National Cancer Institute

Poster

Frederick National Laboratory for Cancer Research June 2012

What's in a Name?

By Frank Blanchard, Staff Writer

Shakespeare wrote, "That which we call a rose by any other name would smell as sweet."

Would that which we call Frederick National Laboratory for Cancer Research by any other name remain the same? Well, other names have come and gone. Unlike previous names, however, our new one makes a clear and direct statement of where we are, what sets us apart, and what we do.

National Cancer Institute (NCI) Director Harold Varmus, M.D., recently announced that the organization and facilities formerly called NCI-Frederick will be known henceforth as the Frederick National Laboratory for Cancer Research, or the Frederick National Lab (FNL) for short.

National Cancer Institute Director Harold Varmus, M.D., recently announced that NCI-Frederick will now be known as Frederick National Laboratory for Cancer Research. This change will be reflected in a new sign outside of Building 427. *Photo illustration.*

The name change reflects several years of discussion among NCI and SAIC-Frederick leadership about how best to communicate our unique capabilities as the only Federally Funded Research and Development Center (FFRDC) dedicated solely to biomedical research.

"We'd like to make it as clear as possible that the Frederick National Lab is a resource, both for the National Cancer Institute and for the nation's researchers, that is able to address important research questions that can't be readily addressed by more conventional grant programs or contracts," said Craig Reynolds, Ph.D., director of the Office of Scientific Operations at the Frederick National Laboratory.

No Immediate Job Changes Foreseen

"If you previously considered yourself part of NCI-Frederick, that has not changed. You are still part of the same organization; it just has a new name," Reynolds said.

If you are also part of NCI, say, in a Center for Cancer Research lab, or a Division of Cancer Epidemiology and Genetics lab, that also remains the same. If you are a contractor, employed by SAIC-Frederick, Data Management Services, or Wilson Information Services Corporation—that, too, remains the same.

In the short to medium term, job descriptions will not change. For the longer term, Frederick National

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health

New Name

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Laboratory and its advisory committee (see the *Poster*, March 2012, p. 8) are developing a strategic plan to determine how best to deploy the national laboratory resources to benefit the cancer research community.

"In these times of tight budgets, we need to ensure that the money we spend is focused as much as possible on projects that can be accomplished only by an FFRDC," Reynolds said. He cited the Nanotechnology Characterization Laboratory and the Vaccine Pilot Plant as examples of such projects.

New Developments on the Horizon

Other new developments on the horizon include the opening this summer of the Advanced Technology Research Facility at Riverside Research Park and the anticipated authorization of a new type of Collaborative Research and Development Agreement (CRADA) that would allow SAIC-Frederick to enter into direct agreements with external academic and industrial partners. This new type of agreement will provide another way in which the Frederick National Laboratory and the research community can augment their resources by working together on problems and challenges of mutual interest.

A new website is being developed to facilitate interaction between the Frederick National Laboratory and potential partners and collaborators.

Questions about the name change and related issues may be directed to Craig Reynolds: reynoldsc@mail.nih.gov. ■

Move-In Slated for Mid-June

By Hoyt Matthai, Contributing Writer

By now, several groups are making final preparations for the move to the new Advanced Technology Research Facility (ATRF), beginning in mid-June. The administration wing will be the first to be occupied, followed by laboratory wings. The Kane Company (Elkridge, Md.) has been working with staff here since late April to facilitate the move.

The administration wing will house all the administrative offices for the laboratories of the Advanced Technology Program (ATP) and the Biopharmaceutical Development Program (BDP), as well as the offices of the Technology Transfer Center and Biological Resources Branch, the executive offices of the Frederick National Laboratory for Cancer Research, the data center, and other business offices.

The furniture installation, which began in mid-May, will be completed in the administration wing before employees move in. Additional furniture will be installed as the relocation continues.

Other areas to be completed during the initial relocation process include the "Grab and Go" food service and audio/video fit-out of various conference rooms. Fully equipped conference rooms will become available as personnel occupy the facility, but, as with the furniture installation, fit-out of some conference rooms will continue during occupancy.

The ATP laboratories are expected to begin moving into C and D wings starting at the end of June, with the move complete by mid-July. BDP laboratories will follow, moving into the A and B wings in mid- to late summer.

Food service at the ATRF is planned to begin in August or September. ■

An atrium kitchenette, ready for installation of a sink, microwave, coffee maker, and two refrigerators. Below: Second floor hallway of the atrium, with elevators on the left.

Upcoming Summer Student Activities

Compiled by Ashley DeVine, Staff Writer

Student Orientation

June 21, 9:30–11:30 a.m., Building 549 Auditorium

Science Skills Boot Camp

June 26, 9 a.m.–4 p.m., Building 426 Conference Room

The boot camp is designed for NIH student interns with little or no prior research experience. It provides an all-day training session on the NIH research culture, different tools and techniques commonly used in research, how to approach a research project, and tips for effective science communication. Phil Ryan, Ph.D., Office of Intramural Training and Education (OITE), will teach the camp with help from NIH postdocs. To register, go to https://www.training.nih.gov/events/view/_2/851/FREDERICK_Science_Skills_Boot_Camp?m=register.

Applying to Medical School

June 26, 1 p.m.–2:30 p.m., Building 549, Conference Room A

Speaker Bill Higgins, Ph.D., pre-professional adviser, OITE, will discuss deciding where to apply to medical school, tips for completing the application, requesting references, and developing a personal timeline. To register, go to https://www.training.nih.gov/events/view/_2/836/FREDERICK_Applying_to_Medical_School?m=register.

Student Science "Jeopardy"

July 25, 9 a.m.–4 p.m., Building 549 Auditorium

Preliminary rounds will begin at 9 a.m., and the final round will begin at 12:30 p.m., followed by an awards ceremony. Nine teams of two students will compete against each other for prizes. Complete information, including online registration, is available at the Scientific Library's website: http://www-library.ncifcrf.gov.

Student Poster Day

August 1, 9 a.m.–4 p.m., Building 549 Lobby

Mini Film and Discussion Series

All movie showings begin at noon, followed by a discussion led by a Frederick National Laboratory scientist. For additional details, go to http://www-library.ncifcrf.gov.

June 28: *Whiz Kids*, Building 549, Conference Room B; **July 5**: *Naturally Obsessed: The Making of a Scientist*, Building 549, Conference Room B; **July 12**: *AIDS Jaago* (Part 1), Building 549, Conference Room A; **July 19**: *AIDS Jaago* (Part 2), Building 549, Conference Room A; **July 26**: *The Way of All Flesh* and the Henrietta Lacks video, Building 549, Conference Room B

Student Seminar Series

The series runs each Tuesday through August 7, from 12–1 p.m. in the Building 549 Auditorium. For more information, go to http://ncifrederick.cancer.gov/campus/outreach/seminar.

June 19: Dr. Nadya Tarasova, Frederick National Laboratory, "Why We Haven't Cured Cancer Yet"
June 26: Dr. Yurong Song, Frederick National Laboratory, "Genetically Engineered Mouse Models for Cancer Research"
July 3: Dr. Arthur Anderson, U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), "What Your Lymph Nodes Do besides Swell up When You Get Mono"
July 10: Dr. Matthew Young, Frederick National Laboratory, "Cancer Prevention: Preventing Cancer Is Better than Having to Cure Cancer"
July 17: Dr. Gary Peterson, USDA Foreign Disease-Weed Science Research Unit, "Wheat Blast: An Emerging Threat to Global Wheat Production"
July 24: Dr. Jared Heffron, USAMRIID, "Bacterial Spore Control the Environmentally Friendly Way"
July 31: Dr. Robert Pope, National Biodefense Analysis and Countermeasures Center, "Environmental and Bioforensic Electron Microscopy: Advantages and Applications"
August 7: Dr. Stuart LeGrice, Frederick National Laboratory, "Chemical Biology and HIV Proteins: Not 'Star Trek,' but Possibly the Next Generation" ■

The Student Science "Jeopardy" Tournament gives student interns a chance to compete against each other and the "clickers" for prizes and bragging rights in the traditional "answer-and-question" format of the popular game show.

Collaboration Leads to Young Investigator Award

By Maritta Perry Grau, Staff Writer

Jason Stagno, Ph.D., was recently recognized with the 2012 SER-CAT (Southeastern Regional Collaborative Access Team) Young Investigator Award for a collaboration between Stagno, Xinhua Ji, Ph.D., Donald Court, Ph.D., and Andrew Byrd, Ph.D. Stagno was invited to be a guest speaker at the annual SER-CAT meeting in March, held at the University of Kentucky, Lexington.

Ji is Stagno's principal investigator and chief of the Biomolecular Structure Section of the Macromolecular Crystallography Laboratory. According to Ji's web page, http://ccr.cancer.gov/staff/staff.asp?profileid=5860, the group's research focuses on "structural biology of gene expression control, with an emphasis on RNA-processing proteins and RNA polymerase-associated transcription factors, and structure-based development of therapeutic agents. Our goal for structural analysis is to map the reaction trajectory or functional cycle for selected biological macromolecules (RNase III, Era, RapA, and Nus), and that for drug development is to design, synthesize, and characterize novel anticancer and antimicrobial agents (PABA/NO and HPPK)."

The annual award, presented by SER-CAT (Department of Biochemistry and Molecular Biology, University of Georgia, Athens, Ga.), is based on several criteria, including a nomination, description of the work, published article, curriculum vitae, and letters of recommendation. The group's article was published in *Nucleic Acids Research*, 39(17):7803–7815, 2011. ■

CCR and DCEG Hold Eighth Annual Staff Scientist and Staff Clinician Retreat

By Kathy Miller, Contributing Writer, and Nadya Tarasova, Guest Writer

The eighth annual Center for Cancer Research (CCR) and Division of Cancer Epidemiology and Genetics (DCEG) Staff Scientist and Staff Clinician Retreat was a day filled with informative lectures, a "hot topic" lunch, and travel awards for the best posters in four categories. The awards will enable scientists to attend scientific meetings of their choice.

Poster Winners Included

- Technologies Development: Josip Blonder, M.D., for "Profiling Ewing's Sarcoma Molecular Phenotype Using Concurrent LC-MS Profiling of Tissue, Blood and a Corresponding Cell Line: A Method Development," and Xiaoying Ye, Ph.D., for "A Method Development for Comparative Proteomic Profiling of Human Breast Cell Lines Exposed to the Phytoestrogen Genistein." Both work in SAIC-Frederick's Laboratory of Proteomics and Analytical Technologies (LPAT), Advanced Technology Program (ATP).
- Basic Research: Juraj Bies, Ph.D. (CCR, NCI-Bethesda), for "The Tumor Suppressor p15Ink4b Regulates Differentiation and Maturation of Conventional Dendritic Cells."
- Epidemiology/Bioinformatics: Sean Davis, M.D., Ph.D. (CCR, NCI-Bethesda), for "Bioconductor: Open Source Tool for the Analysis and Comprehension of Genomic Data."
- Translational/Clinical Research: Patricia Day, Ph.D. (CCR, NCI-Bethesda), for "An HPV In Vitro Neutralization Assay That Recapitulates the In Vivo Process of Infection Provides a Sensitive Measure of L2 Infection-Inhibiting Antibodies."

The retreat organizers provided a number of inspiring speakers throughout the day, from keynote speaker, MedImmune Executive Vice President, Research and Development, Bahija Jallal, Ph.D., to CCR Director Robert Wiltrout, Ph.D., who listed CCR scientific achievements in recent years; analyzed the role of staff scientists and staff clinicians in collaborations, mentoring, and team science at CCR; and discussed current budget issues.

Matthew Zachary, radio talk show host, recording artist, and founder/chief executive officer of I'm Too Young for This! Cancer Foundation, captivated the retreat audience with his presentation, "Stupid Cancer: The Young Adult Experience."

Robert Hoover, M.D., D.Sc., director of DCEG's Epidemiology and Biostatistics Program, discussed the essential and numerous roles staff scientists play in epidemiology research. CCR Deputy Director Ronald Gress, M.D., described what makes a scientific career at NIH, both within our system and in the context of current challenges at the national level.

Discussions continued during lunch with "Topic Lunches," designed to inspire spirited discussions on collaborations between bench scientists and clinicians, ways of surviving in the new budget climate, technology transfer and collaborations with industry, quadrennial reviews, and professional growth.

This retreat continues to bring together staff scientists, staff clinicians, and SAIC-Frederick scientists, enabling them to share their advances in research, find collaborators, and learn about science management issues and career development.

The annual event plays an important role in improving communications among research groups, promoting productive collaborations, and strengthening the NCI community. ■

Nadya Tarasova, Ph.D., is head of the Synthetic Biologics and Drug Discovery Facility, Cancer and Inflammation Program, CCR.

Green Team Recognized with HHS Green Champions Award

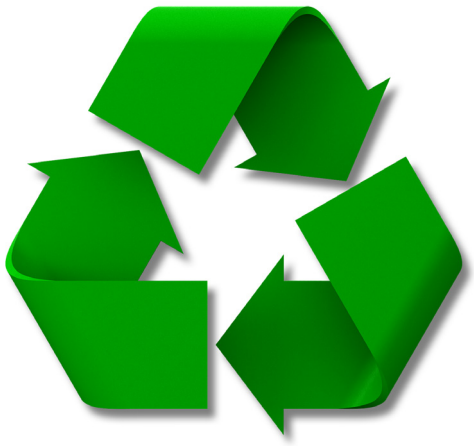
By Ashley DeVine, Staff Writer

The Frederick National Laboratory for Cancer Research's Green Team earned an Environmental Stewardship Small Group Award as part of the Health and Human Services (HHS) Green Champions Awards for fiscal year 2011.

The nominating statement credited the work of Howard Young, Ph.D., deputy chief, Laboratory of Experimental Immunology, and Michele Gula Atha, former Biopharmaceutical Development Program employee, who founded the team in 2009.

"I was honored at being recognized for our efforts, especially for Michele, as she served as the real driving force for increasing community awareness and promoting community involvement," Young said.

"The NCI Green Team provided me with an amazing opportunity to serve the entire Frederick National Laboratory community



and for that I am both appreciative and grateful," Gula Atha said.

Young and Gula Atha wanted to thank a number of groups and individuals for their support of the team, including Linda Brandenburg, the new NCI Green Team volunteer; Paul Stokely and the Waste Management Group, Environment, Health, and Safety; Scientific Library staff; the NCI Green Team in Bethesda; the Facilities Maintenance and Engineering service workers who empty recycling bins in offices and laboratories; Conference Center staff; Scientific Publications, Graphics & Media staff; Community Outreach staff; and Green Building representatives.

"Although the NCI Green Team is receiving the award, it is the work of the Frederick National Laboratory community and the entire NCI Green Team, including Bethesda, that earned us this honor. When many people come together, great things can be accomplished," Gula Atha said.

The HHS Green Champions Awards honor outstanding HHS employees and Native American tribal members involved in various sustainability projects. ■

Four Win SAIC Corporate Awards

By Maritta Perry Grau, Staff Writer

Four SAIC-Frederick employees have been recognized among winners of the annual SAIC Corporate Science Technology Fellows Council awards.

Eckart Bindewald, Ph.D., CCR Nanobiology Program, and Marion Bona, Ph.D., HIV Drug Resistance Program, won in the Physical Sciences category for their article, "Correlating SHAPE Signatures with Three-dimensional RNA Structures," published in *RNA* (17:1688–1696, Cold Spring Laboratory Press, 2011).

Yanling Liu, Ph.D., and Jack Collins, Ph.D., both of the Advanced Biomedical Computing Center, won in the Computer and Information Sciences category for their article, "Quick2Insight: A User-friendly Framework for Interactive Rendering of Biological Image Volumes," published in the *Proceedings of the IEEE Symposium on Biological Data Visualization* (2011).

Look for more detailed information in the July issue of *News & Views*. ■

From left, SAIC CEO John Jumper, Marion Bona, and Eckart Bindewald at the April STFC Awards ceremony in Chantilly, Va.
Photos courtesy of Jay Townsend, art director for photography, SAIC.

From left, SAIC CEO John Jumper, Yanling Liu, and Jack Collins at the April STFC Awards ceremony in Chantilly, Va.

Estrogen Metabolism in Postmenopausal Women May Influence Breast Cancer Risk

By Ashley DeVine, Staff Writer

The way that a woman's body metabolizes estrogens may influence her risk for postmenopausal breast cancer, according to a new study published by Barbara J. Fuhrman, Ph.D., lead author, and colleagues.

Researchers have known for at least a decade that higher levels of circulating estrogen in postmenopausal women are associated with an increased risk of breast cancer, said Fuhrman, a Cancer Research Training Award postdoctoral fellow, Hormonal and Reproductive Epidemiology Branch, Division of Cancer Epidemiology and Genetics (DCEG). However, researchers have not been able to study, in a population setting, the differences in the way that women metabolize estrogens because of the limitations of available assays.

Fuhrman and colleagues used a novel liquid chromatography/mass spectrometry assay developed at NCI to measure 15 estrogens and estrogen metabolites in blood samples from 277 postmenopausal women who developed breast cancer and 423 matched women without the disease. These women were enrolled in the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial.

"When we compared cases and controls, we found two metabolic patterns that were statistically significant predictors of breast cancer risk and contributed to that risk independently of the already recognized risk association for estradiol [a form of estrogen]," Fuhrman said.

These findings suggest that estrogen metabolism may play a role in breast cancer development, and they point to two metabolic transformations that may modulate cancer risk, including one that may reduce the estrogen availability to breast tissue and another that may prevent mutagenic metabolite formation.

Barbara J. Fuhrman, Ph.D., Cancer Research Training Award postdoctoral fellow, Hormonal and Reproductive Epidemiology Branch, Division of Cancer Epidemiology and Genetics.
Photo courtesy of Barbara J. Fuhrman.

Results suggest that estrogen metabolite profiles may someday provide useful information for women about their breast cancer risk. ■

Estrogen Metabolism and Risk of Breast Cancer in Postmenopausal Women

Barbara J. Fuhrman, Catherine Schairer, Mitchell H. Gail, Jennifer Boyd-Morin, Xia Xu, Laura Y. Sue, Saundra S. Buys, Claudine Isaacs, Larry K. Keefer, Timothy D. Veenstra, Christine D. Berg, Robert N. Hoover, and Regina G. Ziegler

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Background: Estrogens are recognized causal factors in breast cancer. Interindividual variation in estrogen metabolism may also influence the risk of breast cancer and could provide clues to mechanisms of breast carcinogenesis. Long-standing hypotheses about how estrogen metabolism might influence breast cancer have not been adequately evaluated in epidemiological studies because of the lack of accurate, reproducible, and high-throughput assays for estrogen metabolites.

Methods: We conducted a prospective case-control study nested within the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial (PLCO). Participants included 277 women who developed invasive breast cancer (case subjects) and 423 matched control subjects; at PLCO baseline, all subjects were aged 55–74 years, postmenopausal and not using hormone therapy, and provided a blood sample. Liquid chromatography-tandem mass spectrometry was used to measure serum concentrations of 15 estrogens and estrogen metabolites, in unconjugated and conjugated forms, including the parent estrogens, estrone and estradiol, and estrogen metabolites in pathways defined by irreversible hydroxylation at the C-2, C-4, or C-16 positions of the steroid ring. We calculated hazard ratios (HRs) approximating risk in highest vs. lowest deciles of individual estrogens and estrogen metabolites, estrogens and estrogen metabolites grouped by metabolic pathways, and metabolic pathway ratios using multivariable Cox proportional hazards models. All statistical tests were two-sided.

Results: Nearly all estrogens, estrogen metabolites, and metabolic pathway groups were associated with an increased risk of breast cancer; the serum concentration of unconjugated estradiol was strongly associated with the risk of breast cancer (HR = 2.07, 95% confidence interval [CI] = 1.19 to 3.62). No estrogen, estrogen metabolite, or metabolic pathway group remained statistically significantly associated with the risk of breast cancer after adjusting for unconjugated estradiol. The ratio of the 2-hydroxylation pathway to parent estrogens (HR = 0.66, 95% CI = 0.51 to

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Platinum Publications

The following 30 articles have been selected from 14 of the most prestigious science journals published during the past quarter.

Blood

Balkhi MY, Willette-Brown J, Zhu F, Chen Z, Liu S, Guttridge DC, Karin M, Hu Y. IKKalpha-mediated signaling circuitry regulates early B lymphopoiesis during hematopoiesis. *Blood* 2012. [Epub ahead of print]

Bergamaschi C, Bear J, Rosati M, Kelly Beach R, Alicea C, Sowder R, Chertova E, Rosenberg SA, Felber BK, Pavlakis GN. Circulating interleukin-15 (IL-15) exists as heterodimeric complex with soluble IL-15 receptor alpha (IL-15Ralpha) in human serum. *Blood* 2012. [Epub ahead of print]

He S, Wang JN, Kato K, Xie F, Varambally S, Mineishi S, Kuick R, Mochizuki K, Liu YNA, Nieves E, Mani RS, Chinnaiyan AM, Marquez VE, Zhang Y. Inhibition of histone methylation arrests ongoing graft-versus-host disease in mice by selectively inducing apoptosis of alloreactive effector T cells. *Blood* 119(5):1274-1282, 2012.

Tietze JK, Wilkins DEC, Sckisel GD, Bouchlaka MN, Alderson KL, Weiss JM, Ames E, Bruhn KW, Craft N, Wiltrout RH, Longo DL, Lanier LL, Blazar BR, Redelman D, Murphy WJ. Delineation of antigen-specific and antigen-nonspecific CD8(+) memory T-cell responses after cytokine-based cancer immunotherapy. *Blood* 119(13):3073-3083, 2012.

Cancer Research

Chen DY, Lee Y, Van Tine BA, Searleman AC, Westergard TD, Liu H, Tu HC, Takeda S, Dong YY, Piwnica-Worms DR, Oh KJ, Korsmeyer SJ, Hermone A, Gussio R, Shoemaker RH, Cheng EHY, Hsieh JJD. A pharmacologic inhibitor of the protease Taspase1 effectively inhibits breast and brain tumor growth. *Cancer Res* 72(3):736-746, 2012.

Eliassen AH, Spiegelman D, Xu X, Keefer LK, Veenstra TD, Barbieri RL, Willett WC, Hankinson SE, Ziegler RG. Urinary estrogens and estrogen metabolites and subsequent risk of breast cancer among premenopausal women. *Cancer Res* 72(3):696-706, 2012.

Wang CX, Liu ZH, Woo CW, Li ZJ, Wang LF, Wei JS, Marquez VE, Bates SE, Jin QH, Khan J, Ge K, Thiele CJ. EZH2 mediates epigenetic silencing of neuroblastoma suppressor genes CASZ1, CLU, RUNX3, and NGFR. *Cancer Res* 72(1):315-324, 2012.

Weinstein SJ, Stolzenberg-Solomon RZ, Kopp W, Rager H, Virtamo J, Albanes D. Impact of circulating vitamin D binding protein levels on the association between 25-hydroxyvitamin D and pancreatic cancer risk: A nested case-control study. *Cancer Res* 72(5):1190-1198, 2012.

Cell

Xu X, Hou Y, Yin XY, Bao L, Tang AF, Song LT, Li FQ, Tsang S, Wu K, Wu HJ, He WM, Zeng L, Xing MJ, Wu RH, Jiang H, Liu X, Cao DD, Guo GW, Hu XD, Gui YT, Li ZS, Xie WY, Sun XJ, Shi M, Cai ZM, Wang B, Zhong MM, Li JX, Lu ZH, Gu N, Zhang XQ, Goodman L, Bolund L, Wang J, Yang HM, Kristiansen K, Dean M, Li YR. Single-cell exome sequencing reveals single-nucleotide mutation characteristics of a kidney tumor. *Cell* 148(5):886-895, 2012.

Journal of the American Chemical Society

Grohman JK, Kottegoda S, Gorelick RJ, Allbritton NL, Weeks KM. Femtomole SHAPE reveals regulatory structures in the authentic XMRV RNA genome. *J Am Chem Soc* 133(50):20326-20334, 2011.

Sinthuvanich C, Veiga AS, Gupta K, Gaspar D, Blumenthal R, Schneider JP. Anticancer beta-hairpin peptides: Membrane-induced folding triggers activity. *J Am Chem Soc* 134(14):6210-6217, 2012.

Zhang YL, Muthana SM, Farnsworth D, Ludek O, Adams K, Barchi JJ, Gildersleeve JC. Enhanced epimerization of glycosylated amino acids during solid-phase peptide synthesis. *J Am Chem Soc* 134(14):6316-6325, 2012.

Journal of Biological Chemistry

Yan CG, Zhu M, Staiger J, Johnson PF, Gao HW. C5a-regulated CCAAT/enhancer-binding proteins beta and delta are essential in Fc gamma receptor-mediated inflammatory cytokine and chemokine production in macrophages. *J Biol Chem* 287(5):3217-3230, 2012.

Journal of Immunology

Crampton SP, Deane JA, Feigenbaum L, Bolland S. Ifih1 gene dose effect reveals MDA5-mediated chronic type I IFN gene signature, viral resistance, and accelerated autoimmunity. *J Immunol* 188(3):1451-1459, 2012.

Shirota Y, Shirota H, Klinman DM. Intratumoral injection of CpG oligonucleotides inuces the differentiation and reduces the imunosuppressive activity of myeloid-derived suppressor cells. *J Immunol* 188(4):1592-1599, 2012.

Journal of Immunotherapy

Bao L, Cowan MJ, Dunham K, Horn BN, McGuirk J, Gilman A, Lucas K. Adoptive immunotherapy with CMV-specific cytotoxic T lymphocytes for stem cell transplant patients with refractory CMV infections. *J Immunotherapy* 35(3):293–298, 2012.

Journal of Experimental Medicine

Okoye AA, Rohankhedkar M, Abana C, Pattenn A, Reyes M, Pexton C, Lum R, Sylwester A, Planer SL, Legasse A, Park BS, Piatak M, Lifson JD, Axthelm MK, Picker LJ. Naive T cells are dispensable for memory CD4(+) T cell homeostasis in progressive simian immunodeficiency virus infection. *J Exp Med* 209(4):641-651, 2012.

Yang D, Postnikov YV, Li Y, Tewary P, de la Rosa G, Wei F, Klinman D, Gioannini T, Weiss JP, Furusawa T, Bustin M, Oppenheim JJ. High-mobility group nucleosome-binding protein 1 acts as an alarmin and is critical for lipopolysaccharide-induced immune responses. *J Exp Med* 209(1):157-71, 2012.

Journal of the National Cancer Institute

Fuhrman BJ, Schairer C, Gail MH, Boyd-Morin J, Xu X, Sue LY, Buys SS, Isaacs C, Keefer LK, Veenstra TD, Berg CD, Hoover RN, Ziegler RG. Estrogen metabolism and risk of breast cancer in postmenopausal women. *J Natl Cancer Inst* 104(4):326-339, 2012.

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0.87) and the ratio of 4-hydroxylation pathway catechols to 4-hydroxylation pathway methylated catechols (HR = 1.34, 95% CI = 1.04 to 1.72) were statistically significantly associated with the risk of breast cancer and remained so after adjustment for unconjugated estradiol. Conclusions: More extensive 2-hydroxylation of parent estrogens is associated with lower risk, and less extensive methylation of potentially genotoxic 4-hydroxylation pathway catechols is associated with higher risk of postmenopausal breast cancer. ■

It's All About Sharing

By Nancy Parrish, Staff Writer

"Science is why we have the festival," said Julie Hartman, chair of the 2012 Frederick National Laboratory and Fort Detrick Spring Research Festival, and a lot of science was shared during festival week, May 7 through 11.

Events kicked off on May 7, with a postdoctoral/postbaccalaureate symposium entitled "Animal and Plant Models of Disease." Keynote speaker Yibin Kang, Ph.D., professor in the Department of Molecular Biology at Princeton University, presented "Modeling Cancer Metastasis: From Molecular Insight to Translational Applications." Fourteen postdoctoral/postbaccalaureate fellows then presented talks on their current research. Awards were given for best presentations.

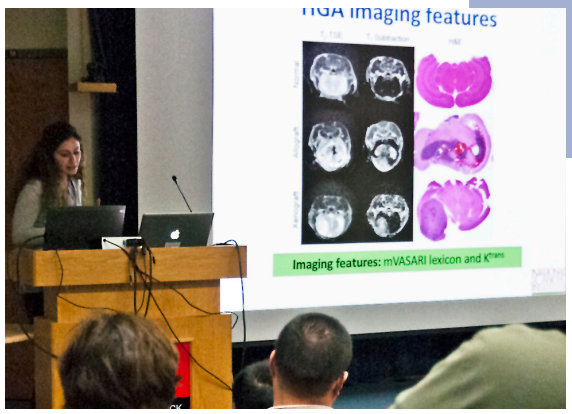
A Festival First

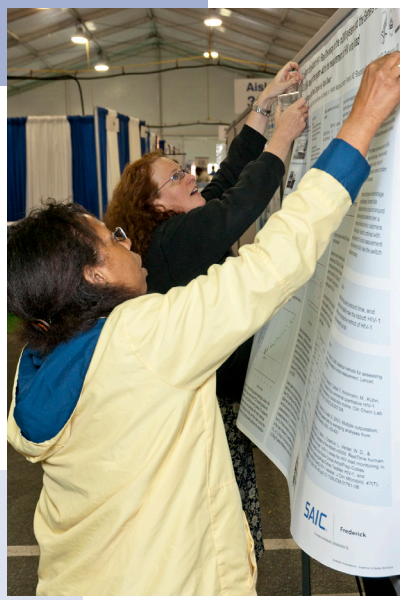
On May 8, some of the collaborative research taking place through the National Interagency Confederation for Biological Research (NICBR) was presented at a special forum. This first-ever opportunity to showcase results from NICBR collaborations drew speakers from the National Institutes of Allergy and Infectious Diseases, U.S. Army Medical Research Institute of Infectious Diseases, and Naval Medical Research Center, as well as the Frederick National Laboratory.

On May 9 and 10, more than 700 people attended poster sessions, where nearly 150 scientists from the Frederick National Laboratory and Fort Detrick shared their current research findings. Attendees also browsed the Biomedical Research Equipment and Supplies Exhibit sponsored by the Technical Sales Association, where more than 150 major national and regional vendors from the biomedical research/biotech industries shared the latest in equipment, services, and technology.

The Health Education and Community Services Exhibition provided displays from various departments and programs throughout Frederick National Laboratory, as well as colleges and universities, and various government research agencies and organizations located at Fort Detrick.

If you have any ideas or comments about the Spring Research Festival, Hartman said, please send an e-mail to srfnci-frederick@mail.nih.gov. ■





Symposium Winners

Awards were given for best presentation at the "Animal and Plant Models of Disease" symposium on May 7. Shown here, left to right, are Co-chair P. Charles Lin, Ph.D. (Mouse Cancer Genetics Program [MCGP]); first-place winner Sanaz Jansen, MCGP, Center for Cancer Research; second-place winners Stephanie Watkins, Cancer and Inflammation Program (CIP), NCI; Miranda Hanson, CIP, NCI; Mandy Kendrick (U.S. Department of Agriculture); and Co-chair Gene Olinger, Ph.D., M.B.A. (U.S. Army Medical Research Institute of Infectious Diseases).

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Molecular Cell Biology

Sarkar TR, Sharan S, Wang J, Pawar SA, Cantwell CA, Johnson PF, Morrison DK, Wang JM, Sterneck E. Identification of a Src tyrosine kinase/SIAH2 E3 ubiquitin ligase pathway that regulates C/EBPdelta expression and contributes to transformation of breast tumor cells. *Mol Cell Biol* 32(2):320-332, 2012.

Nature

Shukla S, Kavak E, Gregory M, Imashimizu M, Shutinoski B, Kashlev M, Oberdoerffer P, Sandberg R, Oberdoerffer S. CTCF-promoted RNA polymerase II pausing links DNA methylation to splicing. *Nature* 479(7371):74-9, 2011.

Nature Medicine

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Oncogene

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Visiting Scholars Program to Attract Brightest Minds

By Walter G. Hubert, Guest Writer

National laboratories have a knack for assembling critical mass … and the Frederick National Laboratory for Cancer Research, the newest kid on the block among such recognized research and development (R&D) leaders like Los Alamos, Oakridge, Sandia, and others, is just the place to bring together the brightest minds to take on the toughest challenges in cancer and AIDS research.

Rationale

In addition to the recent recognition as a national laboratory, the former NCI-Frederick is reinventing itself to deliver more effectively on its noble mission of bridging the gap between discovery and health care delivery. Among many other changes, this evolution includes the creation of a Visiting Scholars Program (VSP), which will add a new intellectual dimension to our operations by inviting scholars from around the world to join our efforts.

Creative Force

The VSP was developed by Debonny Shoaf, Ph.D., senior scientific administrator at Frederick National Laboratory, and is similar to the Laboratory Directed Research & Development Program, which enhances core competencies at the Department of Energy national laboratories to ensure that they maintain a cutting edge in the ever-changing landscape of technology-driven R&D.

The VSP at Frederick is tailored to the diverse needs of our unique community of government and contractor scientists, and thus will specifically enhance the work we do here, at the only national laboratory of the Department of Health and Human Services.

New Approach

Up to now, visitors to Frederick came primarily at the invitation of individual scientists, to focus their efforts on collaborative projects within a specific laboratory. In contrast, the VSP will attract and direct visiting scholars to the more fundamental needs of entire programs at Frederick.

This new approach affords a visitor the broadest access to the resources within Frederick National Laboratory It is also in line with our training mission of preparing the next generation of scientists for a career in translational cancer and AIDS research.

As such, we anticipate that visiting scholars will contribute not just an influx of new ideas to our programs; they will also catalyze synergy within our highly interdisciplinary environment.

What's Next for the VSP

In this first year of operation, the VSP seeks primarily to survey the scientific community about coming to Frederick as a visiting scholar. We expect to determine the level of interest in current Frederick National Laboratory–defined opportunities and also to solicit proposals from applicants who would like to complement ongoing efforts in our programs and laboratories.

Learning the circumstances of prospective visitors and their need for support will help define the VSP's budgetary future. Currently, the Office of Scientific Operations at Frederick is providing funds for applicants whose approaches and projects are ranked sufficiently high by a panel of resident experts, and whose funding needs can be accommodated. Of special interest are those visiting scholars, who do not require salary support from Frederick National Laboratory.

The VSP could also take on a larger role, should other NCI divisions, offices, and centers become sponsoring members. Eventually, the VSP is expected to become the overarching collaborative training entity at Frederick National Laboratory, one that reaches out to scientists at all levels, from motivated postdoctoral fellows establishing their careers to Nobel laureates seeking creative outlets or new venues.

Complementing Our R&D Mission

Translational research aims to take discoveries from the basic research laboratory into the real world of clinical trials for new treatments and diagnostics. This process of applied research works best at the confluence of the right scientific expertise, programmatic commitment, and diverse institutional resources.

By motivating new intellectual potential towards the more challenging problems in cancer and AIDS research, the VSP will complement our R&D mission and play a key role in the success of the new Frederick National Laboratory.

Indeed, critical mass is needed for making a difference in patients' lives. ■

Walter Hubert, Ph.D., is an assistant project officer, Office of Scientific Operations.

Parrott Retires after 30+ Years in Federal Career

From Staff Reports

After more than 30 years, she's packing up, moving out. Cheryl Parrott began her federal career in 1976, as an interpreter/translator for the Department of Commerce's National Institute of Standards and Technology. She ends it now as director of Communications for the Frederick National Laboratory for Cancer Research.

In those early years, Parrott took a six-year hiatus from government to be home with her children. During those years, she taught part-time at Frederick Community College.

As the children trooped off to school, Parrott returned to the feds—this time as a biomedical writer at the U. S. Army Medical Research Institute of Infectious Diseases at Fort Detrick for 10 years. She spent two years as chief of Public Affairs at Dugway Proving Ground, Utah, then left military biodefense for public health, coming back east to write about diseases such as AIDS and malaria for the Office of Communications at the National Institute of Allergy and Infectious Diseases in Bethesda.

Joins NCI in 1998

In 1998, she joined NCI's Office of Science Planning and Assessment, working on the Bypass Budget and the newly created Extraordinary Opportunities in Cancer Research program. A few years later she migrated north to Frederick, where she has helped establish and lead communications and new community outreach efforts.

"I've lived in Frederick most of my adult life," said Parrott, "so it has seemed a natural full circle to return home and to help foster an appreciation of medical research and the scientists who devote their lives to it and to generate enthusiasm for advancing the cause of good health in this beautiful, historic community."

Although she's leaving federal service, Parrott isn't slowing down. She teaches psychopharmacology and end-of-life bioethics at Hood College and at Frederick Community College.

Practicing for retirement, Cheryl Parrott made a new friend on a recent trip to Santa Fe, New Mexico. *Photo courtesy of I.G. Resnick.*

Proudest Moment

Asked to name the proudest moment in her career here, Parrott didn't hesitate. "It's an event that demonstrated the trust and confidence in which this community holds us. When, because of structural instability, we needed to demolish Building 470, the old 'Anthrax Tower,' we designed the project with consultants from the occupational safety and health departments of major universities to assure our employees' safety and that of the surrounding community.

"NCI had used the building only for storage, never conducting research of any kind inside. But this was 2002, so you can imagine that tensions were high in the aftermath of the anthrax letters. We ended up dismantling the seven-story relic brick by brick."

Parrott explained, "We started by hosting a series of meetings for NCI and Fort Detrick employees. Throughout the months-long process we maintained a website complete with webcam; we sent out weekly updates on progress, and we answered each question and concern individually. Every day we monitored the site, taking air samples and swipe samples to make certain there were no residual spores."

She emphasized, "Never did we find evidence of any contamination, so the Army did an excellent job all those decades ago."

Parrott continued, "The project was an elegant illustration of the government community operating in the best interests of our common good. The trust and confidence that the Frederick community demonstrated throughout the dismantlement had little to do with me or our team; both had been built over NCI's forty-year history in Frederick through forthright, timely disclosure of information in the public interest. We simply stood on the shoulders of those early NCI pioneers."

What will she miss most? "The people, of course! The selflessness, the teamwork, the collegiality—they are all much in evidence here. It's easy to be dedicated to this mission."

Looking Ahead

Asked where she plans to be a year from now, she was visibly animated. "Jack plans to retire this year, too, so besides teaching and yoga and a bit of travel, we'll be cuddling our first grandchild." So they'll be right here in Frederick.

"Always we'll have time to stay in touch with friends! No 'good-bye-ing,'" she vowed.

And returning to her interpreter past, she ended with a smile, "I prefer *Au revoir*." ■

FME Carpentry Shop Keeps Facility in Good Repair

By Peggy Pearl, Contributing Writer

Did you know that what most people call the Carpentry Shop at Facilities Maintenance and Engineering (FME) is actually made up of the three crafts: woodcrafting, painting, and locksmithing?

From left to right, Keith Zecher, Bob Lawler, Donnie Blickenstaff, and Norm Lambert regularly consult on drawings related to renovation and construction jobs.

On any given day, throughout the Frederick National Laboratory campus, you may find shop staff using an assortment of tools and a wide range of skills on projects using from simple maintenance to complete renovations.

Help When You Need It

The Carpentry Shop employees are ready to assist you with any request, no matter how small or large the job.

Keith Cutsail, Keith Zecher, Norm Lambert, and David Lee are a few of the woodcraftsmen who perform a variety of jobs throughout the facility. One of the largest jobs for Cutsail and Zecher in the last year, they said, was in Building 469, where they built the shaft walls, which enclose elevator shafts, stairwells, and other vertical shafts. Lambert enjoys having a wide range of jobs and learning new or different ways of doing tasks from fellow workers. Lee likes having the wide range of resources at his fingertips.

Tony Favorite preps doors for painting before installation in Building 560.

Eddie Currens, group leader, said the best part about working in the Carpentry Shop is definitely the people. "Working with a large group with diverse backgrounds and personalities means there is rarely a dull moment," he said.

Tony Favorite, a skilled painter, performs a variety of jobs with skills that include surface preparation, brushing and rolling, spraying, staining, varnishing, and even wallpapering. "Seeing a job go from start to finished product is very self-rewarding," Favorite noted.

The facility locksmith, Tim Gibbs, fabricates keys, configures cores, and installs locksets, including cipher locks, along with many other hardware installation and maintenance duties. Gibbs, an accomplished woodcraftsman himself, also works closely with the Instrumentation Shop and the Access Control Department of Protective Services in maintaining campus security.

Whether it is woodcraft, paint, or locksmith services, Lawler said, the Carpentry Shop receives positive feedback from the customers because of its ability to respond to the ever-changing needs of the scientific and support communities at Frederick National Laboratory.

For more information or questions about FME's Carpentry Shop, contact Bob Lawler at 301-846-5460, lawlerb2@mail.nih.gov. ■

Keith Cutsail (left) consults with group leader Eddie Currens about plans related to a renovation in Building 431.

Tim Gibbs sets a lock in the FME shops before installation.

Woodcraftsman David Lee says the best part about working in the Carpentry Shop is "having the right tools to complete the job the right way."

Be Careful! Lasers at Work!

By Kimberly Teska, Guest Writer

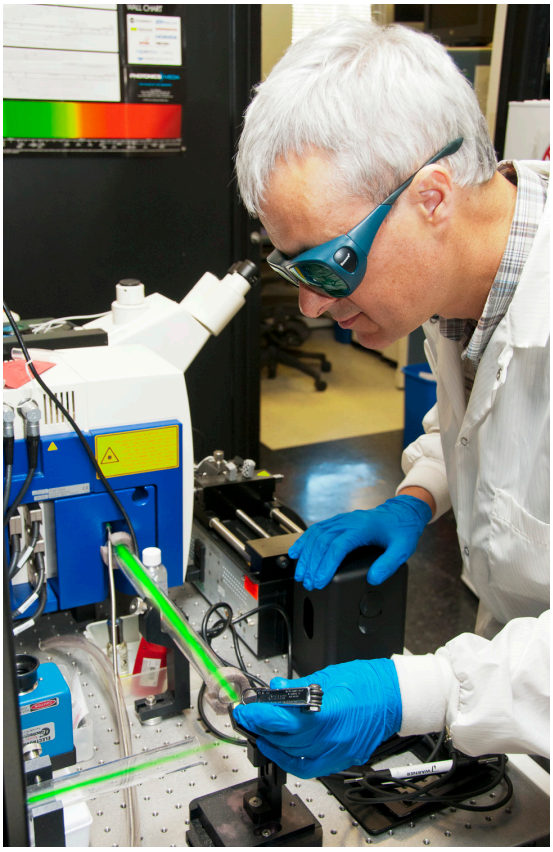
Do you or your lab colleagues work with lasers, laser systems, or laser-containing equipment in conjunction with your day-to-day research? Lasers are used in many scientific applications, such as spectroscopy, diagnostics, microscopy, and imaging. A laser may be a stand-alone unit, part of a system, or embedded in a piece of equipment, and can even be added to existing equipment to enhance its performance.

Most lasers in laboratories at the Frederick National Laboratory are embedded within securely enclosed scientific equipment, significantly decreasing potential laser hazards when used according to normal operating instructions. However, some laboratory personnel may open equipment to realign or adjust the embedded laser, creating an exposed laser beam and a potential laser hazard. Additionally, some laboratories use stand-alone, open-beam lasers in their daily research.

Lasers Can Be Hazardous

Lasers are primarily divided into four hazard categories, from Class 1, the least hazardous, through Class 4. The laser class is determined by the laser's hazardous capabilities and the amount of radiation accessible during operating procedures.

What makes a laser beam hazardous? Improperly used or improperly shielded, the beam can cause irreparable injury to skin and eyes, by both direct and specular viewing. Additionally, secondary hazards, referred to as non-beam hazards, which do not directly result from exposure to a laser beam, are also possible when you use lasers. These non-beam hazards can include electrical shock, plasma radiation, fire, explosion, or laser-generated air contaminants, to name just a few.



Stephen Lockett aligns the beam of a two-photon microscope so that the sample is efficiently and evenly illuminated. For deep imaging into tissue samples, usually living samples, it is necessary to excite the fluorescence-tagged proteins in the sample with two photons instead of one. The laser light (shown in the tube) is simulated in the picture. *Photo illustration.*

Using Lasers Safely

The American National Standards for Safe Use of Lasers (American National Standards Institute, Z136.1) provides guidelines and recommendations for the safe use of lasers and laser systems. Safety requirements are dependent on the class and application of the laser.

For example, when a laser hazard exists, safety requirements may include using wavelength-specific eye protection, minimizing the hazard zone; posting appropriate warning placards; using fireproof curtains; training; and medical surveillance.

Is Your Laser Registered with EHS?

A completed Laser Registration Form must be filed with the Environment, Health, and Safety Program (EHS) for all lasers, laser systems, and laser-containing equipment at the Frederick National Laboratory. Contact EHS or visit the EHS website, http://home.ncifcrf.gov/ehs/, to obtain the form.

The Laser Registration Form requests specific laser information, such as the lasing medium (i.e., Nd:Yag, HeNe); the wavelength output; maximum power output; and maximum energy. This information helps to determine whether a laser hazard exists and what safety requirements are needed for the laboratory area and for the individual using the laser. Additionally, the forms are used to maintain an accounting of all lasers in use at the Frederick National Laboratory.

EHS Laser Safety Program

The Laser Safety Program, under the direction of the Radiation Safety Office, EHS, has the fundamental responsibility of ensuring the safe use of lasers at the Frederick National Laboratory.

EHS personnel can assist you and your lab in adhering to the safe practices of laser use by conducting a hazard analysis to determine whether a laser hazard exists. When laser hazards do exist, EHS will, at a minimum, determine a nominal hazard zone, calculate wavelength-specific eye protection requirements, provide training, assist with safety and control measures, and initiate medical surveillance for those individuals who may be exposed to laser beams.

Questions about Laser Safety or Laser Registration Requirements?

If you have a laser, laser system, or laser-containing equipment used for scientific research and have not completed a Laser Registration Form, or if you have any laser safety questions, contact the Radiation Safety Office for assistance at 301-846-5730. ■

Kimberly Teska is an occupational safety specialist in the Environment, Health, and Safety Program.

Congratulations to the March 2012 Poster Puzzler winner! Tracy Webb, senior research associate, Office of the Associate Director, Developmental Therapeutics Program, Division of Cancer Treatment and Diagnosis, Frederick National Laboratory, is pictured (right) with Cheryl Parrott, interim executive editor of the *Poster*. ■

The Poster Puzzler:

Enter by the Tile Wall

By Ashley DeVine, Staff Writer, and Travis Gaydos, Contributing Writer

The March Poster Puzzler is a tiled wall with two circular lights, located next to the main and only entrance to Building 1047. It is a purely decorative element of the building. In 2001–2002, Building 1047 was demolished down to its foundation. When it was rebuilt in 2002, the tiled wall was part of the new construction. The program currently housed here is the Developmental Therapeutics Program/Division of Cancer Treatment and Diagnosis. ■

Poster Puzzler

What Is It?
Where Is It?

Your challenge, should you decide to accept it, is to correctly identify the item and its location from the picture to the right. Clue: It's somewhere at Frederick National Laboratory or Fort Detrick. Win a framed photograph of the Poster Puzzler and a commemorative gift by e-mailing your guess, along with your name, e-mail address, and daytime phone number, to poster@mail.nih.gov. Alternatively, you can send us your guess, along with your name and daytime phone number, on one of the *Poster* forms found on the front of the *Poster* stands in the lobbies of Buildings 426 and 549. All entries must be received by **Friday, July 20, 2012**, and the winner will be drawn from all correct answers received by that date.

Good luck and good hunting! ■

New Faces at the Frederick National Laboratory for Cancer Research

Seventy-eight people joined our facility in January, February, and March 2012.

Frederick National Laboratory welcomes...

Amy **Bandel** ■ Walter **Baseler** ■ Nathalie **Brison** ■ Rebecca **Brose** ■ Christopher **Case** ■ Aubrey **Coats** ■ Emily **Corcoran** ■ David **Gruenwald** ■ Laura **Guasch Pamies** ■ Yixing **Han** ■ Suzanne **Hartford** ■ Sher **Hendrickson** ■ Aviva **Joseph** ■ Marcella **Kaddoura** ■ Christine **Kettenhofen** ■ Nicholas **Kettenhofen** ■ Kristen **Knickman** ■ Weidong **Li** ■ Vanishree **Lingegowda Virupakshipura** ■ Mairi **McLean** ■ Daniel **Mendoza-Villanueva** ■ Cathrine **Mitchell** ■ Marisa **Mitchell** ■ Tinoush **Moulaei** ■ Sinnie **Sin Man Ng** ■ Shingo **Takatori** ■ Minoru **Terashima** ■ Craig **Thomas** ■ Anna **Trofka** ■ Jing **Wang** ■ Ting **Wang** ■ Brice **Wilson** ■ Emily **Wilson** ■ Dolores **Winterstein** ■ Gregory **Yourek** ■ Zhizheng **Zhao** ■ Qiong **Zhou**

SAIC-Frederick welcomes...

Ify **Agagbor** ■ Juane Tamika **Asare** ■ Ronald **Boaze** ■ Jennifer **Cirner** ■ Melissa **Clabaugh** ■ Stephen **DeSimone** ■ Dayon **Dixon** ■ Vanessa **Eccard** ■ Michelle **Espinosa** ■ Claudia **Espinoza** ■ Zulmarie **Franco** ■ Linda **Hannick** ■ Christopher **Hautman** ■ Claudia **Haywood** ■ Sherri **Holland** ■ Bawi **Iang** ■ Sylvie **Kwedi** ■ Donald **Lesko** ■ Craig **Marshall** ■ Ken **Matsui** ■ Anand **Merchant** ■ Isaac **Miller** ■ Karun **Mutreja** ■ Shaneeka **Owens** ■ Divya **Paramesh** ■ Joselin **Quintana Nazario** ■ Dawn **Reeder** ■ Travis **Sheets** ■ Fanta **Sillah** ■ Cathy **Simpson** ■ Harpreet **Singh** ■ James **Soria** ■ Surendra **Sunkari** ■ Derek **Traynor** ■ Delmyra **Turpin** ■ Kimberly **Valentino** ■ Dwayne **Weddle** ■ Cheryl **Weston** ■ Tara **Whipp** ■ Vincent **Williams**

Data Management Services welcomes...

Laura **Orme** ■

These Women Make a Difference in Our Lives

By Maritta Perry Grau, Staff Writer

Producing viral vectors for in vitro and in vivo studies, evaluating new technologies, organizing outreach and internal events and special programs, preparing site visit reports, helping make newcomers feel comfortable, collaborating on statistics and other projects—these are just some of the ways that the women of the Frederick National Laboratory for Cancer Research go about their everyday work lives—and in the process, make history.

In March we celebrated four such women, selected by fellow employees from all areas of the Frederick National Laboratory.

Rachel Bagni, Ph.D., is a scientist II in the Protein Expression Laboratory, SAIC-Frederick; Julie Hartman is an education specialist in the Office of the Director, NCI; Cheryl Lamb is an administrative laboratory manager in the Cancer and Inflammation Program, Center for Cancer Research, NCI; and Karen McNitt is the manager of Scientific and Microcomputer Applications, Computer and Statistical Services, Data Management Services. Together, they represent 89 years of experience with Frederick National Laboratory.

Rachel Bagni

Cheryl Lamb

Julie Hartman

Karen McNitt

Rachel Bagni

Rachel Bagni, with 13 years at Frederick National Laboratory, is inspired by working with people who are passionate about their mission and who work hard every day to deliver their best.

She noted, "I'm especially proud of a recent project … to assess whether a newly described retrovirus/human disease link could threaten the human population." The cross-lab effort between government and contractors "demonstrated the flexibility and scientific power at" Frederick National Laboratory, she said, because "we provided immediate support to a new area of virology in a fast and coordinated manner."

Bagni mentors high school students through the Werner H. Kirsten Student Intern Program and college students through the NIH Summer Intern Program. "I remember and value my experiences as an intern and hope to provide the same opportunities to other students," she said.

Cheryl Lamb

Cheryl Lamb, with 24 years at Frederick National Laboratory, supports 15 principal investigators, three core services, and two Office of Scientific Operations chiefs. She helps with budget, travel, personnel, training, purchasing, seminars, outside activities, and technology transfer; supervises four secretaries; and teaches classes on budget, travel, and personnel.

As if these support activities weren't enough, she helped establish a buddy system for the administrative laboratory managers and secretaries when Advanced Basic Laboratory employees transferred to NCI 12 years ago.

Lamb noted, "I enjoy working with people and experiencing the different types of culture. I like the feeling that I contribute in some small way to the fight against cancer."

Julie Hartman

Julie Hartman, at Frederick National Laboratory for 15 years, often works behind the scenes on everything from the new Frederick National Laboratory website to outreach programs in local elementary schools, the Spring Research Festival, and Take Your Child to Work Day (TYCTWD).

Hartman often encourages "individuals to volunteer along with me for Elementary Outreach Program (EOP), TYCTWD, and Science and technology, engineering, and mathematics school nights. The EOP is the most rewarding program–young scientists engaged and having fun!"

Karen McNitt

Karen McNitt, Data Management Services, has worked at Frederick National Laboratory for 37 years. She works with the scientific and associated administrative community to develop custom databases and data/sample management systems, and with CSS statisticians to develop analysis systems for use by single users or small groups of users.

When McNitt began work here, only her group had access to computers—operated with punch cards and mainframe computers. She was involved "in some of the first microcomputer instrumentation here—we hooked an Apple II to an ELISA reader. Now, most of our work is PC-based. One project I've worked on originally … ran for hours on the Cray. It now runs in 30 seconds on my PC."

McNitt collaborates with her customers on projects to help "advance their research or enable them to perform their job better." She noted that she loves "working with the customer and seeing projects develop as I begin to understand their needs and they see the services I can provide, services that I hope will make their work easier and more exciting to them." ■

Frederick National Laboratory Celebrates 40 Years

By Ashley DeVine, Staff Writer

Forty years ago, what we now call the Frederick National Laboratory for Cancer Research was born. Here are some highlights in the facility's history.

October 19, 1971 – President Richard Nixon announced that Fort Detrick would be converted from a biological warfare facility to a cancer research center (Covert, Norman M., *Cutting Edge: A History of Fort Detrick, Maryland, 1943–1993*, pp. 85–87).

President Richard Nixon visited Fort Detrick on October 19, 1971, to announce that the biological warfare facility would be converted into what we know today as the Frederick National Laboratory.

June 26, 1972 – Litton Bionetics' Frederick Operations Division opened the Frederick Cancer Research Center (FCRC) with a staff of 21 employees. Within three months, that number had grown to 193 (*Frederick Cancer Research Center Bulletin*, October 17, 1972).

1975 – The Basic Research Program was formed (The *Poster*, September 2004, p. 12). FCRC was designated a Federally Funded Research and Development Center (http://ncifrederick.cancer.gov/about/History.aspx).

1977 – The number of employees grew to 850 (*Frederick Cancer Research Center: The First Five Years, 1972–1977*).

Early 1980s – FCRC was instrumental in developing a blood test to protect the nation's blood supply from HIV infection (*News & Views*, April 2010, p. 1).

December 1981 – FCRC became the Frederick Cancer Research Facility (FCRF; The *Poster*, December 2004, p. 17).

September 1982 – The contract was divided into five components: basic research, operations and technical support, animal production, computer services, and scientific library services (http://ncifrederick.cancer.gov/about/History.aspx).

1987 – Staff numbered more than 1,400 with a budget of nearly $100 million per year (The *Poster*, November 2003, p. 12). DMS became the new contractor for computer and statistical services (The *Poster*, March 2005, p. 15).

1990 – FCRF was renamed the NCI-Frederick Cancer Research and Development Center (The *Poster*, June 2005, p. 13).

1993 – The Biopharmaceutical Development Program began to support prototype drugs, vaccines, and other therapies (*NCI Cancer Bulletin*, November 20, 2007, p. 3).

1995 – SAIC took over as operations and technical support contractor (http://saic-frederick.com/about/).

2001 – The facility's name was changed to the National Cancer Institute at Frederick.

2005 – Ligia Pinto, Ph.D., and staff in the HPV Immunology Laboratory developed a vaccine for cervical cancer that was tested in Phase III clinical trials (*News & Views*, January 2005, p. 1).

This drawing, based on the Roman myth of Hercules fighting a crab (cancer means crab in Latin), was used for the cover of Litton Bionetics' proposal to manage the Frederick Cancer Research Center when it opened in June 1972. Guy D. Wiser is the artist.

2006 – The Vaccine Pilot Plant opened (*NCI Cancer Bulletin*, November 20, 2007, p. 3).

2007 – NCI launched the NCI Community Cancer Centers Program (The *Poster*, July 2007, p. 1).

August 2, 2011 – A patent was issued for human monoclonal antibodies that may treat humans infected with the deadly Hendra and Nipah viruses. Dimiter Dimitrov, Ph.D., and Zhu Zhongyu, Ph.D., CCR Nanobiology Program, were involved in research leading to this patent (for more information, see the Technology Transfer Center article on page 24).

March 2012 – NCI-Frederick was renamed the Frederick National Laboratory for Cancer Research. ■

Lend an Arm: Research Donor Program Needs You

By Maritta Perry Grau, Staff Writer

It happens about two and a half billion times in your life. No, it's not the number of breaths you'll take, but the number of times your heart will beat. And every day, your heart continually circulates about five quarts of blood throughout your body, the equivalent of about 1,800 gallons of blood each day. According to the NIH website, science.education.nih.gov, over your lifetime, your heart "will pump nearly one million barrels of blood, enough to fill more than three supertankers."

And when something goes awry in your body, it will often be evidenced in the blood. That's why the Research Donor Program (RDP), conducted by Occupational Health Services (OHS) at Frederick National Laboratory, is so important: Donated blood is used in a variety of research experiments.

Brad Foltz talks to Coleen Tabler, OHS associate, before making his 94th blood donation to the Research Donor Program. Such donations are used as quality control reagents in clinical test systems for researchers.

One Researcher's Dedication through Blood Donations

When Brad Foltz, then a research associate in the AIDS Monitoring Laboratory (AML), began participating in the RDP in 1999, he was simply following a family tradition. "I had given blood with the Red Cross, following my father's footsteps," he said.

These donations naturally led into his decision to "contribute to the cancer and AIDS research at the Frederick National Laboratory for Cancer Research. I even took a stab at donating bone marrow… just one [more] way that I could contribute to the ongoing research here," he said.

To date, Foltz, now a program manager, has given more than 4,000 milliliters (ml) of blood in at least 95 donations. That 4,000 ml has been spread out in individual donations that average about 20–40 ml, although he has donated as much as 250–300 ml at a time. He said that the amount depends on how much is needed and how many other people are donating.

How Your Blood Helps

In AML, which is a part of the Clinical Services Program headed by Michael Baseler, Ph.D., Foltz's blood donations and those of other donors are used as "normal," or control, groups, against which the researcher can compare to findings in patient blood.

"In our laboratory, blood from the RDP is used as a daily quality control reagent in each of our clinical test systems. These quality controls help ensure the accuracy and reliability of the test system," said Randy Stevens, an AML supervisor.

Stevens explained that AML "performs sequential studies of immune function in patients with HIV disease during treatment with a variety of experimental antiviral and immunomodulatory agents. Over the past several years, the results of this work have aided in the assessment of the efficacy and mode of action of these agents, and as well, have helped to determine optimal therapeutic strategies that may lead to restored immune function. Blood from the RDP has played a crucial role in helping us validate the clinical test systems used in performing these immunological studies."

Such tests assure the researcher that the equipment or test is accurate and that, when the patient sample is run, the researcher will get a true result. Accuracy is important, Foltz pointed out, because the readings or tests may be used to help assess the patient's progress on a certain protocol when the patient's results are compared to results of the normal donor.

Please Lend an Arm

"The Research Donor Program needs you. Help us increase our current donor pool. Please lend an arm," said Coleen Tabler, OHS associate.

Orientations will be in the Building 426 Training Room at 1 p.m. on June 27, July 25, August 29, September 26, October 31, and November 28. If you would like to be a blood donor, to attend an RDP orientation, or to learn more about the RDP, please call OHS, 301-846-1096. ■

Identifying Your Vision of "Wellness"

By Margaret Slaughter, Guest Writer

While "wellness" has a general, universal meaning implying health, to each of us, wellness may have a different meaning: improving fitness levels, losing weight, improving our diet, or stopping smoking.

In its April 2012 issue, *Safety and Health* addresses this very topic, and according to William B. Baun, manager of wellness programs at the University of Texas M.D. Anderson Cancer Center and president of the National Wellness Institute, "Optimal wellness programs are customized to the needs of the workplace" (p. 35).

Occupational Health Services (OHS) has taken that premise one step further by assisting the enrollee in creating an individualized, personal program, including biometric interviews with OHS staff and sessions with a dietician from Frederick Memorial Hospital.

Christina Robinson, a research associate in the Laboratory Animal Sciences Program (LASP), is one Frederick National Laboratory employee taking advantage of the wellness offerings. She shared her story with us, saying she hoped "that it would help to motivate others."

OHS is excited to develop and expand the Wellness program for the community we serve. OHS recently started to offer cholesterol screening. We are planning several events in the upcoming month including a walking program and monthly coaching to help you reach your health and wellness goals. Sign up for the Weekly Wellness tips that will be sent to your email by signing up with the ListServe (http://web.ncifcrf.gov/Staff/ListServ.aspx). Contact us at 301-846-1096 to enroll in Wellness and for any questions. ■

Margaret M. Slaughter is an RN, BSN in Occupational Health Services.

Q&A

Question (Q): What motivated you to enroll in wellness?
Christina Robinson (CR): I wanted to lose weight, I wanted to be accountable, and I wanted access to people who are knowledgeable about the human body.

Q: What did you find the most helpful from your biometric information?
CR: The biometric highlighted potential health risks that I had never thought about, and that helped me take it a bit more seriously.

Q: What are your thoughts regarding your visit with the dietician? Have you incorporated anything she told you?
CR: The dietician was friendly and motivating, and she validated some of the things I was doing. She gave me hints on how to save calories; for instance, to switch from regular yogurt to low-fat Greek yogurt.

Q: It is clear that you have been successful in your efforts of weight loss. What would you do differently or what would you do the same?
CR: If I had to do it again… I would make a more determined effort to exercise five days a week, CONSISTENTLY.

Q: Do you plan to take advantage of other "Wellness" offerings?
CR: Yes, I would, and I will continue to have biometric screenings until I feel I no longer need them.

OHS's mission is to improve the health and well-being of the employees of the Frederick National Laboratory for Cancer Research and its contractors by providing health education and activities to support positive lifestyle changes.

NIH R&W Organizes Club Frederick

By the Club Frederick Advisory Committee

The NIH Recreation & Welfare Association (R&W) is a nationally recognized employee service and health promotion organization (http://www.recgov.org/r&w/, 2012).

The association is also involved in the community, supporting causes such as the R&W Foundation, The Children's Inn, Camp Fantastic, and Friends of the Clinical Center. Club Frederick is just beginning its activities, but in conjunction with Books R Fun, we have already raised money for Camp Fantastic, a week-long camp for children with cancer.

The NIH R&W offers discounts on many services available in the Frederick, Bethesda, Baltimore, and D.C. areas, as well as nationally. The NIH R&W also offers discount tickets to local attractions and discounted cruises, all-inclusive trips, and much more. To see what the NIH R&W is about, please visit the association website: http://www.recgov.org/r&w/.

Who Can Join Club Frederick?

Club Frederick is being developed to support our community here at the Frederick National Laboratory for Cancer Research and at Fort Detrick.

Government employees, contractors, retirees, etc., and all organizations based at Fort Detrick are welcome to join for an annual membership fee of $7.00. Please visit the Club Frederick website: http://ncifrederick.cancer.gov/Staff/RecreationWelfare/Default.aspx.

Why Should You Join?

Club Frederick membership gives you access to the NIH R&W, in addition to discounts for local events and businesses. We hope to generate additional local discounts as Club Frederick matures. So, if you live or work in Frederick, NIH R&W Club Frederick is for you. ■

Fitness Challenge Winners Respond: Why Is Fitness a Part of Your Life?

By Ashley DeVine, Staff Writer

"I feel better when I exercise; I'm more alert and focused. Cycling home from work clears my head and helps me to relax. I'm motivated by the Fitness Challenge tracker. I can track my weight and miles cycled, and see how I'm doing in comparison to last year." —*Mark Gunnell, Applied and Developmental Research Directorate*

Mark Gunnell recently took a family cycling trip to Acadia National Park in Maine. Here, he takes a break near Eagle Lake. *Photo courtesy of Mark Gunnell.*

"As for the weight loss, I just decided that I wanted to get back on the right track for myself and my family. My husband, sister, dad, and some friends are all losing weight together, which keeps me motivated to stick with it." —*Halee Helmer, Human Resources Directorate*

"Food was always a comfort and was my answer to problems, so my weight has always been a challenge. I've come to the conclusion over the years that at any size you can work harder to be a healthier and stronger person. I feel so much better getting my morning workout accomplished. By the time I get to work, I have more energy and am ready to face the day's challenges."—*Gary Krauss, Contracts and Acquisitions Directorate*

Steve Dobson ran in the Veterans Day Rosaryville 50K Trail Run in Upper Marlboro, Md., in November 2011. *Photo courtesy of Steve Dobson.*

"Being fit does not guarantee that you will never be challenged with health issues, but it sure gives you the ammunition to fight back. Three months after undergoing chemotherapy, I was able to complete the Marine Corps marathon. I am now a six-year cancer survivor. Thanks to the Fitness Challenge program, I can keep track of my activities and stay on target." —*Joe Saavedra, Basic Science Program*

"Fitness is an important part of my life because it helps relieve stress and makes me feel good about myself. I want to continue to be active so I can play with my children, and I want to be able to enjoy what I eat and not worry about watching calories (closely). Exercise provides me the quality of life that I desire." —*Kelly Spore, Clinical Monitoring Research Program*

While running her first half marathon, the Disney Princess Half Marathon, at Walt Disney World in February 2011, Kelly Spore and her husband, Ken, stopped for a quick photo with some Disney characters. *Photo courtesy of Kelly Spore.*

Introducing the Fitness Challenge Hall of Fame

By Will Sheffield, Guest Writer, and Ashley DeVine, Staff Writer

The Fitness Challenge website now has a new feature, the Fitness Challenge Hall of Fame, which lists the top 15 performers in four of the five Fitness Challenge categories since the program began in 2006.

The weight loss category was not included in the Hall of Fame because weight loss may be more private and personal. The list will be updated at the beginning of each year. The Hall of Fame can be found on the Fitness Challenge website, http://saic.ncifcrf.gov/fitnesschallenge/, by clicking on "Hall of Fame" in the top red banner. ■

Will Sheffield is an occupational health associate and Fitness Challenge coordinator, Occupational Health Services.

Monthly Fitness Winners

January –Walking: Wayne Helm ▪ Steve Stull ▪ Robin Dewar Running: Steve Dobson ▪ Beth Buckheit ▪ Andrew Watson Biking: Tom Gannon-Miller ▪ Mark Whitmore ▪ Kimberly Peifley Weight Loss: Beth Baseler ▪ Cammi Bittner ▪ Halee Helmer Other Activities: Will Sheffield ▪ Yunden Badralmaa ▪ Courtney Silverthorn

February – Walking: Guity Mohammadi ▪ Carol Caballero ▪ Roberta Matthai Running: John Carter ▪ Joseph Saavedra ▪ Kelly Spore Biking: Yueqing Xie ▪ Susan Culler ▪ Edward Krusinski Weight Loss: Angela Spaniol Other Activities: Amy Cutshall ▪ Dawn Gartner ▪ Gary Krauss

March – Walking: Patti Labbe ▪ Victoria Barron ▪ Rob Hill Running: Kathy Hoffman ▪ Jennifer Waters ▪ Carolyn Reid Biking: John Beutler ▪ Randall Johnson ▪ Mark Gunnell Other Activities: William Adkins ▪ Jamie Rodriguez

April – Walking: Stephanie Pluckhorn Running: Debbie Peters

Who Broke into the Teacher's Desk?

By Nancy Parrish, Staff Writer

Investigative teams were hot on the trail, conducting forensic testing on four suspects: they analyzed "blood" and fiber samples, as well as fingerprint evidence. Using scientific tests and deductive reasoning, they produced results that led to the perpetrator ("perp").

Did we mention the investigators were fifth-graders at Myersville Elementary School?

This exercise was presented by Richard Frederickson, Gary Krauss, and Gretchen White, volunteers in the Elementary Outreach Program (EOP) sponsored by the Frederick National Laboratory for Cancer Research and Fort Detrick.

Throughout their investigation, the students learn "the scientific process—conducting an experiment, recording data, and analyzing results," said Frederickson, senior technical specialist, Scientific Publications, Graphics & Media. Krauss, subcontracts specialist, Contracts and Acquisitions, pointed out that the children also learn "you don't always have to work in a lab or wear a lab coat to be in the field of science."

Volunteers also benefit from the opportunity to give back to the community as well as to meet other people at Frederick National Laboratory, according to White, scientific program specialist, Office of the Director, Center for Cancer Research, NCI.

(Incidentally, the "blood" was fake, and the "perp" was the teacher.)

Can You Spare a Few Hours Twice a Year?

The EOP provides volunteers with activities designed for grades 1 through 5 to give school-age children a chance to experience science first-hand, in their own classrooms. Volunteers are grouped in teams according to grade level to present hands-on activities that coincide with the school curriculum. You need only about 30 minutes of training, and you can expect to spend two, non-consecutive, half-days in the classroom.

The Elementary Outreach Program brings science to life in elementary school classrooms. Left, Gary Krauss works with fifth-grade students during an "investigation" at Myersville Elementary School. Below, a student helps identify the "perp" using fingerprint analysis.

You don't have to be a scientist to participate. In fact, people from all job categories are encouraged to volunteer, so that children may see that a wide range of careers is available in the world of science.

"The lessons are easy to teach, and the kids really enjoy the material," said Randy Johnson, bioinformatics analyst, CCR Genetics Core, Basic Science Program a fourth-grade classroom volunteer.

How to Enroll for the 2012–2013 School Year

For information on becoming a volunteer, or to sign up, visit the website (http://ncifrederick.cancer.gov/Programs/General/EOP/) or contact Julie Hartman, EOP coordinator, hartmanj@mail.nih.gov, or 301-846-7338. ■

Here's What the Volunteers Say…

It's a great program and very rewarding … you can also most certainly learn a thing or two about science right along with the kids! *—Allison Eyler, secretary, Clinical Research Directorate*

Nothing makes me happier than seeing a child interacting and learning about the science world around them … Do it! It's a blast. *—HM2 (SW) Tim Velasco, U.S. Navy, medical laboratory technician, ASCP*

It's a rewarding way to perform community service … It is fun to work with young students and to see them get excited about science. *—Gretchen White, scientific program specialist, Office of the Director, Center for Cancer Research, NCI*

I enjoy working with kids … I love seeing kids get excited about science. *—Randy Johnson, bioinformatics analyst, CCR Genetics Core, Basic Science Program*

Watching the kids take an interest in a topic makes it worth your time away from the office. *—Gary Krauss, subcontracts specialist, Contracts and Acquisitions*

Ned Greenberg: 50 Years and Counting

By Ashley DeVine, Staff Writer

Can you imagine working for the same company for 50 years? Nathaniel "Ned" Greenberg has accomplished just that, having recently received his 50-year service award from NIH, and he has no immediate plans for retirement.

"I don't look upon my job as a chore. It's more of an avocation than a vocation," said Greenberg, a chemist in the Biological Testing Branch (BTB), under Branch Chief Melinda Hollingshead, DVM, Ph.D. "I am lucky that I found something that I enjoy doing."

Ned Greenberg is a chemist in the Biological Testing Branch, Frederick National Laboratory for Cancer Research.

Beginning a Career at NCI

He began working at the National Cancer Institute (NCI) in 1961 at the Clinical Center in Bethesda, in the Biochemical Pharmacology Section. "The doctor that I worked for was studying resistance of a tumor to methotrexate, which is a drug used in cancer therapy, and what we did was make a tumor resistant, measure the level of dihydrofolate reductase as resistance developed, and then stop treating and watch the enzyme levels decrease," Greenberg said of some of his research. The goal of this research was to find out what happens when a tumor becomes resistant to a drug.

Greenberg worked with several international scientists during his time in the Biochemical Pharmacology Section. He remains friends with one of the scientists he met from Poland, who is a member of the Polish Academy of Sciences.

Moving Out of the Lab

In 1966, Greenberg transferred to the Cancer Chemotherapy National Service Center (an extramural NCI group). He became a project officer in the Screening Section of the Drug Evaluation Branch. He was overseeing two to three in vivo contract laboratories and one in vitro contract laboratory.

"I helped compile a list of all the in vivo and in vitro test systems, and this was published in *Cancer Chemotherapy Reports* in 1972. An update was printed as an NIH publication in 1984," Greenberg said.

It was in 1966 that Greenberg stopped working in the lab, and he hasn't returned since. "I gave up biochemistry and started to evaluate drug activity in the tumors," he said.

To evaluate drug activity in tumors, Greenberg explained, researchers look at rodent tumor models, where one group of animals is the control group (tumors are not treated with a drug), and the other group is treated (tumors are treated with a drug). Depending on whether the tumor model is based on tumor weight or animal survival, a calculation is used to determine if the effect of the drug on tumor weight or animal survival means that the drug is active in the tumor model or not.

The drugs/chemicals tested in the Screening Section consisted of natural product extracts, submissions from the public, samples from college chemistry laboratories, and products obtained through agreements with pharmaceutical companies. If the drugs showed activity, they were developed further within NCI.

Transferring to Frederick

Greenberg transferred to BTB in 1986, where he continues to work today. His job still involves evaluating drug activity in tumor systems. He began entering test data from the laboratory into the computer system around 1989. "The program is more selective now regarding what compounds are selected for testing than it was when I was a member of the Screening Section," Greenberg said. Beginning in 1987, compounds tested at BTB were first tested in a 60-cell in vitro screen. If the compounds showed promise, they were tested in vivo.

"In the early 1990s, Dr. Hollingshead developed the hollow fiber assay, and it was inserted between the in vitro assay and in vivo testing. If a material was active in that assay, a committee would recommend in vivo xenograft testing," Greenberg said. This process continues today.

Over the years, Greenberg has contributed to the scientific community in ways in which he is proud. In the 1970s, he helped disprove that a material (Laetrile) used in Mexico was the cure for cancer. He also recalled working 24 hours straight when testing a drug called cytosine arabinoside, which had to be injected intraperitoneally into mice every three or four hours.

Although Greenberg's job duties may not have changed greatly since 1966, the work environment certainly has. "I had my fingers in more drugs [prior to 1986] than I have here," he said. "The members of the Screening Section were intimately involved in the testing of every compound."

Greenberg appreciates being recognized for 50 years of service, but noted that "finding a drug that's active against cancer is enough of an award." ■

Internship Leads to Career Path

By Nancy Parrish, Staff Writer

When former intern Jennifer (Tabler) Canna recalls her experience at the Frederick National Laboratory for Cancer Research, what stands out in her mind is "running a lot of electrophoresis gels." However, such technical experience also helped steer the course of her career.

Canna said she was always interested in math and science, but was especially drawn to "the biological side of science because how the human body functions is intricate and fascinating." She applied to the Werner H. Kirsten Student Internship Program because she thought it would be "a great opportunity to gain insight and experience in research."

Her work with William Murphy, Ph.D., in the Laboratory of Genomic Diversity, must have fulfilled her expectations. In addition to running gels, she said what she remembers most is "having the wonderful opportunity to learn about all types of research and the research methods."

What she didn't realize, however, was that her experience would change the focus of her studies, and, ultimately, her career. "In the end, the internship helped me realize that my strengths and interests fell more in the area of math, and I decided to get a degree in chemical engineering," she said. "However," she added, "I knew that I would want to still pursue a career involving biologics and human health."

Jennifer Canna (formerly Jennifer Tabler) was a Werner H. Kirsten student intern in the Laboratory of Genomic Diversity.
Photos courtesy of Jennifer Canna.

Today, Jennifer Canna is a technical support engineer at Merck & Co., in Philadelphia. She attributes her career path to her internship experience at Frederick National Laboratory.

Combines Work and Studies

A 2002 Middletown High School graduate, Canna studied chemical engineering at Virginia Tech. While an undergrad, she also gained valuable experience outside the classroom through a co-op at Marathon Ashland, an oil refining company in St. Paul, Minn., and Catlettsburg, Ky. "A co-op is like an internship but it is done for about three semesters with the same company," she explained. "This allows for the opportunity to work on more challenging, long-term projects and gain experience in different job functions within the specific industry." Her work there involved projects related to process optimization, environmental safety, and routine process monitoring, she said. During the summers, she continued her work at the Frederick National Laboratory, in the Laboratory of Genomic Diversity.

After graduating with a bachelor's degree in chemical engineering, with concentrations in business and biochemistry, she began working for Merck & Co., where today she is a technical support engineer in support of the vaccine manufacturing formulation and filling processes.

Advice to Students: Have Fun, but Pay Attention

Canna appreciates her experience as an intern, she said, because she made a lot of new friends that she wouldn't have met otherwise. While she advises current interns to "enjoy your time in your internship," she also recommends paying attention to what's going on around you. "During your time there, try to learn about what other labs are doing and their research, to gain a better understanding of other research opportunities and broaden your education," she said.

Recently married, Canna lives in Philadelphia with her husband and their dog Bowie, a Bichon-Yorkie mix. In her spare time, Canna enjoys trying out new recipes, gardening, and biking. ■

Twenty Patents Issued in 2011 for Inventions Created by Frederick National Laboratory Researchers

By Charles Salahuddin, Contributing Writer, and Mojdeh Bahar, Guest Writer

Patents grant a period of exclusivity to organizations whose inventors develop novel technologies. The process for obtaining a U.S. patent involves a rigorous review of the technology's usefulness and its novelty among the current technologies in the field.

The process associated with obtaining patent protection for technologies invented at NIH, managed by the NIH Office of Technology Transfer, is a critical component in translating these technologies into a form that can improve public health. Although excluding others from using NIH technologies may seem at odds with NIH's policy of making scientific knowledge widely available, patent protection provides an incentive to outside parties that have the capacity to commercialize NIH technologies through various partnership agreements. Few commercial entities would be willing to partner with NIH and to expend the tremendous amount of money and time associated with developing therapeutic or diagnostic products without the exclusivity that is granted by patent protection.

Patents issued in 2011

US 8,086,432; issued December 27, 2011: Molecular motor. Inventors: Thomas Schneider* and Ilya Gennadiyevich Lyakhov*

US 8,084,250; issued December 27, 2011: Defensin-antigen fusion proteins. Inventors: Larry Kwak* and Arya Biragyn*

US 8,076,100; issued December 13, 2011: Molecular clones with mutated HIV gag/pol, SIV gag and SIV env genes. Inventor: George Pavlakis*

US 8,071,323; issued December 6, 2011: Human monoclonal antibodies that bind human insulin-like growth factors and their use. Inventors: Dimiter Dimitrov* and Zhongyu Zhu*

US 8,067,530; issued November 29, 2011: Scytovirin domain 1–related polypeptides. Inventors: Barry O'Keefe,* Chang-yun Xiong, James McMahon,* and Andrew Byrd*

US 8,053,422; issued November 8, 2011: Anti-cancer oligodeoxynucleotides. Inventors: Dennis Klinman* and Hidekazu Ikeuchi*

US 8,012,683; issued September 6, 2011: Variants in complement regulatory genes predict age-related macular degeneration. Inventors: Rando Allikmets, Gregory Hageman, Michael Dean,* and Albert Gold*

US 8,008,316; issued August 30, 2011: Azonafide-derived tumor and cancer targeting compounds. Inventors: Nadya Tarasova,* Marcin Dyba,* and Christopher Michejda*

US 7,989,501; issued August 2, 2011: Treating renal cancer using a 4-[bis[2-[(methylsulfonyl)oxy]ethyl] amino]-benzaldehyde. Inventors: Susan Mertins,* Susan Elaine Bates, David Covell,* Geoffrey Patton, Melinda Hollingshead,* and Rao Vishnuvajjalla

US 7,988,971; issued August 2, 2011: Human monoclonal antibodies against Hendra and Nipah viruses. Inventors: Dimiter Dimitrov,* Zhu Zhongyu,* and Christopher Broder

US 7,977,468; issued July 12, 2011: Chromosome 3p21.3 genes are tumor suppressors. Inventors: Lin Ji, John Dorrance Minna, Jack Roth, and Michael Lerman*

US 7,968,664; issued June 28, 2011: Nitric oxide–releasing diazeniumdiolated acrylonitrile-based polymers, and compositions, medical devices, and uses thereof. Inventors: Joseph Hrabie,* Michael Citro,* Frank DeRosa, and Larry Keefer*

US 7,928,096; issued April 19, 2011: Polydiazeniumdiolated cyclic polyamines with polyphasic nitric oxide release and related compounds, compositions comprising same and methods of using same. Inventors: David Waterhouse, Preeya Kapur, Larry Keefer,* Joseph Hrabie,* and Frank DeRosa

US 7,928,079; issued April 19, 2011: Polysaccharide-derived nitric oxide-releasing carbon-bound diazeniumdiolates. Inventors: Larry Keefer* and Joseph Hrabie*

US 7,915,040; issued March 29, 2011: Defensin-antigen fusion proteins. Inventors: Larry Kwak* and Arya Biragyn*

US 7,902,441; issued March 8, 2011: Chromosome 3p21.3 genes are tumor suppressors. Inventors: Lin Ji, John Dorrance Minna, Jack Roth, and Michael Lerman*

US 7,897,152; issued March 1, 2011: Viral chemokine-antigen fusion proteins. Inventors: Larry Kwak* and Arya Biragyn*

US 7,884,178; issued February 8, 2011: Griffithsin, glycosylation-resistant griffithsin, and related conjugates, compositions, nucleic acids, vectors, host cells, methods of production, and methods of use. Inventors: Michael Boyd,* Toshiyuki Mori, and Barry O'Keefe*

US 7,871,777; issued January 18, 2011: Probe for nucleic acid sequencing and methods of use. Inventors: Thomas Schneider,* Ilya Gennadiyevich Lyakhov,* and Danielle Needle*

US 7,871,981; issued January 18, 2011: Inhibition of cell motility, angiogenesis, and metastasis. Inventors: Donald Bottaro,* Alessio Giubellino, Safiye Atabey, Jesus Soriano, Diane Breckenridge, and Terrence Burke*

Many of the patents issued to Frederick National Laboratory scientists in 2011 have already had a significant impact on public health. For example, m102.4, a human antibody covered by U.S. patent 7,988,971, was part of an NIH-supported study in which monkeys infected with the deadly Hendra virus were completely protected from the disease after being injected with the antibody. Hendra, and the closely related Nipah, are both rare viruses that target the lungs (with a 60 percent mortality rate in humans) and brain (with a 75 percent mortality rate in humans).

Because virus progression of the diseases in monkeys mimics what occurs in humans, the study results are an

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Genetics Research "Discovered" in a Bestseller

By Nancy Parrish, Staff Writer

One morning in early January, Amar Klar sat down at his computer and found an e-mail with a curious message from a colleague.

While reading a bestselling novel, *The Marriage Plot* by Jeffrey Eugenides, Klar's colleague, a professor at Princeton University, found a description of research on yeast genetics that was surprisingly similar to Klar's early research. Even the laboratory in the novel was reminiscent of Cold Spring Harbor Laboratory, where Klar had conducted his research.

Klar's colleague contacted the author, who is also a professor at Princeton, and found that he did, in fact, use Klar's 1987 paper in *Genes & Development* as the basis for his descriptions of his main character's research.

But Eugenides is not a scientist.

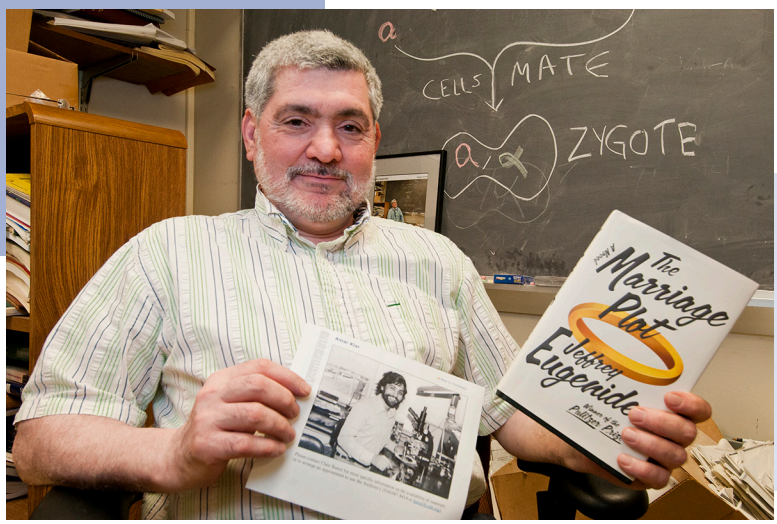
Klar, Ph.D., now a senior investigator in the Developmental Genetics Section, Gene Regulation and Chromosome Biology Laboratory, Frederick National Laboratory for Cancer Research, says he was "dumbfounded" when he found out about the novel. However, he was also "elated that the general public will read and wonder about our research."

Imagine That!

Even the *New York Times* picked up on the story. According to an article by Gina Kolata ("The Scientist Was a Figment, but His Work Was Real," *New York Times*, February 13, 2012), not only is Eugenides not a scientist, but he had never even met Klar; he describes his creative method as learning a few facts and then imagining characters and circumstances around them.

The article explains that, because one of the novel's main characters is a young research fellow in the early 1980s, the author said he needed information on the kind of research that was "hot" at that time. Cruising the Internet, he found Klar's work on yeast mating systems and studied it carefully.

Furthermore, the fictional laboratory's setting in Provincetown, Mass., was based on the memories of the author's wife, an artist, who spent one winter in Cold Spring Harbor, the article said.



Amar Klar holds the novel in which his research on yeast genetics was accurately described by the author, who is not a scientist and has never even met Klar. In his right hand, Klar holds a photo of himself that was taken in 1979 at Cold Spring Harbor Laboratory, where he performed the research.

Research Described Accurately

Klar said his daughter gave him a copy of the book, which he stayed up late reading. "The research was amazingly well described by someone [who is] not a biologist. He got the facts and the setting of the institute right," he said.

Although Eugenides never contacted Klar, he does include an acknowledgment in the front of the book, in which he cites Klar's paper, "The Mother-Daughter Mating-Type Switching Asymmetry of Budding Yeast Is Not Conferred by the Segregation of Parental HO gene DNA Strands," *Genes & Development* 1:1059–1064,1987.

The paper describes the mating behavior of yeast cells, a topic that fits nicely with the novel's theme of a love triangle between three college students. Klar notes, however, that "the work is lot more than that. From our work with yeast, we discovered new biological principles that should help us explain the biology of human development, hand-use preference, and the origins of breast cancer and psychoses disorders. We have published on these issues, but the respective fields have not caught up with our work." ■

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indication that m102.4 may ultimately be developed into a treatment for humans infected with these viruses. In fact, shortly after the NIH study in monkeys successfully concluded, Australian health officials requested the antibody for emergency use in a woman and her 12-year-old daughter after they had been exposed to Hendra virus from an ill horse. Both the woman and child survived and showed no side effects from the treatment. ■

*Denotes researchers who were affiliated with the Frederick National Laboratory when the patent was submitted.

Mojdeh Bahar, J.D., is the cancer branch chief in the NIH Office of Technology Transfer.

More Thoughts on Ending a Presentation

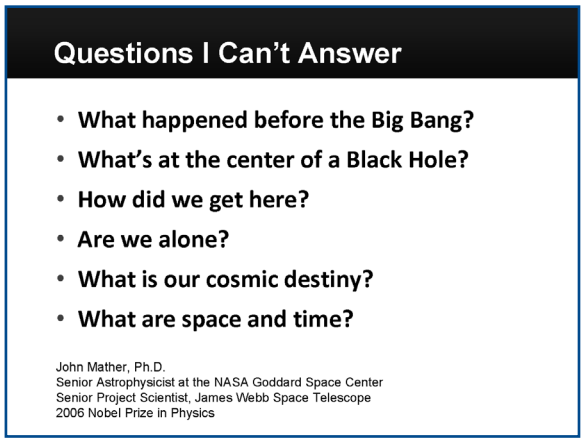
By Ken Michaels, Staff Writer

In my previous column ("Finish a Presentation without Erasing Yourself," *Poster*, March 2012:26), I suggested that ending a presentation with a list of contributors, collaborators, and acknowledgments frequently leads to the "self-erasing speech," or one that is forgotten before the audience reaches the door. Instead, you can put those listings in the introductory part of the talk to help set the stage, and finish with the "money slide"—the slide that summarizes the presentation's most important points.

Now I'd like to share another conclusion to a presentation that I found highly effective.

Some years ago, it was my pleasure to attend a presentation by John Mather, Ph.D., entitled "From the Big Bang Theory to the Nobel Prize and the Discovery of Alien Life."* Mather is senior astrophysicist at the NASA Goddard Space Center, the senior project scientist for the James Webb Space Telescope, and winner of the 2006 Nobel Prize in physics.

His presentation was directed to an educated audience that didn't necessarily know a lot about rocket science, but he explained the reason for the various projects that he was associated with, both past and present, and shared some speculation about where astrophysics is likely to go in the future. It was not a "heavy" presentation; he used the common vernacular as much as possible, and gave simple explanations of specialized terminology, embellished with sophisticated humor in several places. Also, throughout his presentation, he emphasized the hypothetical nature of conducting research in a field where so much is not really known, and where theories are built on theories. He stressed how much about the origins of the universe remains unknown today and can only be speculated.



This final slide in a presentation by Goddard Space Center Senior Astrophysicist John Mather summarized his presentation and effectively set the stage for questions.

Using a Memorable Summary Slide

While the content of his presentation gave the audience a lot to think about, the end of his presentation was particularly noteworthy. His final slide was entitled "Questions I Can't Answer." When it hit the screen, he pleasantly told the audience that these were things he didn't have answers for, but he would be happy to try answering any other questions we might have for him.

Considering that much of his presentation was about the uncertainty of so much that matters, this concluding slide was in fact an eloquent summary of the general theme of his talk, and I thought it was a masterful, as well as clever, way to set the stage for the typical question-and-answer session to follow. He got a standing ovation and in fact fielded a number of (other) questions.

It emphasized to me once again how really good presenters pay careful attention to how they conclude a talk. The last words spoken and images seen have a lot to do with whether or not the talk was well crafted and memorable. ■

*Keynote address at the Phi Beta Kappa induction ceremony at the University of Maryland, College Park, May 22, 2008.

Websites of Note

By Ashley DeVine, Staff Writer

Throughout the newsletter, you'll find websites that provide you with more information than we can put in the articles. In addition, many days, weeks, and months are devoted to the recognition of particular health care issues. Here are a few dates that seem most pertinent to the Frederick National Laboratory.

June

National Congenital Cytomegalovirus Awareness Month: http://www.stopcmv.org/

National HIV Testing Day, June 27: http://www.napwa.org/content/national-hiv-testing-day-and-mayors-campaign-against-hiv

July

UV Safety Month: http://healthfinder.gov/nho/jultoolkit.aspx

World Hepatitis Day, July 28: http://worldhepatitisalliance.org/worldhepatitisday2011.aspx

August

National Immunization Awareness Month: http://www.cdc.gov/vaccines/events/niam/default.htm and http://healthfinder.gov/nho/AugToolkit.aspx

Take Your Child to Work Day Is July 18

Registration for Children Opens June 20

By Ashley DeVine, Staff Writer

Holding a human brain, making slime, learning to use a microscope, participating in a mock trial, and seeing live animals are just some of the experiences your children will have at Take Your Child to Work Day (TYCTWD) on Wednesday, July 18.

Registration for children runs June 20 through July 3. To register your children, or to learn more about this year's programs and Hub activities, go to http://kidsday.ncifcrf.gov/. If you have additional questions, contact the TYCTWD Planning Committee at tyctwd@mail.nih.gov or 301-846-7338. ■

Frederick National Laboratory Programs

Frederick National Laboratory and Ft. Detrick Fitness Challenge 2012
http://saic.ncifcrf.gov/fitnesschallenge/

Frederick National Laboratory Suggestion Committees
http://ncifrederick.cancer.gov/campus/committees/

Upcoming Events and Dates to Note

Farmers' Market in front of Building 549
Every Tuesday through October, 11 a.m.–1:30 p.m.

Independence Day: . . . . . July 4
Frederick National Laboratory closed

Take Your Child to Work Day. . . . . July 18

Poster Puzzler Entries Due . . . . . July 20

Student Poster Day . . . . . August 1

Labor Day: . . . . . September 3
Frederick National Laboratory closed

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Reminder: When you have a change in staff, be sure to change the information in the Frederick National Laboratory database. You can do this online by logging on to http://ncifrederick.cancer.gov/campus/phonebook/, or by contacting your human resources representative. For more information, you may refer to the inside front cover of the Frederick National Laboratory Telephone & Services Directory.

Comments or suggestions for the *Poster* may be directed to poster@mail.nih.gov.

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

ATRF Ribbon-Cutting Ceremony Coincides with Chamber of Commerce Centennial Gala

By Frank Blanchard, Staff Writer

U.S. Rep. Roscoe Bartlett, NCI Deputy Director for Management John Czajkowski, and SAIC Corporate Chief Executive Officer (CEO) John Jumper were joined by representatives of the Frederick County Chamber of Commerce in cutting the ribbon for the National Cancer Institute's Advanced Technology Research Facility (ATRF).

The ribbon cutting was held as part of the Chamber of Commerce's centennial gala on May 21 as the first chartered chamber of commerce in the United States. About 700 chamber members and their guests attended the event, held in the atrium of the 330,000-square-foot research and development facility at Riverside Research Park.

"This building is designed to facilitate collaboration, but it's also important to understand the importance of the work that will go on here," said SAIC-Frederick CEO David Heimbrook in his opening remarks.

"Within a few short months, these hallways will be filled with scientists from NCI, SAIC-Frederick, and our partners, doing research and development work to further NCI's mission to provide new hope to patients afflicted with cancer and AIDS."

From left, U.S. Rep. Roscoe Bartlett, NCI Deputy Director for Management John Czajkowski, and SAIC Corporate CEO John Jumper prepare to cut the ribbon at the ATRF on May 21.

From left, Mitzi Guarino (senior project manager), David Heimbrook, John Jumper, and Craig Reynolds (associate director, NCI) socialize at the ATRF ribbon-cutting event.

A major focus will be on developing genomics, proteomics, and bioinformatics technologies to profile tumors at the molecular level. This would pave the way for doctors to "provide the right drug, to the right patient, at the right time," Heimbrook said.

In June, laboratories and offices associated with the Biopharmaceutical Development Program, Advanced Technology Program, and others will begin their move from the main campus to the ATRF. By the end of the summer, about 200 employees of the Frederick National Laboratory will have moved into the new facility. ■