaceutical Development Program

# Platinum Highlight

**Dr. Maria Birchenall-Roberts,**
Laboratory of Molecular Immunoregulation

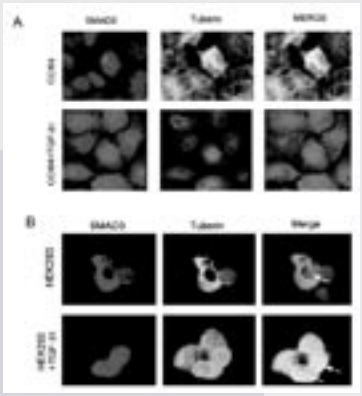
Dr. Birchenall-Roberts did her doctoral work in molecular biology at Illinois State University, Normal, IL. She came to NCI-Frederick in 1984 as a post-doctoral student in the laboratory of Dr. Frank Ruscetti, Laboratory of Molecular Immunoregulation, and has been there ever since. For the past 20 years, Dr. Birchenall-Roberts has focused primarily on the control of growth in malignant cells. In particular, she has studied the role of tumor growth factor-beta (TGF-β1) in controlling the growth of myeloid cells, one of the principal types of blood cells. "The regulation of cell growth is an extremely complex process that is currently understood as being controlled by the interplay of specific stimulatory and inhibitory pathways," Dr. Birchenall-Roberts says. In demonstrating the role of tuberous sclerosis complex in the growth inhibitory action of TGF-β1, she and her colleagues have linked two cellular pathways previously believed to be unrelated. "The discovery of new, unexpected relationships between the complex cellular processes controlling cell growth will ultimately yield a more comprehensive and inclusive understanding of how cancer arises, and what pathways should be targeted to control its growth," she says. ✦

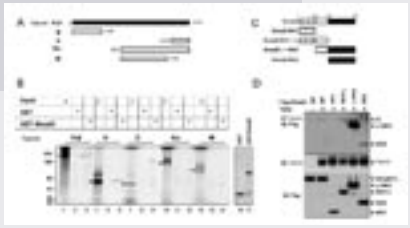
*Birchenall-Roberts M.C., Fu T., Bang O.S., Dambach M., Resau J.H., Sadowski C.L., Bertolette D.C., Lee H.J., Kim S.J., and Ruscetti F.W.*

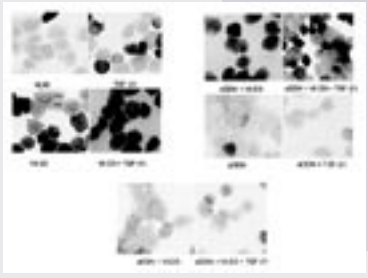
## *Tuberous sclerosis complex 2 gene product interacts with human SMAD proteins: A molecular link of two tumor suppressor pathways*

*J Biol Chem* **279**(24):25605–25613, 2004

Tuberin (*TSC2*) is a tumor suppressor gene. At the cellular level, tuberin is required as a critical regulator of cell growth, neuronal differentiation (Soucek, T., Holzl, G., Bernaschek, G., and Hengstschlager, M. [1998] *Oncogene* 16, 2197–2204), and tumor suppression (Crino, P. B., and Henske, E. P. [1999] *Neurology* 53, 1384–1390). Here we report a critical role for tuberin in late stage myeloid cell differentiation. Tuberin strongly augments transforming growth factor (TGF)-β1 signal transduction pathways, including SMAD activation. We also demonstrate that the amino-terminal region of tuberin interacts specifically with the MH2 domain of SMAD2 and SMAD3 proteins to regulate TGF-β1-responsive genes such as $p21^{CIP}$. Inhibition of tuberin expression by Tsc2 antisense greatly reduces the ability of TGF-β to transcriptionally regulate $p21^{CIP}$, $p27^{KIP}$, and cyclin A leading to an abrogation of the antiproliferative effects of TGF-β1. Also, inhibition of tuberin expression during stimulation of monocytic differentiation with vitamin D3 and TGF-β1 significantly impaired myeloid cell growth inhibition and differentiation. Together, the data demonstrate the presence of a novel activation process following TGF-β1 stimulation that requires tuberin-dependent activity. ✦







# Platinum Publications

The following 46 articles have been selected from a quarterly listing of publications in 11 of the most prestigious science journals.

## *Biochemistry and Biophysics*

**Shkriabai N, Patil SS, Hess S, Budihas SR, Craigie R, Burke TR, LeGrice SFJ, Kvaratskhelia M.** Identification of an inhibitor-binding site to HIV-1 integrase with affinity acetylation and mass spectrometry. *Proc Natl Acad Sci USA* **101**(18):6894–6899, 2004.

## *Cell Biology*

**Johnson BR, Nitta RT, Frock RL, Mounkes L, Barbie DA, Stewart CL, Harlow E, Kennedy BK.** A-type lamins regulate retinoblastoma protein function by promoting subnuclear localization and preventing proteasomal degradation. *Proc Natl Acad Sci USA* **101**(26):9677–9682, 2004.

**Sakchaisri K, Asano S, Yu LR, Shulewitz MJ, Park CJ, Park JE, Cho YW, Veenstra TD, Thorner J, Lee KS.** Coupling morphogenesis to mitotic entry. *Proc Natl Acad Sci USA* **101**(12):4124–4129, 2004.

## *Epidemiology and Prevention*

**Felix K, Gerstmeier S, Kyriakopoulos A, Howard OMZ, Dong HF, Eckhaus M, Behne D, Bornkamm GW, Janz S.** Selenium deficiency abrogates inflammation-dependent plasma cell tumors in mice. *Cancer Res* **64**(8):2910–2917, 2004.

**Zhen XA, Luke BT, Izmirlian G, Umar A, Lynch PM, Phillips RKS, Patterson S, Conrads TP, Veenstra TD, Greenwald P, Hawk ET, Ali LU.** Serum proteomic profiles suggest celecoxib-modulated targets and response predictors. *Cancer Res* **64**(8):2904–2909, 2004.

## *Experimental Therapeutics, Molecular Targets, and Chemical Biology*

**Chen SY, Lin JRV, Darbha R, Lin PP, Liu TY, Chen YMA.** Glycine N-methyltransferase tumor susceptibility gene in the benzo(a)pyrene-detoxification pathway. *Cancer Res* **64**(10):3617–3623, 2004.

**Dhar A, Hu J, Reeves R, Resar LMS, Colburn NH.** Dominant-negative c-Jun (TAM67) target genes: HMGA1 is required for tumor promoter-induced transformation. *Oncogene* **23**(25): 4466–4476, 2004.

**Fortini ME.** Par-1 for the course of neurodegeneration. *Cell* **116**(5):631–632, 2004.

**Morrison DK.** Cancer: Enzymes play molecular tag. *Nature* **428**(6985): 813–815, 2004.

## *Genetics*

**Kashuba VI, Li JF, Wang FL, Senchenko VN, Protopopov A, Malyukova A, Kutsenko AS, Kadyrova E, Zabarovska VI, Muravenko OV, Zelenin AV, Kisselev LL, Kuzmin I, Minna JD, Winberg G, Ernberg I, Braga E, Lerman MI, Klein G, Zabarovsky ER.** RBSP3 (HYA22) is a tumor suppressor gene implicated in major epithelial malignancies. *Proc Natl Acad Sci USA* **101**(14): 4906–4911, 2004.

**Roca AL, Bar-Gal GK, Eizirik E, Helgen KM, Maria R, Springer MS, O'Brien SJ, Murphy WJ.** Mesozoic origin for West Indian insectivores. *Nature* **429**(6992):649–651, 2004.

## *Gene Structure and Regulation*

**Harman FS, Nicol CJ, Marin HE, Ward JM, Gonzalez FJ, Peters JM.** Peroxisome proliferator-activated receptor-delta attenuates colon carcinogenesis. *Nat Med* **10**(5):481–483, 2004.

**Kim DJ, Akiyama TE, Harman FS, Burns AM, Shan WW, Ward JM, Kennett MJ, Gonzalez FJ, Peters JM.** Peroxisome proliferator-activated receptor beta (delta)-dependent regulation of ubiquitin c expression contributes to attenuation of skin carcinogenesis. *J Biol Chem* **279**(22):23719–23727, 2004.

**Sedelies KA, Sayers TJ, Edwards KM, Chen WS, Pellicci DG, Godfrey DI, Trapani JA.** Discordant regulation of granzyme H and granzyme B expression in human lymphocytes. *J Biol Chem* **279**(25):26581–26587, 2004.

## *Immunology*

**Matsuyama W, Yamamoto M, Higashimoto I, Oonakahara K, Watanabe M, Machida K, Yoshimura T, Eiraku N, Kawabata M, Osame M, Arimura K.** TNF-related apoptosis-inducing ligand is involved in neutropenia of systemic lupus erythematosus. *Blood* **104**(1):184–191, 2004.

**Sun K, Welniak LA, Panoskaltsis-Mortari A, O'Shaughnessy MJ, Liu HY, Barao I, Riordan W, Sitcheran R, Wysocki C, Serody JS, Blazar BR, Sayers TJ, Murphy WJ.** Inhibition of acute graft-versus-host disease with retention of graft-versus-tumor effects by the proteasome inhibitor bortezomib. *Proc Natl Acad Sci USA* **101**(21):8120–8125, 2004.

## *Medical Science*

**Stemmer-Rachamimov AO, Louis DN, Nielsen GP, Antonescu CR, Borowsky AD, Bronson RT, Burns DK, Cervera P, McLaughlin ME, Reifenberger G, Schmale MC, MacCollin M, Chao RC, Cichowski K, Kalamarides M, Messerli SM, McClatchey AI, Niwa-Kawakita M, Ratner N, Reilly KM, Zhu Y, Giovannini M.** Comparative pathology of nerve sheath tumors in mouse models and humans. *Cancer Res* **64**(10):3718–3724, 2004.

**Silic-Benussi M, Cavallari L, Zorzan T, Rossi E, Hiraragi H, Rosato A, Horie K, Saggioro D, Lairmore MD, Willems L, Chieco-Bianchi L, D'Agostino DM, Ciminale V.** Suppression of tumor growth and cell proliferation by P13(II), a mitochondrial protein of human T cell leukemia virus type 1. *Proc Natl Acad Sci USA* **101**(17):6629–6634, 2004.

## *Microbiology*

**Xu HZ, Svarovskaia ES, Barr R, Zhang YJ, Khan MA, Strebel K, Pathak VK.** A single amino acid substitution in human APOBEC3G antiretroviral enzyme confers resistance to HIV-1 virion infectivity factor-induced depletion. *Proc Natl Acad Sci USA* **101**(15):5652–5657, 2004.

**Zhang ZQ, Wietgrefe SW, Li QS, Shore MD, Duan LJ, Reilly C, Lifson JD, Haase AT.** Roles of substrate availability and infection of restina and activated CD4(+) T cells in transmission and acute simian immunodeficiency virus infection. *Proc Natl Acad Sci USA* **101**(15): 5640–5645, 2004.

## *Molecular Biology and Genetics*

**Cheung C, Akiyama TE, Ward JM, Nicol CJ, Feigenbaum L, Vinson C, Gonzalez FJ.** Diminished hepatocellular proliferation in mice humanized for the

# Platinum Publications

nuclear receptor peroxisome proliferator-activated receptor alpha. *Cancer Res* **64**(11):3849–3854, 2004.

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*continued on page 24*

# Community Outreach

## *Take Your Child To Work Day*

## *July 21, 2004*

"Twenty-one" was the magic number in July. Not only was Take Your Child to Work Day held July 21, but 21 sponsored programs were scheduled, as well as lots of Hub activities. The programs hosted 310 children.

TYCTW Day staff are excited about having even more sponsored programs, especially science-oriented ones, next year. If you would like to sponsor a program, but aren't sure what your area could do or how many children you could safely handle, the staff can help you develop a program that is easy to adapt to your space. If you need a place in which to present that program, the staff can help you with that as well. Log on to http://kidsday.ncifcrf.gov/ and click on "Volunteers." ✦


## *Protein Structure: A Key to Understanding How Cells Work*

With the completion of the Genome project, we now know the sequence of the 3 billion base pairs of DNA that comprise the human genome, the blueprint for life. The information encoded on the DNA of our cells comprises approximately 30,000 to 40,000 different genes. The cell uses alternative splicing (a means of generating different messenger RNA molecules [mRNA] from the same gene by including or excluding different parts of the gene in the final mRNA molecule) to encode protein, accounting for roughly 150,000 different possible mRNAs, which encode the proteins.

After encoding, proteins may undergo chemical modifications with different types of sugar, fat, and other compounds. This means probably more than a million different proteins are made from the repertoire of different mRNAs in a cell. The growing field of proteomics is developing technology that will allow scientists to describe the entire protein composition of a cell, also known as the proteome.

In an adult organism, cells use mRNAs to differentiate themselves to create protein for specialized functions. For example, blood cells contain high levels of the protein hemoglobin, which facilitates the transport of oxygen to cells to help generate energy. To understand normal cell function, we must understand the normal function of proteins, an understanding critical to devising strategies to treat disease, which occurs when cell function becomes abnormal.

Proteins play two major roles in the cell: structural and enzymatic. Proteins are essential structural components of the cell's outer membrane, as well as of the numerous internal components, or organelles, that "run" the cell. Proteins initiate, or catalyze, biochemical reactions to help the cell maintain itself by producing energy, and to help the cell grow, divide, and perform specialized functions.

An enzyme is a protein that catalyzes chemical reactions in the cell. To understand the enzymatic role of protein, it is helpful to think of an enzyme as a "lock" with only one "key" that can open it; the key is the molecule that the enzyme changes chemically in a process known as catalysis. Such catalysis takes place only at the specific spatial configuration of the substrate (reactant compound) and the catalyst (enzyme). To understand the mechanisms of such reactions, knowledge of the three-dimensional (3D), or atomic, structure of enzymes and enzyme/substrate complexes is essential. Rational Drug Design, utilizing such knowledge, helps in making synthetic compounds that can favorably affect malfunctioning proteins and cells.

Two main methods exist for deducing the 3D structure of proteins: nuclear magnetic resonance (NMR) and X-ray crystallography (also known as protein crystallography). NMR identifies the 3D structure of a protein molecule by detecting the inherent magnetic properties of its component atoms. X-ray crystallography has higher resolving power than NMR but requires the protein to be highly purified and then crystallized. The protein crystal is then placed in the path of a focused X-ray beam (beamline), and the highly ordered crystal lattice deflects the X-rays, producing a diffraction pattern that can be recorded as 3D data. A protein structure is then inferred from analysis of these data. A remarkable example of the use of this technology is the discovery of the double helical structure of DNA, which was inferred by James Watson and Francis Crick from the X-ray diffraction data of crystalline DNA obtained by Rosalind Franklin. This finding was published in the seminal 1953 *Nature* paper and led to a Nobel Prize. Another notable example is the determination of the first protein (hemoglobin) structure by Max Perutz, which also resulted in a Nobel Prize in 1962.

In 1999, when the approximately $10 million, 6-year, NCI/SAIC/National Institute of General Medical Sciences (NIGMS) beamline project was initiated, only a small fraction of the structures of the proteome had been deduced. NCI and NIGMS decided to use the SAIC contract capabilities based at NCI-Frederick to collaborate on developing an X-ray beamline capability to help develop more protein structure information. Project team members include the NCI (Drs. John Sogn and Paul Nisson), NIGMS (Dr. Charles Edmonds), Purdue University (Dr. Janet Smith), Argonne National Laboratory ([ANL] Drs. Robert Fischetti, Ruslan Sanishvili, and Ward Smith), and SAIC contracting, technical, and administrative support personnel (Mr. Dennis Dougherty, Dr. Jeffrey Derge, and Ms. Dawn Gartner). Working with subcontractor ACCEL Instruments, GmbH, of Cologne, Germany, the team has met or exceeded projected milestones, and a working beamline will be in place by the end of the summer at ANL. When the project is completed in October 2005, the facility will comprise three highly automated beamlines to handle experiments of cutting-edge biology.

For more information about Argonne, go to: http://www.aps.anl.gov/aps/frame_home.html.

Our thanks to Dr. Paul Nisson, Assistant Project Officer, Office of Scientific Operations, for writing this article. ✦

# Did You Know?

## *A Look Back*

### *1973*

The seeds of The Basic Research Program were sown this year. The Weinhouse Committee, formed at the directive of the National Cancer Advisory Board, was given the mandate to "provide advice on matters relating to FCRC [the Frederick Cancer Research Center] as a unique, responsive, modern laboratory, a center of excellence in certain areas,…and a back-up resource for visiting scientists." Late in the year, the Committee recommended that a strong commitment be made to basic science at FCRC, under the leadership of a highly respected scientist with acknowledged leadership capabilities. Their search, conducted throughout 1974, resulted in the hiring of Dr. Michael G. Hanna, Jr., and the Basic Research Program began in early 1975.

This year opened with a staff of 246, up from 15 staff members just six months earlier. By year's end, there were 490 employees at FCRC.

### *1974*

The Chemotherapy Fermentation Laboratory was initiated, and facilities were ready for operation by 1975.

### *1975*

National Cancer Advisory Board members visited the Center for the first time. They would not return until May 1980.

### *1976*

Peter Gorelick, who is currently the manager of the Animal Health Diagnostics Laboratory, won a certificate and cash award for the highest score on the American Association of Laboratory Animal Science (AALAS) laboratory technical certification exam. The award was presented at the Symposium on Lab Animal Housing held by the National Capital Area Branch of AALAS.

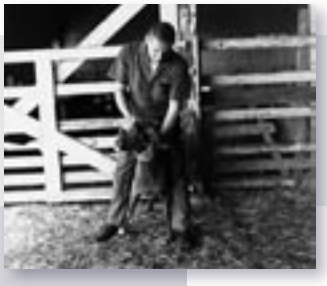
New hires in September of this year included Raymond Sowder and Stephanie Simek (Viral Oncology); Douglas Bohn (Animal Breeding); Carmen Anderson (Biological Markers); Veronica Roberts (Chemotherapy Fermentation); Mary Ernst (Chemical Carcinogenesis); and Dennis Cooper (Facilities, Engineering and Maintenance). Out of 22 new hires that month, these 6 are still here. Congratulations on your 28th anniversary!

By the end of this year, 92 scientific manuscripts had been published and 60 seminars held, up from the 4 manuscripts published and 10 seminars held just 3 years earlier.

Two major programs were established at FCRC: the Chemical Carcinogenesis Program, under the direction of Dr. William Lijinsky, and the Viral Oncology Program, under the direction of Dr. Raymond V. Gilden. Also launched this year was a completely new area of research, established in the Biological Markers Program under the auspices of the Division of Cancer Treatment. Dr. Raymond W. Ruddon, Jr., was named its first chief.

According to the Web site http://inventors.about.com/library/weekly/aa121598.htm, 1976 saw the dawn of the first home computer. On April Fool's day of that year, Steve Jobs and Steve Wosniak released the first Apple I computer. A local computer dealer saw the prototype at a meeting of a computer hobbyist group in Palo Alto, California, and ordered 100 units, provided Wosniak and Jobs would assemble them for customers. About 200 units were built and sold over the next 10 months. The retail price? $666.66. ✦

*These undated photos from the SPGM archives show people at work in the labs and offices. Can you identify any of them?*



# Did You Know...?

## *NCI-Frederick Poster Wins Magnum Opus Awards*

The publication you are reading is an award-winning newsletter!

We are pleased to announce that the *NCI-Frederick Poster* has received two Honorable Mentions in the **First Annual Magnum Opus Awards** held last spring and sponsored by *Publications Management Magazine*, in conjunction with the Missouri School of Journalism.

This juried competition was created to honor the unique skills and talents that go into publishing effective corporate magazines, newsletters, and collateral material. The Magnum Opus Awards program is dedicated to raising the quality bar of custom publications, and, in turn, their value as a strategic marketing vehicle. The judges, highly skilled professionals in the fields of marketing, writing, design and custom publishing, consider such elements as information and entertainment value, quality of writing and display copy, creative use of imagery and typography, and consistency of color palette and style.

Scientific Publications, Graphics & Media was notified in June that two of the three pieces they entered in this new competition received Honorable Mention awards.


The *NCI Frederick Poster* November 2003 issue was recognized in its entirety in the Best New Publication category, for publications in print less than two years. The Honorable Mention was one of 3 granted from among 27 entries in this category. We are pleased to honor Paul Miller (NCI), Tammy Schroyer, Ken Michaels, Maritta Grau, Kathy Green, Jonathan Summers, and Marti Welch for their outstanding work in producing this issue.

"Aikido–A Closer Look," from the August 2003 *NCI-Frederick Poster*, was recognized in the Best Feature Article category. The feature was a follow-up to the Aikido demonstrations that Dr. Jack Simpson and his colleagues in the Frederick Aikido Club showcased at the 2003 Spring Research Festival. The Honorable Mention was one of 3 granted from among 17 entries in this category. Congratulations and special thanks to the team who produced this article: Maritta Grau, Writer; Marti Welch, Photographer; and Tammy Schroyer, Designer. ✦

*Paul Miller, executive editor of The Poster, presents awards to Cheryl Mowen (left) for winning the Poster Puzzler contest in April and to Greg Clarke (right) for winning the June Poster Puzzler contest.* ✦

## *The Bottom Line: Yours and the Company's*

In our last issue, we discussed the "Well-Being" wellness program that Fort Detrick offers. This past spring, **Occupational Health Services** took a new approach to wellness in the workplace. The question had arisen as to whether a personal trainer really helped or not. To find out, OHS found a local trainer who met specific qualifications and asked him to help with a small study and also provide a series of wellness lectures that focused on fitness, diet, and nutrition.

Many companies have begun to recognize that wellness programs, in improving the employees' health, also affect the company's health. According to "The Heart of the Matter," an article by Nora Wood in *Incentive*, "a company's most valuable and costly asset is their human capital…. Employers spend a minimum annually of $5,000 per employee for direct health care costs. Factor in productivity-related expenses such as turnover and absenteeism, the figure jumps to $10,000."

Ms. Wood quotes Dr. Ron Goetzel, director of the Institute for Health and Productivity Studies at Cornell University, and Vice President–Consulting and Applied Research, Medstat, Washington, D.C., as saying that a company may save *$3.00 to $6.00* for every dollar it invests in wellness programs.

Last spring, OHS set up a pilot program with Herb Spicer, a local professional personal trainer. Six SAIC-Frederick, Inc., employees worked with him, while two OHS clinical staff worked under their own direction for the same period of time as controls (10 one-hour sessions). The employees paid a portion of the training fee, and SAIC-Frederick, Inc., paid the rest, for the pilot program. According to OHS manager Ms. Carol Tobias, the "trainer-inspired" group lost more body fat overall in six weeks than did the controls. Four of the six original participants still work with Mr. Spicer or on a regular schedule.

Following the pilot program, Mr. Spicer has worked with at least 35 different employees on the NCI-Frederick campus. These employees pay their own fees and work out on their own time, alone or in small groups. Mr. Spicer charges a reduced rate of $35 per hour for an individual, $17.50 each for two people, and $12 each for three. Sessions take place in empty conference rooms in various buildings. Although some individuals have had drastic fitness changes—losses of greater than 10% body fat in six weeks—most have had a gradual trending down of about 1% a month.

*Kandy Rahochik, Carol Tobias, and (in front) Renee Flemming perform exercises at their stations in circuit training, carefully watched by their trainer, Herb Spicer. As well as coaching them in proper technique, he customizes the weights and exercises for each person, and spots them as they work with heavier weights.*

*Herb Spicer, personal trainer, instructs OHS employee Kandy Rahochik on how to lift hand weights properly.*

One of the goals of the program is to make good health a lifelong activity. Although some employees prefer working out alone with the trainer on a set schedule, other options are available. After a couple of individual assessment sessions, occasional maintenance or small group sessions are helping to keep other employees working toward their goals.

*What you choose to do today will impact what you can do tomorrow.*

Along with the training sessions, Mr. Spicer presented a series of lunchtime seminars to NCI-Frederick employees. Through comedy routines and juggling that kept his audience's attention, Mr. Spicer discussed the need for exercise and diet. "Food can be exciting," he said, "We just need to re-educate our

palates." If we want to lose weight, we need to emphasize more vegetables and fruits than protein in our diets, to use common sense in choosing a diet or foods for a healthy lifestyle, and to consider calories when choosing the foods we want to eat.

Mr. Spicer advocates that whole foods, as close to natural as possible, be the major components of a healthy diet.

Even the word, diet, should be used judicially. "It doesn't work because you think of it as a limited time to [eat certain foods]. On the typical American diet, you're slowly killing yourself," he said. Serial dieting is not good, either; each time that you end the diet, you often gain more weight than you weighed when you started.

Motivation, he said, is one of the hardest aspects to deal with. You can motivate yourself in a number of ways: get support from your family and friends; weigh yourself frequently; set up a training log to keep a record of your progress and your activity; use a calorie-counting book; use a gram scale and measuring cups; play little tricks on yourself—for example, to take smaller portions, use a smaller plate; and perhaps most important, know *why* you are dieting.

Exercise, Mr. Spicer said, has a number of benefits. It energizes and invigorates, increases strength, lowers blood pressure, decreases blood sugar in type II diabetes, improves quality of life, increases bone density, helps control body weight, and improves circulation.

*Know why you are dieting.*

He divided exercise into two categories: aerobic, that is, with oxygen; and anaerobic, without oxygen. Swimming, biking, running, and walking are examples of both kinds of exercise, while weight and flexibility training are examples of anaerobic exercise. Mr. Spicer emphasized that after exercising, it is crucial to stretch and lengthen the muscles.

In addition to the fitness and nutrition seminars and the training sessions, Mr. Spicer has also worked with employees in some "at risk" Environment, Health, and Safety work areas, where heavy lifting is one of the essential functions. After observing and interviewing the employees in these areas, he presented a lecture and demonstration of exercises they could do to prevent injuries. He will also work with other directorates on request.

If you are interested in an evaluation, you can check the Health Promotion and Wellness page on the OHS Web site at http://home.ncifcrf.gov/ehs/ehs.asp?id=18 or call OHS after 12:00 p.m. at x1096 for contact information. ✦

*OHS manager Carol Tobias manages to smile and laugh as she completes a set of bicep curls.*

## *Make Sure Your Laboratory Notebooks Will Stand the Test of Time*

In the Mel Gibson and Jamie Lee Curtis film *Forever Young*, Gibson plays a distraught lover who is frozen in 1939 and accidentally thawed out in 1992. Only the records left behind by the scientist (played by George Wendt) can unlock the mystery of this story of love, passion, suspense, and hope for the future.

At NIH it is the responsibility of all employees conducting research in an NIH lab to maintain accurate records of their research. Without good records, you cannot prove or adequately explain what you did yesterday or 20 years ago.

More specifically, our goal at NCI is to eliminate death and suffering due to cancer by the year 2015. Important discoveries you make today at the bench must move through many steps before they are transformed into a benefit for a patient with cancer. This transformation necessarily eventually involves working with a commercial partner. A company will work through the complex and expensive steps needed for a discovery's further development (clinical trials, manufacturing, packaging, etc.) only if the company is assured that no one else will be doing the same thing before it reaches the market and is able to recoup costs for developing its product. This protection is typically provided through a patent and an associated license.

Once a particular technology demonstrates commercial success, competitors will very likely challenge it. When that happens, the courts always look to the scientist and her or his records to determine who made the discovery first. Laboratory notebooks are the key evidence in these cases!

Fortunately, a few basic steps will help you produce accurate and credible laboratory records that will stand the test of time (and the courts!). Thinking in terms of how someone will read and interpret what you record after you're gone is key. Much like solving an intriguing mystery, "who," "what," "where," "when," and "how" are the five categories to be completed. Below are guidelines to assist you.

### *The Physical Notebook*

**1. Write it down!** Use a *bound* notebook—one to which pages cannot be added. Do not remove any pages from the notebook. Photocopy a second record and store someplace separate from the original.

**2. Use ink and write legibly!** If others cannot read or understand your notes, you are wasting everyone's time. Define all terms, acronyms, trade names, codes, or jargon to ensure others who do not have your detailed knowledge on the subject can understand it.

**3. Permanently affix all attachments.** Staple, tape, or otherwise permanently affix all copies of loose notes, e-mail messages, and letters pertinent to the research into your notebook regularly, maintaining chronological order. Sign and date each attachment AND the notebook page to which you are adding it, to confirm its addition date.

**4. Correct errors logically.** Do not erase or blot out mistakes; rather, strike through and include a brief explanation if necessary. You don't want to be accused of post hoc alteration; therefore, you should never rip out or skip pages. A blank or removed page suggests that the research may not have been recorded chronologically. If you are skipping a page, draw a line through it, and sign and date it.

**5. Sign and date every page.** Others recording in the notebook should sign and date those pages also.

**6. Have one or two persons witness your signature on each page.** This is important! The witnesses should be familiar with your field of research, but should not have direct involvement in that research. A simple "Witnessed by Dr. Jane Doe, *signature* and *date*" is sufficient. If a major problem has been solved or a key factor in the research is included on that page, it is best to have two witnesses for that page.

**7. Use computer-generated records with care.** Today computer-generated records provide excellent research tools in record-keeping, but there are limitations to what is acceptable for documentation. Since electronic records have the potential to be modified, one must ensure these permanent records cannot be changed at a later date. This can be accomplished by having the proper programs in place before you begin. Such software includes access to security, firewalls, password protection, and electronic dating and signing (i.e., VeriSign). If there is uncertainty, your electronically generated records should be printed and a paper copy affixed permanently into your notebook. And again, it must be signed, dated, and witnessed.

# Technology Transfer Branch (TTB)

**8. Keep original notebooks in the lab.** Copies should be kept in another building under lock and key. These notebooks are the property of the United States Government and must remain under government control. If you are leaving the lab, but will be continuing along the same line of research, you are permitted, with the approval of your Lab Chief, to make photocopies to take with you. These photocopies must be marked "confidential."

## *What You Should Record*

Record all data with charts, graphs, figures, and references to key articles that were helpful in designing your experiments. Affix them permanently, and include documentation of materials acquired from another lab. Incorporate any ideas, future plans, brainstorming activities, or unique speculations on the research. The legal "inventor" is the first person who conceives of the invention, and your records will ultimately provide the documentation of who, what, where, when, and how.

The NIH brochure "Guide for Keeping Laboratory Records" contains everything you need to know on this topic. The printable brochure can be found at the Technology Transfer Branch Web site at NIH (http://www-otd.nci.nih.gov/); under Search, type "records." It can also be found at the NIH Scientist's Corner (for NIH staff only) (http://tdcb.nci.nih.gov/clients/scientist.html), under Laboratory Information. ✦

# NCI-Frederick Employee Diversity Team

## *Travel Information Is Closer Than You Think*

Are you planning to attend a conference in Copenhagen and wonder whether it is crucial to speak Danish? Planning a vacation to Zurich and can't remember if the Swiss have adopted the Euro as official currency? Looking for a comfortable and affordable hotel in Rehoboth Beach? Or a Jewish deli, for a fresh bagel with lox and onion in Montreal?

The answers to your questions are a lot closer than running downtown to the C. Burr Artz Library on your lunch break to check out Fodor's travel guides—you simply access the **Diversity Travel Web site** (http://diversity.ncifcrf.gov/travel/div-travel.asp), which, as of this writing, has 24 countries and multiple destinations listed. You'll find an array of travel information you can use when planning a business trip, vacation, or weekend getaway. Perhaps of even greater value is the listing of an NCI-Frederick colleague familiar with your travel destination and willing to share knowledge and advice.

Subscribing to the adage that it is better to give than receive, perhaps you could share your travel knowledge with coworkers. The Employee Diversity Team invites all employees to add destinations to the Web site. Any and all destinations are welcome, whether they are 15 miles or 1,500 miles away. Help out your coworkers, and add a destination today. ✦

## *McKesson to Implement New Inventory System*

As **McKesson BioServices** approaches its two-year anniversary of the management of the NCI-Frederick Central Repositories, we have repeatedly heard users express the desire to electronically access materials on inventory at the repositories. The inventory system is at the heart of repository operations, and the success and growth of repository operations are dependent on the quality and capabilities of the system. It was for this and other reasons that the information technology (IT) initiative was the focus of early efforts.

Over the past 14 months, assessing the computer systems used in support of repository operations at NCI-Frederick, we concluded that the Central Repository inventory system (used to manage the bulk of the on-base inventory and to provide data to the user billing system) needs to be replaced because:

- it does not meet the current needs of the NCI-Frederick scientific community,
- its capabilities are very specific and limited in nature,
- it is a barrier to regulatory compliance and operational effectiveness, and
- it is an outdated system that does not possess the power of modern systems to interface with new technologies.

The quest for a better inventory solution took place on several fronts, including the evaluation of off-the-shelf inventory software packages, discussion of the pros and cons of developing a customized replacement, and determination of the potential for expanded use of current systems. Off-the-shelf options were eliminated for various reasons, such as lack of Internet capability, need for substantial customization, and cost. We determined that the time and money needed to develop a new customized system to meet NCI-Frederick repository needs, however potentially desirable, were exorbitant and impractical in these times of lean budgets. Instead, we realized that the BioSpecimen Inventory II (BSI-II), produced by Information Management Services, Inc., and currently in use at the Central Repository, has many advantages: it is secure, available to users, flexible, and is able to meet current and growing needs.

*Successful change requires cooperation and input from as many sources as possible.*

BSI-II has numerous strengths. From a stability perspective, the system has been used for many years and is proven to provide accurate results. BSI-II is accessible 24/7, except when system upgrades are being applied. Because BSI-II is an Internet-based application, it offers global access to sample data. BSI-II is scaleable. As the Central Repository grows in the number of users and samples, performance will not degrade. BSI-II can be customized to create modules unique to a particular repository need.

In the end, McKesson BioServices recommended that BSI-II be expanded and customized for use as a replacement inventory system for the Central Repository. The rationale for this plan includes improved access to data and reports (a common theme in user survey responses), flexibility and customizability, lower cost over a new system, little or no training curve for staff, already tested and used by many in the user community, and minimizes the number of systems used for repository operations.

McKesson BioServices' goals for the new system include better user access to sample information and reports; more efficient processing of samples; more complete sample information; more efficient billing transactions; ability to control enhancements, which directly affect repository efficiency, and improved capability to track, monitor and manage repository activities and capacity. Last, but not least, it will eliminate the need to distribute reams of hard copy reports on a weekly and monthly basis. The Repository Quality Board approved the concept, and we are pleased to report that the Office of the Director has funded this initiative.

Change is never easy. Change takes time. Successful change requires cooperation and input from as many sources as possible. This is where we need your help. We anticipate that it will take two years to complete the transition of the Central Repository system to BSI-II. One of the reasons for the long implementation time is to ensure adequate interface with users regarding their needs and to minimize the impact this change will have on their operations.

McKesson BioServices is seeking your feedback early in the process. We are looking for volunteers to participate in a committee of users as we journey through this process. If you are interested in participating on this committee, sign up and provide your contact information on the repository Web site http://web.ncifcrf.gov/repository/cr/ under Initiatives. Additionally, look for future seminars we will be holding to inform users regarding progress and plans and to receive input and answer questions. We are excited to be able to offer a solution that has the potential to positively impact repository operations on so many fronts. Stay tuned… ✦

## *Focus On: Microcomputer and Communications Support*

In our last issue, we highlighted some of the consultation, training, and development services offered by Computer and Statistical Services (C&SS). In this issue we want to focus on **Microcomputer and Communications Support (MCS)**.

The MCS group provides the NCI-Frederick community with a centralized resource for microcomputer support and service as well as local area network (LAN) administration and management. MCS supports over 3,500 microcomputer systems and related equipment (such as printers, scanners, communications devices, and connected scientific equipment) and more than 2,000 users at NCI-Frederick. The group, managed by Glen Whims, is organized into three complementary areas: Microcomputer Support, Networking and Communications, and the NCI-Frederick Computer Helpdesk. ✦

## *Microcomputer Support Brings Help to Your Desk*

Whether you need help installing the latest version of Microsoft Word on your PC, or you can't get into your e-mail, Microcomputer Support is ready to assist you.

Microcomputer Support technicians provide deskside support services throughout the NCI-Frederick user community. Requests to Microcomputer Support vary greatly in complexity; common requests include:

- Diagnoses and repair of errors and system failures
- Installation and configuration of new systems and software
- Transfer of old data and applications from one system to another
- Upgrades to current hardware, software, and operating systems
- Access to the Internet (World Wide Web and e-mail)
- Support of NIH custom applications

The Microcomputer Support staff consists of 13 full-time computer technicians and one intern. Can you spot your favorite computer technician pictured below? ✦

*Pictured above are members of Microcomputer Support and Networking and Communications. 1st row: Gregg McFarland, Junior Berry, Dan Grab, Tammy Burnette; 2nd row: Seymour Davis, Stephanie Sheppard, Tim Skoczen, Mark Spielman, Mike Brown, Mike DiPasquale; 3rd row: Chris Knill, Glen Whims, Jim Wolfe, Brad Hollinger, Ross Smith, Rob Hall, Dave Cumblidge, Jake Smith, Steve Bassen, Brian Little.*

## *Networking and Communications Gives You Network Support*

You've added two PCs and a Mac to your office and need to hook them up to a single printer, but you don't have a clue how to do it. The Networking Communications group, pictured above, will help you.

The MCS Networking and Communications group provides daily systems administration support to many of the local area networks (LANs) at NCI-Frederick. Routine networking requests include configuring shared resources (such as printers or data storage devices), and designing and implementing backup solutions to ensure the integrity of mission-critical data. The Networking and Communications group also provides low-end data storage, automated virus protection, and consultation services for users throughout the NCI-Frederick community. ✦

## *Bring Your Questions to the Computer Helpdesk*

For any questions you have or problems you are experiencing relating to your computer hardware or software, begin with the Computer Helpdesk.

The NCI-Frederick Computer Helpdesk, staffed by Tammy Burdette and Stephanie Sheppard, provides

# Data Management Services (DMS)

NCI-Frederick personnel with a single point of contact for computer support needs. The Helpdesk averages over 130 service requests per week, with a majority resolved within one day. Users can contact the Helpdesk with any computer-related concern and be confident their request will be resolved or referred to the appropriate technical party. The Helpdesk also distributes site-licensed software, product recommendations, and procurement 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

Other Inquiries
Phone: 301-846-1060 ✦

# Wilson Information Services Corporation (WISCO)

## *Healthy Food! Healthy Lives!*

By now, most readers have probably heard of Rex Gallus (Rooster), the official Fort Detrick Farmers' Market mascot. Being a vegetarian (by choice, not by nature), Rex already knows how good those wonderful fruits and vegetables sold by the vendors each Tuesday are.

Because he was so excited about the National Cancer Institute's "Eat 5 A Day" campaign, Rex signed on this year to help the Scientific Library and Occupational Health Services promote the **Center for Health Information**, located in Building 549. This collection includes videos, books, and pamphlets on a wide variety of health topics, and incidentally, has many good cookbooks that provide tips on serving fruits and vegetables in many ways.

Rex enlisted the help of his fiancée, whom he met just after the tornado passed through Fort Detrick last fall. A native of the Eastern Shore of Maryland, she was quite content in her little henhouse there until the storm blew the top off her home and carried her across the Chesapeake Bay, depositing her on the roof of Building 549. Upon landing, the poor hen hit her head on the peak of the roof and, as a result, lost her memory. She was immediately taken to a local animal hospital and diagnosed with permanent amnesia. Rex happened to be volunteering there at the time; when they met, it was love at first sight. Rex soon proposed, but without a name for the marriage license, they could not be wed.

### *"Eat 5 A Day"*

This lovely hen was at first a bit shy about sharing her personal tragedy with the public, but she and Rex decided to ask the NCI-Frederick employees for help in giving her a new name. At the official opening of the Farmers' Market 2004 season, they set up their own booth with the help of the Scientific Library staff, and for the next four weeks handed out pamphlets to promote healthy eating habits. One hundred twenty-one people submitted marvelous suggestions for the hen's name, which included:

# Wilson Information Services Corporation (WISCO)

*Alida ("small winged one"), Apollonia, Boss Biddy, Camilla, Chabo, Chessie, Chickin Lickin, Chiqitita, Chiquita, Claudina, DeeDee, Dharma, Dorothy, Elinor, Eliza (Doolittle), Er-nest-ine, Gallina, Gertrude, Hanna(h), Hash, Henifer, Henny Penny, Hen-rietta, Henrietta, Henrietta Hen, Henrietta (Little Hen), Henrietta the Hen, Hermoinne, Jenny, Judy, Kathy, Lady Bling, Layla, Lita, Marlene Dietrich (aka Detrick), Martha, Mary Beth, Mex, Miney the Chic, Miss Fannie Fine, Feathers, Ms. Minnie Concussion, Mix, Monique the Hen, Nelly, Nora, Penny, Penny Hen, Pex, Priscilla Queenie, Quixie, Ramona, Reba, Rebecca, Rebekah, Regalia, Regina, "Regena Ren" the Hen, Ren (la reine, the queen), Rendy, Reneé, Renny, Rexalla (after the televangelist's wife), Rexette, Rhianna, Rita, Ritta, Roberta, Robin, Rosalind Frankhen: Dark Chicken of NCI, Rosebud, Rosey, Rox, Roxanne, Roxxane, Roxie (from the musical "Chic-ago"), Roxine, Ruffles, Sadie May, Sammy Jo, Sara, Sidda Lee, Suzie, Tea, Terri-Ann, Tess, Tex, Thelma, Trixie, Wendy, Winnie, Yolanda, and Zoey.*

On August 3, all of the market vendors voted to select the winning name, which was "Rosey," suggested by Marianne Subleski, Laboratory of Molecular Technology, SAIC-Frederick, Inc. In exchange for naming Rex's fiancée, Ms. Subleski won two $5 discount coupons donated by WISCO, redeemable at any Farmers' Market booth during the 2004 season, and two books: *Mayo Clinic Guide to Self-Care*, and *Take Care of Yourself*, both donated by Occupational Health Services.

Rex and Rosey were married on August 6, with Ms. Subleski officiating; the newlyweds spent a weekend at the exclusive Pinfeathers barnyard resort. We are pleased to report that when they arrived at the resort, Rosey had a revelation: she remembered that her maiden name is Rotis-Array, and that her given name actually is *Rosey*! The couple was quite relieved.

After the Farmers' Market closes in October, Rosey and Rex plan to extend their honeymoon with an ocean cruise, since Rosey is now afraid to fly. As everyone knows, the food on cruises is bountiful; these two fowl plan to continue their mission on the ship, steering the passengers toward getting five or more servings of fruits and vegetables a day. Upon their return, they will reside in the Center for Health Information, Building 549, where they welcome all employees to visit at any time to learn more about healthy lifestyle habits.

Although it is a well known fact that humor is good for your health, there is actually something serious and scientific behind one of the names that were suggested. Lynn Thomason, who works in Dr. Don Court's laboratory, is studying the *phage lambda* genes, one called *rex*, and the other called *ren*; and she proposed the name "Ren." Along with her ballot, Lynn submitted an excerpt from the doctoral dissertation of a colleague, Dr. Penny Toothman, entitled *Exclusion of Lambdoid Phage by rex,* which reads in part:

> Among Fur+ mutants isolated, three carry mutations (possibly point mutations) which are located in the P-Q region. It is suggested that these mutations define a new gene, I call *ren*. This name is the lambdoid spelling of the French word for queen, *la reine*, and provides an allusion to its function. Both λ and the game of chess have a queen (*ren*) and a king (*rex*). Much as the queen dominates in chess, it appears to dominate Rex in the lytic cycle of λ growth.

If you would like to learn more about this study, please contact the Scientific Library to order a copy of the dissertation. ✦

*Left to right: Rosey, Martha Summers, Marianne Subleski, Rex, and Pam Zimmerman. Below, Marianne signs the marriage license.*

## *SAIC-Frederick Highlights the Year's Accomplishments*

As we begin our third year of the renewed contract with the National Cancer Institute, we at **SAIC-Frederick, Inc.**, build on a solid foundation of achievements. As noted in our 2003-2004 annual report, we have worked in close collaboration with NCI, other NIH institutes, and with various extramural collaborators worldwide in the areas of genomics, proteomics, molecular biology, cell biology, imaging, bioinformatics, and computational biology. We've expanded our collaborative research projects, bioinformatics and computational biology efforts, core services, technology development, and independent research activities.

These are just a few of the highlights of the past year:

The **Applied/Developmental Research Directorate** performs sequential studies of immune function in patients with cancer, AIDs, chronic granulomatous disease, or chronic fatigue syndrome, when these patients are being treated with biological response modifiers or other potential anticancer or antiviral agents, and following vaccinations. Its numerous laboratories provide a sophisticated and unique working environment in support of the many government programs it supports. The technical staff has been cross-trained in various immunological procedures. Our Clinical Services Program is considered a benchmark laboratory for this type of work. Just as one example, NIAID investigators are studying interleukin 7 (IL-7), a cytokine critical to T-cell development and homeostasis, to determine whether it may improve immunologic control of HIV infection. Laboratory staff performed a cross-sectional analysis of plasma IL-7 levels and IL-7 receptor alpha chain expression on T cells in a cohort of HIV-negative volunteers and HIV-positive patients. The findings indicated that the IL-7 system breaks down when one is infected with HIV and that getting the Il-7 system to function again may help the patient fight infection.

The **Basic Science Directorate** includes the AIDS Vaccine Program and the Basic Research Program, the two major SAIC-Frederick, Inc., programs that conduct investigator-initiated research. Their primary mission is to conduct AIDS and cancer research. A national resource, providing materials to the research community that are not available anywhere else, the AVP continuously refines unique, state-of-the-art capabilities in multiple areas of AIDS research. The BRP conducts basic, comprehensive, scientific research in such areas as complex genetics, molecular diagnostics, experimental immunology, bio-informatics, translational research, molecular biology, biochemistry, chemical carcinogenesis, virology, and cytogenetics.

The laboratories, groups, and programs of the **Developmental Therapeutics Program** provide a number of supports to the mission of the Screenings Technology Branch, which is responsible for the development and operation of in vitro drug screening tools and detailed investigation of novel therapeutic agents for the treatment of cancer, HIV, and HIV-related malignancies. Research on adaphostin, an NCI-sponsored preclinical agent, continues, based on the potential of a combination of tumor cytotoxicity and antimetastic activity in hematopoietic tumors. Cell-free and cell-based, high-throughput screening molecular target-based assays are performed, screening large chemical libraries consisting of more than 140,000 compounds to those of less than 100. Other screening efforts of the DTP include assays and analytical methods associated with human umbilical vein endothelial cell (HUVEC) angiogenesis, proliferation, and motility changes with drug concentrations. Additional efforts include ex vivo assay testing to obtain additional information on drug activity derived from blood and tissues of animals being tested in vivo, utilizing plasma samples collected from drug- or vehicle-injected animals.

The **Environment, Health, and Safety Program** has provided a healthy, safe, and secure environment for all NCI-Frederick research and support activities. Last fall, the U.S. Nuclear Regulatory Commission made an unannounced inspection, which included selective examination of procedures and representative records, interviews with Radiation Safety staff, and observations. We passed with flying colors! No violations were found, and no recommendations for improvement were made. The Environmental Protection group completed a number of activities to meet new regulations, such as a security plan for hazardous materials transportation, as required by the Department of Transportation; and registering emissions with the MD Department of the Environment to meet new air pollution regulations. Occupational Health Services has provided several preventive health programs, such as seminars last spring that focused on diet and exercise; the trainer continues to work with employees on their own time and at their own cost. An outreach program was started for assessing ways to better provide services to employees who work in animal barrier facilities.

The Research Donor Program continues to grow, providing an economical and reliable source of blood and other specimens for NCI-Frederick laboratories. A large sputum collection program completed this year is already changing the way oral testing for DNA is conducted.

**Facilities Maintenance and Engineering** has worked closely with NCI-Frederick to develop a project team approach in handling service calls, engineering projects, and others. A number of building renovations were completed on time or ahead of schedule, often at a savings to the company. For example, in reviewing technical aspects of the Vaccine Pilot Plant project, FME's VPP team identified cost savings of $500,000 during the equipment procurement process; costs of the Building 322 renovation were controlled within 6% of the baseline budget; the demolition of Building 470, the "Anthrax Tower," already addressed in earlier issues of *The Poster*, was completed several weeks ahead of the commitment date and without adversely affecting the critical research performed in the surrounding buildings. Also, in the past year FME completed more than 9,000 trouble calls, more than 3,600 special assists, and more than 2,800 preventive maintenance tasks.

In the **Laboratory Animal Sciences Program**, deriving congenic strains of mice by marker-assisted, accelerated backcrossing ("speed congenics") was first offered in 2002; it has proven very popular, since speed congenic mice can be obtained in half the time, compared to conventional means (as little as 15 months, compared to 30 months). In the past year, the Mouse Models of Human Cancers Consortium Repository shipped more than 1,800 mice to institutions around the world. LASP's expertise was critical in identifying and containing three disease outbreaks of mouse hepatitis, mouse parvovirus, and *Myobia musculi*, a fur mite of mice.

The **Research Technology Program** has made major contributions in the area of biomedical and clinical proteomics, including the single most comprehensive characterization of the human and mouse serum proteomes ever accomplished—identifying thousands of low-abundance proteins and launching a public database loaded with this information. Clinical monitoring of disease, a new field with the potential to revolutionize disease diagnosis and management, has emerged from the clinical validation of serum proteomic pattern recognition. Serum proteomic pattern recognition will be an important early detection tool for cancer and clinical monitoring of disease. We've also determined the biochemical structure of a biomarker for interstitial cystitis, a painful disorder for which no effective therapy exists. Our protein expression group has invented one of the most widely used cloning and expression technologies, streamlining the path for expressing genes as purified protein useful in many studies. We've been able to apply confocal microscopy and other cutting-edge imaging techniques to a variety of collaborative research projects in cancer and viral replication.

The **Biopharmaceutical Development Program** has made great strides in a number of quality management areas. As just a few examples, we've developed a separate Quality Agreement that will be used with outsourced contracts; installed a wireless computerized calibration software system to cut back significantly on paperwork; installed a Vaporized Hydrogen Peroxide room sanitization/disinfection system; and implemented a Wave Bioreactor for the GMP production of virus vaccines. We've issued a new *Administrative Procedures Manual*. We've developed several versions of a production process for therapeutic plasmids from fermentation to recovery, increasing purification yield from 15% to more than 30%. We've also developed several scaleable, high-throughput chromatographic procedures to purify and formulate virus-based vectors, such as adenovirus, poliovirus, and herpesvirus. The material produced meets or exceeds the purity levels achieved with smaller, bench-scale techniques that are not suitable for large-scale production.

The **Vaccine Clinical Materials Program (VCMP),** established in 2001 to support the NIAID Vaccine Research Center (VRC) in its mission to conduct research that facilitates the development of effective vaccines for human disease, focuses on the design, renovation, and operation of the Vaccine Pilot Plant (VPP) and works with the Research Contracts Department, managing various subcontracts that provide both clinical and preclinical goods and services. The program remains within budget for the year, primarily due to the outstanding efforts of the entire staff in controlling costs and expenditures, and to the thorough oversight, analysis, and support of the Finance Department. We also work effectively with the VRC administrative arm to ensure accurate, timely budget assessment, planning, and forecasting. A major accomplishment of the program this year has been establishing a document control system that provides the foundation for all the Good Manufacturing Practice (GMP) functions of the program. ✦

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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.html**

**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**

## Platinum Publications

*continued from page 9*


**Li WQ, Jiang Q, Khaled AR, Keller JR, Durum SK.** Interleukin-7 inactivates the pro-apoptotic protein bad promoting T-cell survival. *J Biol Chem* **279**(28):29160–29166, 2004.

**Liu YM, Borchert GL, Phang JM.** Polyoma enhancer activator 3, an ets transcription factor, mediates the induction of cyclooxygenase-2 by nitric oxide in colorectal cancer cells. *J Biol Chem* **279**(18):18694–18700, 2004.

**Ryan KM, O'Prey J, Vousden KH.** Loss of nuclear factor-KB is tumor promoting but does not substitute for loss of p53 *Cancer Res* **64**(13):4415–4418, 2004.


### Vaccines


**Baskar S, Kobrin CB, Kwak LW.** Autologous lymphoma vaccines induce human T cell responses against multiple, unique epitopes. *J Clin Invest* **113**(10): 1498–1510, 2004. ✦



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