



NIEHS Spotlight

- [NIEHS Science Awards Day](#)
- [NIEHS Hosts Stem Cell Conference](#)
- [Epigenetics Conference Held at Washington Duke Inn](#)
- [UNC Spotlights Epigenetics](#)
- [Frederick Alt Delivers Falk Lecture](#)
- [CFC Campaign—a Success](#)
- [Schwartz Plans Exposure Biology Initiative](#)



Science Notebook

- [Lung Scarring Diseases Linked to Genes and Smoking](#)
- [Feature: Glinda Cooper, NIEHS Epidemiologist](#)
- [Meaty, Salty Starch Diet Impact Lung Disease](#)



After Hours

- [Introducing...Keith Moore, "Minister of Music"](#)



Did You Know?

- [Finding Balance: a Personal Quest](#)
- [Native American Heritage](#)
- [First NIEHS/EPA Biathlon to Raise Funds for CFC](#)
- [Earth Day Photo Contest Coming Soon](#)
- [Breast Cancer Awareness Seminar](#)



NIEHS Spotlight

Science Awards

The third annual NIEHS Science Awards Day, held on Oct. 31, provided a forum for showcasing research at NIEHS as well as honored the Institute's best and brightest researchers.

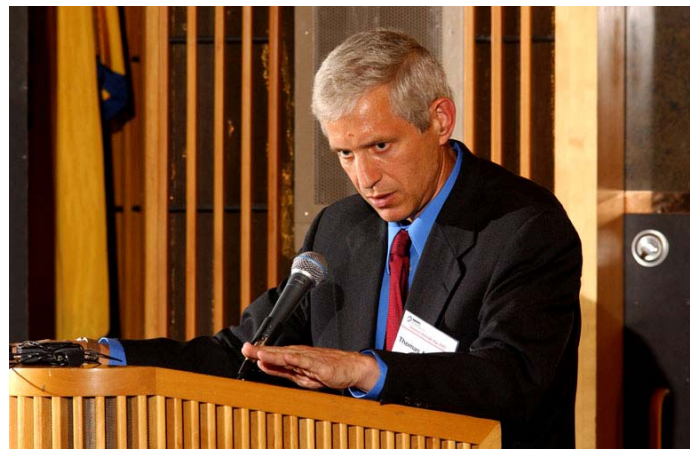
The event included oral presentations from a number of researchers as well as poster sessions. The NIEHS Science Awards Day originated in the Office of the Scientific Director as a means of recognizing outstanding researchers within the intramural division. The 2005 awards and their recipients are:



Scientific Director Lutz Birnbaumer



Paul Wade, recipient of the Early Career Award



Tom Kunkel, Scientist of the Year, is the chief of the Laboratory of Structural Biology

- *Early Career Award*, Paul A. Wade, Ph.D., Laboratory of Molecular Carcinogenesis.
- *Scientist of the Year*, Thomas A. Kunkel, Ph. D., Laboratory of Molecular Genetics.
- *Mentor of the Year*, William C. Copeland, Ph.D., Laboratory of Molecular Genetics.
- *Best Poster Presentation in Environmental Biology*, Daniel Menendez, Ph.D., Laboratory of Molecular Genetics.
- *Best Poster Presentation in Environmental Diseases and Medicine*, Kevin, W. Trotter, Ph.D., Laboratory of Molecular Carcinogenesis.
- *Best Poster Presentation in Environmental Toxicology*, Michelle L. Bloch, Ph.D., Laboratory of Pharmacology and Chemistry.
- *Best Oral Presentation*, Björn Bauer, Ph.D., Laboratory of Pharmacology and Chemistry.
- *Paper of the Year*, from the Laboratory of Signal Transduction, Hermoso MA, Matsuguchi T, Smoak K, Cidlowski JA. Glucocorticoids and tumor necrosis factor alpha cooperatively regulate toll-like receptor 2 gene expression. *Mol Cell Biol.* 2004; 24:4743-56.

NIEHS Hosts Stem Cell Conference

By Colleen Chandler

Contrary to popular belief, stem cell biology is nothing new. In fact, a PubMed search reveals it has been underway for some 50 years, said NIEHS Deputy Scientific Director Bill Schrader, Ph.D., who moderated a discussion on the topic on Oct. 26.

The discussion was part of a day-long conference sponsored by NIEHS entitled “Stem Cells: The Promise, Reasons for Hope and the Reality.” The morning session focused on technology and science, while the afternoon addressed policy and ethics.

Carlos Castro, M.D., opened the seminar with a tutorial on stem cell research. Castro is a senior research associate at the University of Pittsburgh, where he generates sets of genetically identical offspring through somatic cell nuclear transfer and embryo splitting. He said human embryonic stem cells were first isolated in 1998. There are 78 derivations of human embryonic stem cells eligible for federal funding, however, only 22 cell lines are available to NIH-supported scientists.

These 22 lines are all grown with animal products, making their therapeutic use questionable.

Human embryonic stem cells are derived from five-day old preimplantation embryos that were created for in vitro fertilization. Because each country, and in some cases, each state, has the ability to restrict or allow such research, the future of stem cell research will be in international collaborations, Castro said. Scientists in South Korea are perhaps leading the scientific world in stem cell research, including differentiation of these cells into different types of tissue - bones, skin, cartilage, muscle and nerve - needed for medical treatment. Castro said South Korean researchers used somatic cell nuclear transfer to create the first human embryonic stem cell lines that are a genetic match to patients with spinal-cord injuries and other diseases.

South Korea announced plans to establish a world stem cell hub with headquarters in Seoul, San Francisco and London. The goal, Castro said, is to provide identical lines in identical quantities and qualities, establishing a stem-cell baseline for all scientists. The bank is intended to be operated by non-profit organizations and foundations.



Ray Tennant

Baldwin Wong, chief of the Science Policy and Planning Branch at NIDCD, also spoke at the conference and described NIH's efforts in advancing stem cell research. His office manages the activities of the NIH Stem Cell Task Force. He described human embryonic stem cell research as "one of the most politically and ethically charged biomedical research topics in decades." Although NIH-supported scientists are restricted to conducting human embryonic stem cell research on those lines listed on the NIH Stem Cell Registry, there is no limitation to studying human non-embryonic stem cells. In FY 2004, NIH supported approximately \$24 million in human embryonic stem cell research and \$203 million in human non-embryonic stem cell research.

Stem cells hold enormous potential for use in cell-based therapies as well as for research purposes to enable scientists to look at what drives a cell into a specific lineage, or tissue type. Understanding this process could provide insights into the causes of birth defects. Pharmaceutical and toxicology testing would also be greatly enhanced through stem cell research, he said. Conducting human embryonic stem cell research is expensive, both in materials and human resources. For example, a shipment of cells from one of the providers on the NIH Stem Cell Registry costs usually \$5,000 per line, Wong said.

NIEHS's Ray Tennant, Ph.D., presented information about the role of skin stem cells. He said stem cells are, by nature, inactive, but have high potential for proliferation, engraftment and lineage. His research involving stem cells, he said, came through the "back door." Researchers were interested in the cellular origins of skin tumors, which led them to skin stem cells. Isolated characterization utilizing skin cells is just beginning, Tennant said, with most work conducted with specific, rather than general, lineage.

The afternoon session dealt with ethical, legal and social implications of stem cell research.

Samuel Maddox, knowledge manager for the Christopher and Dava Reeve Paralysis Resource Center in California, said the Thirteenth Amendment is emerging as a challenge to the use of stem cells in research. The issue, he said, is whether the use of embryonic stem cells violates the prohibition against slavery, or involuntary servitude, in this case, of the unborn embryo.

Maddox said 15 percent of the foundations portfolio is spent on stem cell research. Part of the challenge for researchers, he said, will be defining success. For spinal injuries, does success mean enabling someone to walk again, he asked.

David Resnick, Ph.D., J.D., a bioethicist at NIEHS, spoke to the conference about the complicated legal aspects of the field. Stem cell research is addressed in federal, state and international laws, he said, with much of the controversy centering around whether or not the government can restrict the right of adults to protect embryos, and determining the legal status of those embryos.

Resnick said U.S. federal agencies have not developed regulations, policies or guidance on embryonic stem cell research. A ban on NIH funding for embryonic stem cell research was put in place in the 1980s, he said. The National Academies of Science recommends a ban on research involving embryos more than 14 days old, he said.

Whether regulated by specific statutes or not, embryonic stem cell research inevitable draws controversy due to the divergent views within society about this work. Allen Verhey, professor of Christian ethics at Duke Divinity School, urged researchers to focus on "morally appropriate sources" of stem cells, or non-embryonic stem cells.

Epigenetics Sheds New Light on Gene-Environment Interactions

By John Peterson

Which is more important in shaping who we are and what we will become – genetic predisposition or environmental influences? The debate over nature versus nurture and their ability to determine everything from physical characteristics to social behavior is one that has never really been settled.

However, recent discoveries in an emerging field of research called epigenetics may make this long-standing argument irrelevant. At least that is the opinion of Randy Jirtle, Ph.D., a genetics researcher in Duke University's Department of Radiation Oncology, who co-chaired a three-day conference on the new research. The conference, held November 2 – 4 at the Washington Duke Inn in Durham, North Carolina and co-sponsored by Duke and the National Institute of Environmental Health Sciences, was titled "Environmental Epigenomics, Imprinting, and Disease Susceptibility."

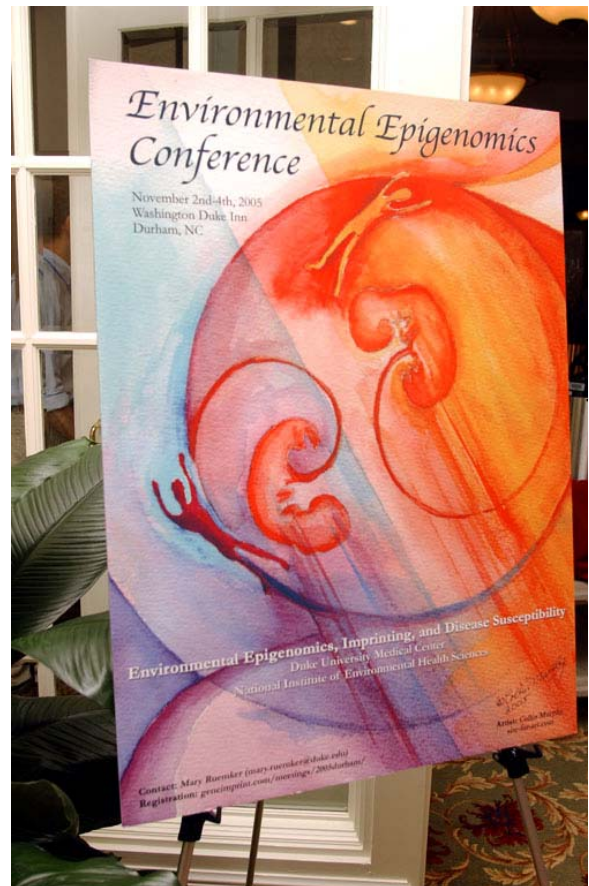
According to Jirtle, epigenetic changes are those in which single nutrients, toxins or other environmental exposures can produce subtle changes in a gene's behavior during embryonic or fetal development without structurally altering the gene in any way. These changes then set the stage for a person's susceptibility to a host of diseases as an adult. "We can no longer argue whether genetics or environment has a greater impact on our health and development, because both are inextricably linked," said Jirtle.

Recent evidence suggests that environmental factors produce these genetic changes through a process called methylation. This occurs when a methyl group – a quartet of carbon and hydrogen atoms bonded together – attaches itself to a specific point on a gene. The presence of the methyl group can have a dramatic effect on gene expression, the process by which a gene is activated in order to carry out a particular function.

"Under normal circumstances, genes are programmed to direct the production of proteins that govern certain processes involved in normal growth and development," says Frederick Tyson, Ph.D., program administrator with NIEHS' Division of Extramural Research and co-organizer of the epigenetics conference. "The addition of the methyl group 'silences' the gene so that its ability to direct protein synthesis is blocked."

The results of Jirtle's experiments suggest this genetic reprogramming can result in profound developmental changes, some of them beneficial and others detrimental. In these experiments, pregnant mice were divided into two groups – those whose diets included four common nutritional supplements – vitamin B12, folic acid, choline and betaine – and those whose diets did not.

Pregnant mice that received the supplements gave birth to offspring with brown or black fur. In contrast, the mice whose diets did not include the supplements gave birth to mice with yellow coats. Even more important, the mice whose mothers received the supplements had a much lower incidence of obesity, diabetes and cancer



as adults. Further study of the treated mice showed that the nutrients had reduced the expression of a specific gene, called agouti, in order to produce the changes in coat color and disease susceptibility.



“We have known that maternal nutrition has a profound effect on disease susceptibility in the offspring, but we never understood the cause-and-effect link,” said Jirtle, whose work was supported by an NIEHS grant. “For the first time ever, we have shown precisely how nutritional supplementation to the mother can permanently alter gene expression in her offspring without altering the genes themselves.”

Jirtle’s research also shows that these epigenetic changes often occur during embryonic or fetal development, and can be passed down from one generation to the next. That may partly explain why identical twins can be so different, or why poor nutrient delivery from mother to fetus can permanently alter an individual’s disease risk later in life.

NIEHS Director David Schwartz delivers the keynote address at the Epigenetics Conference. (Photo by Steve McCaw, Image Associates)



More than 400 people attended the recent NIEHS sponsored Epigenetics Conference at the Washington Duke Inn in Durham. (Photo by Steve McCaw, Image Associates)

“Studies around the world have shown that people with low birth weight have significantly increased risk of coronary heart disease, stroke, type 2 diabetes, hypertension and osteoporosis,” said David Barker, M.D., Ph.D., professor of medicine at Oregon Health and Sciences University in Portland, Oregon, and the University of Southampton, United Kingdom. “These nutritional deficits reflect a fetus' response to being undernourished. As a result, the fetus wires its genes to respond differently to the environment that follows outside the womb.”

Experiments conducted at the University of Texas M.D. Anderson Cancer Center show that exposure to harmful chemicals during critical periods of development can determine whether laboratory rats with a genetic predisposition for a disease actually develop the disease. The researchers used a special strain of rats with a defect in a gene called Tsc-2 (tuberous sclerosis complex 2) that made them more susceptible to uterine leiomyomas, benign tumors that are common in women over 30 years of age.

These rats were then treated with diethylstilbestrol (DES), a synthetic form of estrogen, during days 3, 4 and 5 of life, a critical period of uterine development. DES was prescribed to women to prevent miscarriages and other pregnancy complications until 1971, when researchers linked its use to a rare kind of vaginal cancer. Once the rats reached adulthood, almost 95 percent had developed the uterine tumors. Furthermore, the tumors were much larger and more numerous than those in genetically defective rats not receiving the DES treatment.

“We found that the DES treatment somehow reprogrammed how these genes respond to estrogen, making them much more responsive to estrogen than normal,” said Cheryl Walker, Ph.D., professor of molecular carcinogenesis at the University of Texas M.D. Anderson Cancer Center and an NIEHS grantee. “We realized that the DES exposure enabled estrogen to drive the tumor development when combined with a genetic predisposition.”

The NIEHS is embarking upon an ambitious research program that will address the ways in which environmental exposures can influence gene expression at different stages of life, and how these changes can alter a person's risk for developing disease. Researchers will evaluate a wide range of environmental agents, including pesticides, heavy metals and endocrine-disrupting chemicals, to determine which substances alter gene functioning and to identify which genetic targets may be particularly sensitive to the suppressive effects of these agents.

“These advances in epigenetics and gene expression will provide us with a better understanding of why certain people respond differently to environmental cues,” said NIEHS Director David A. Schwartz, M.D. “This approach represents a new way of looking at environmental exposures and disease outcomes in susceptible populations.”

One genetic target that is of considerable interest to NIEHS researchers are histones, crucial protein building blocks around which the DNA is wrapped in order to give genes their characteristic shape and allow them to fit into the nucleus. This effort is being led by Trevor Archer, Ph.D., and Paul Wade, Ph.D., epigenetics researchers with the Institute's Laboratory of Molecular Carcinogenesis.

Previous experiments with histones have shown that chemical changes in these protein cores can also lead to dramatic shifts in gene behavior. “These exciting new results suggest that methylation or acetylation of histones can produce both gene activation and gene silencing, each of which can influence disease susceptibility in future generations,” said Archer, who presented his findings at the recent conference.

According to Archer, these discoveries will pave the way for new approaches to disease prevention. “This body of research has resulted in the development of a new class of drugs with the potential to suppress the

growth of cancer cells,” he said. “In fact, clinical trials of these anti-cancer compounds are already underway.”

UNC TV Spotlights Epigenetics

NIEHS Director David Schwartz and Program Administrator Fred Tyson were featured on a UNC Television program called “North Carolina Now.” The program, which aired November 21 in the Triangle area, highlighted the work of NIEHS and Duke University Scientists in the emerging field of epigenetics. Future research in the new field will give scientists a better understanding of the relationship between environmental exposures and disease risk in susceptible populations.

Falk Lecture

Frederick Alt, the Charles A. Janeway Professor of Pediatrics, professor of genetics at Harvard Medical School and scientific director at the CBR Institute for Biomedical Research, presented the twenty-first Hans L. Falk Memorial Lecture, “The Role of the DNA Double Strand Break Response in Suppression of Translocations, Amplifications, and Cancer” on Nov. 9 in the Rodbell Auditorium.

CFC Campaign is – Again – a Success

By Rob LeVine, CFC Coordinator for NIEHS

The NIEHS community concluded another successful Combined Federal Campaign. The CFC, a regionally based fund-raising effort, consolidates charitable giving solicitations for non-profit organizations into one event for federal employees.

NIEHS usually ranks among the top three contributors in the 17-county region for the CFC. The 2005 NIEHS campaign raised more than \$93,600. That’s 11 percent more than last year. More than 270 employees contributed. While final numbers are not available at this time, the 2005 campaign will surpass all previous campaigns except the 2001 campaign.

Last year, the average donation was \$334, with 36 percent of employees participating. Preliminary numbers for the 2005 campaign showed the average donation at \$344, with about 40 percent participation.

NIEHS employee generosity, as well as the hard work of key workers, are credited with making the 2005 campaign successful. Key workers, who distributed forms and information as well as collected completed forms, are:

Lead Key Worker

Jack Field, Ethel Jackson, Hui Hu and Donna McNeill

Key Workers

Bonnie Allen, Chris Alston, Dee Anderson, Lois Annab, David Balshaw, Judy Bullard, Wei Chen, Sherry Coulter, Dwight Dolby, Ronnie Dunn, Sally Eckert-Tilotta, Susan Fuller, David Goulding, Gina Goulding, Judy Hanson, Phil Hanson, Wanda Holliday, Bridgette Horton, Amy Johnson, Susan Johnson, Patricia Johnson, Patsy King, Annette Kirshner, Rob LeVine, Andrea Lynn, Nancy Mitchell, Barbara Morse, Liam O’Fallon, Lisa Padilla-Banks, Jerry Phelps, Bill Quattlebaum, Sharyn Rigsbee, Lou Rozier, Angie Sanders, David Sedgley, Tonya Stonham, Patricia Thompson, Jeffrey Ward, Belinda Wilson, Sheila Withers-Gibbs, Betty Wilkins.

Exposure Biology Initiative

By Blondell Peterson

NIEHS Director David Schwartz plans to develop a \$4 million Exposure Biology Initiative in 2006 to detect, measure and track toxicants and toxins both in people and the environment.

Using sensor badges or bracelets, scientists will be able to identify personal exposures and biological responses to environmental stressors in a much more precise way.

Without these markers, scientists agree that it is difficult to link exposure to illness for a number of reasons. Potentially hazardous environmental exposures are omnipresent. Besides that, there are many other factors that contribute to the onset and progression of diseases. They include genetic susceptibility, the presence of other conditions or diseases, diet, activity level and medications taken, among others.

Schwartz referenced the NIEHS vision, in relation to the initiative, in an October 2005 Environmental Health Perspectives article. "Our vision at the NIEHS is to use environmental health sciences to understand human disease and improve human health," he said.

"Fundamental to this vision is the ability to quantify an individual's exposure as well as the unique characteristics that account for individualized responses to common exposures," Schwartz said. "To achieve this ability we must develop an exposure biology initiative that will provide the same degree of individual – level precision that is being achieved through the sequencing of the human genome," he said.

Schwartz also said an important question to consider is what new tools are needed to understand the role of environmental exposures in the development of common diseases.



Science Notebook

Lung Scarring Diseases Linked to Genes and Smoking

New research shows that people who smoke, and have a specific gene, can get idiopathic interstitial pneumonia. IIP is a group of fatal disorders that affect the lungs. Scientists studied 111 families that had at least two relatives with IIP, and found that people who smoked cigarettes were three times more likely than non-smokers to develop the disease. The National Heart, Lung and Blood Institute and the National Institute of Environmental Health Sciences supported the research.

NIEHS Director David Schwartz said the study illustrates the important role that a specific environmental exposure can play in the development of this type of lung disease. “It once again underscores why people should not smoke,” he said.

According to Elizabeth G. Nabel, director of NHLBI, pulmonary fibrosis affects about 100,000 people in the United States with an estimated 30,000 people being diagnosed each year.

Pulmonary fibrosis--scarring and inflammation of the lung, often accompanies IIPs, and the disease makes oxygenating body tissue difficult and often fatal. After a diagnosis of IIP, about one-half of patients die within five years.

The results of the study are in the Nov. 1 issue of the American Journal of Respiratory and Critical Care.

Autoimmune Disorders: an Epidemiological Challenge

By Colleen Chandler

Glinda Cooper, an epidemiologist in the Environmental Diseases and Medicine Branch, is leaving NIEHS in mid January to accept a position as senior epidemiologist for the Environmental Protection Agency in Washington, D.C. Cooper will be assigned to the Integrated Risk Information System, part of the National Center for Environmental Assessment.



Glinda Cooper

At NIEHS, she focused on autoimmune disorders from an epidemiological perspective. Not long after coming to NIEHS to study women’s health in 1993, Copper became interested in autoimmune disorders, an area that she describes as “clearly under researched” and that disproportionately affects women.

Epidemiologists not only look at clusters and infectious disease, but at the distribution of chronic diseases as well.

Autoimmune disorders are – as physicians already know – more challenging to diagnose, generating a constellation of symptoms. They are challenging from a research perspective because there are no distinctive pathology reports or diagnostic codes for a patient database. Diagnosis does not require a hospital stay, so there are no hospital records from which to cull potential research subjects, and the diagnostic criteria for research subjects is different than that for clinical treatment.

NIH estimates that 5 to 8 percent of the U.S. population suffers from autoimmune disorders, however, there has been a disproportionately small amount of edpidemiologic research on autoimmune disorders. Cooper's research interests span genetic, hormonal, and environmental influences on diseases that disproportionately affect women. Much of her research focused on autoimmune diseases,

particularly systemic lupus erythematosus, or SLE. A central part of her research is The Carolina Lupus Study, the first population-based case-control study in the United States that looked at hormonal and occupational risk factors for SLE. According the information on the NIEHS website, the study was designed

to explore environmental influences and the interaction between specific environmental exposures and susceptibility genes, to the etiology of SLE. The study found an absence of estrogen-related effects on risk, but a strong connection to occupational silica dust exposure.

Cooper is expanding her research to include other autoimmune diseases, such as systemic vasculitis, systemic sclerosis and rheumatoid arthritis, looking at demographic, genetic, and environmental risk factors to learn more about the pathogenesis of autoimmune diseases. Researchers no longer believe there is a single mechanism at work in autoimmune disorders. Existing research suggests some people are prone to specific families of autoimmune disorders while others are prone to specific autoimmune diseases within a specific family of autoimmune diseases, Cooper said.

However, Cooper did not abandon her initial research interests – ovarian function and the cyclical production of estrogen and progesterone during reproductive years and the timing of ovarian failure or menopause. Ovarian function influences fertility, and specific menstrual characteristics such as cycle length or variability may directly or indirectly affect the risk of developing hormonally-mediated diseases. As part of her research in this area, she tapped into data from the National Health and Nutrition Examination Surveys and the National Health Interview Survey, as well as menstrual diaries completed between 1930-1960 to examine associations between demographic, medical, and lifestyle characteristics and timing of natural menopause. This research will continue to look at effects of potential environmental endocrine disruptors on ovarian function.

Meaty, Salty, Starchy Diet May Impact Chronic Lung Disease

Research indicates that people who eat mostly meat, refined starches and salty foods are 1.43 times more likely to develop persistent coughs with phlegm than those who eat more fruit and soy foods.

According to a new study, eating meaty, salty, starchy foods may increase the likelihood of developing chronic respiratory symptoms, including chronic obstructive pulmonary disease.

NIEHS Director David Schwartz said understanding all the contributing factors, including the role that diet plays in the incidence and development of chronic respiratory symptoms will lead to better prevention and treatment of respiratory diseases.

“We know that cigarette smoking can be a specific cause of COPD, but now we’re learning that avoiding certain foods may help reduce chronic respiratory symptoms, both in smokers and non-smokers,” said Schwartz.

The study consisted of analyzing the diets of 52,325 Chinese men and women from 45 to 74 years old. The dietary patterns are reflective of U.S. eating patterns. Stephanie London, lead investigator of the study, said scientists identified two distinct food patterns in the U.S. population. They are the “meat-dim sum pattern,” and the “vegetable-fruit-soy pattern.”

The meat-dim sum pattern contained 31 foods, predominantly pork, chicken fish, noodle dishes, preserved foods and 11 snack items. The vegetable-fruit-soy pattern contained 32 foods, including 23 vegetables, 4 fruit items and five soy food items.



After Hours

Introducing...Keith Moore

By Blondell Peterson



Keith Moore (Courtesy Photo)

Weekdays Keith Moore is an administrative technician in the Office of the Scientific Director. On weekends he fulfills his “calling” as “minister of music” and stays busy with choir and “praise team” rehearsals. His soft spoken voice and mild manner do not give away the powerhouse vocals he unleashes at the Poplar Springs Christian church each Sunday morning. Moore is a first tenor. When he’s directing the mass choir and adult choirs, he sings all the parts for each section—soprano, alto, tenor and base.

Moore began singing at age 3. His grandmother gave him a piano when he was 9. Moore says his mother offered to give him \$50 if he learned to play the piano in six months. He learned in four months, but says he never got the money. He did get to

travel, play the piano and sing for his grandfather, a pastor in his hometown of Waynesboro, Mississippi.

Moore found a way to make his own money. From age 9 to 17, he played for three churches and made about \$160 each month from 1981 to 1989.

Moore will release his first CD, titled “Trust God” next year. Other songs on the CD include “The word of God Will Always Stand,” and “I Thank You Lord.” Moore wrote and arranged all the songs on the CD, and they all have great significance to him. The “minister” surfaces boldly, when Moore talks about the life experiences that inspired him to write the title track.

When a close friend, Mario Webb, suffered a stroke at the age of 27, Moore was there to tell him to “hang on and trust God.” Doctors gave up on Webb more than once while his brain bled. He was barely alive. Today he is well and preaching in Atlanta, Georgia.

Moore also narrowly escaped death last year. When he went to the doctor complaining of severe throat pain and an inability to eat, doctors were shocked to find that Moore had been walking around with a fever of 107 for more than a week. By the time the nurse took his temperature a second time, it had risen to 108.

“I already had a severe case of acid reflux,” he said. “November 11 is a very significant date for me. On that date, tests showed large ulcers on my esophagus. The doctors said they got them in time. They could have turned into cancer.”

While in the hospital for seven days, Moore asked God to assure him of his “calling” into music ministry. The hospital stay also proved to be an opportunity for him to “minister” to his doctors, who thought he would not be able to sing again.

“During that time, God told me that I should live and not die, and to trust Him and see if He wouldn’t make a way,” Moore said. “It was my journey to confirm that I needed to move, and do what He was calling me to do. I just had to trust Him, and this is where I have ended up.”

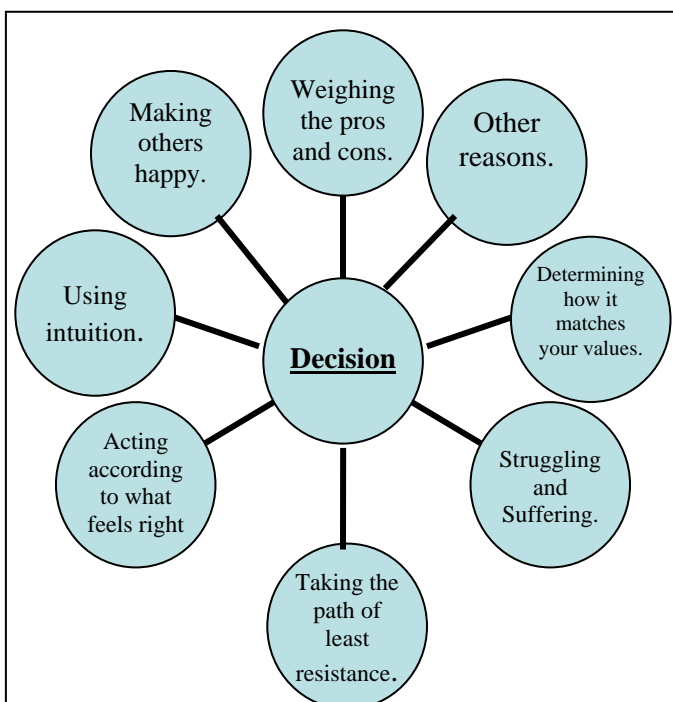
Moore says coming to North Carolina, from Atlanta was a “faith walk,” and at the age of 34, he just wanted to try something new.



Did You Know?

Finding Balance: a Personal Quest

By Colleen Chandler



Achieving a balance between work and other life activities requires an inventory of personal values and an analysis of existing habits, according to Sherry Essig, of Priority Ventures Group, who came to NIEHS on Oct. 27. Her presentation, “The Art of Balance: Creating Sustainable Change in Work and Life,” focused on ways to obtain that balance.

Identifying how you make decisions allows you to analyze the anxiety levels associated with those decisions, she said.

To achieve balance, Essig said, people must identify a balance measure, something that will enable them to know when they have achieved balance. Different from an objective, the measure can be determined by examining markers that signify one’s life is out of balance. For example, whether or not a bed gets made

Essig identified basic categories of methodology people use to evaluation information and make decisions.

in the morning could indicate the level of control for that morning. “What gets measured gets managed,” Essig said. These measures should function as both diagnostic and management tools.

The next step, Essig said, is to set a target, or objective, and create simple steps to get started. Identify those things that keep you on track and those that distract you. Next, develop action steps to create change and maintain momentum.

She offered these tips of achieving balance:

- Know what’s MOST important to you.
- Take care of yourself.
- Take slow, deep breaths.
- Forecast your time commitments for the coming month, then set your priorities based on what is realistic.
- Create one or two personal measures and use them just as you do your business metrics.
- Spend a few minutes daily listening to your intuition.
- Slow down and pay attention to how fast you are moving physically and mentally.
- Ask for help when you need it.
- Work with a coach.
- Get a “balance buddy.”
- Know you cannot fail.

Native American Heritage

By Blondell Peterson

The NIEHS Diversity Council and the Office of Equal Opportunity and Diversity Management sponsored an event titled, “Celebrating Native American Heritage,” on Nov. 18 in the Rall Building. Steve Davis, a

research archaeologist and Associate Director for the Research Laboratories of Archaeology at the University of North Carolina in Chapel Hill was the guest speaker. His topic was titled, “Archaeology in the Old Catawba Nation.”



Steve Davis describes some of the artifacts he discovered during an archaeological dig at two Catawba Indian sites in South Carolina. (Photo by Steve McCaw, Image Associates.

In 2003, Davis led an archaeological dig at the historic Catawba Indian sites of Old Town (c. 1770-1780) and New Town (c.1800-1818) in northern Lancaster County, South Carolina. Students from the UNC Archaeological Field School participated.

Davis said dig operations at Old Town and New Town recovered a substantial number of material samples that show how the Catawbas adapted to the rapidly changing social, political and economic

environments in the 17th and 18th centuries. The Catawbas are known to have changed with the times. There is archaeological evidence and written documentation that they were deer skin traders, professional soldiers, slave traders, landlords and potters.

Artifacts that were excavated included large fragments of at least four Catawba burnished vessels, including three flat-bottomed pans, glass beads, wrought nails and a snaffle bit.

According to Davis the most interesting aspect of the artifacts is the vessels represented by the Catawba-made potsherds—shards of broken pottery. They were exceptionally well-made, often with smudged and highly burnished or polished surfaces. The forms are reminiscent of English pottery with bowls having footings and rimsherds from a plate with an octagon edge. Some sherds even had hand-painted designs. This was impressive because the Catawbans made pottery by hand, and without the equipment that English potters had.

The project began in 2001 with three long term goals, according to Davis.

1. Document Catawba ethnogenesis, by looking at how the group came into the area, merged and reformulated into the modern Catawba nation. This goal will take several years to complete, and will require archaeological data spanning nearly 100 years.
2. Identify and document material evidence of adaptations and accommodations to economic changes.
3. Compare and contrast the Catawba to other Indian tribes, and look at how other tribes responded to very similar situations.

NIEHS employees prepared Native American foods for a sampling after the speaking presentation. Navajo tacos, Cherokee Indian cobbler, Zuni bread and Cherokee pumpkin soup were some of the dishes served while Native American music played throughout the cafeteria.

Time to Dust Off the Camera Bags

Earth Day isn't until April, but now is a good time to start thinking about Earth Day photos. The NIEHS Environmental Awareness Advisory Committee will add a new category to the annual Earth Day Photo Contest: species indigenous to the NIEHS and EPA campus. Examples of appropriate entries are photos of turtles, plants, worms, birds, snakes, wild turkey, fox, deer, possum, bugs, trees, leaves, wild flowers, lichens, mushrooms moss, ferns, insects, spider webs or other natural habitat for these creatures.

When a Mammogram Is Not Enough

By Blondell Peterson

The NIEHS Fitness and Wellness Program sponsored a breast cancer awareness seminar in the Rodbell auditorium on Nov. 17. The speaker, Pam Schmid, is a breast cancer survivor. In her presentation, Schmid used her diagnosis as an example that anyone can get breast cancer, even if they are doing all the right things to prevent it—like getting a mammogram. She rattled off the long list of all the things she did right, but still got cancer:

- *Did not smoke.
- *Exercised regularly.
- *Ate a balanced diet low in fat with whole grains.
- *Avoided hormones and caffeine.
- *Breast fed both children one year.
- *Managed stress.
- *Scored age 34 for real age instead of her actual age of 46.
- *Had her first child before age 30.
- *Maintained a healthy weight.
- *Had a career in health promotion.





Pam Schmid shows the audience the size of one of her cancerous tumors. The largest was the size of two quarters side by side. (Photo by Blondell Peterson)

She shared what she learned in her fight to survive after the diagnosis.

Schmid stressed the importance of regular breast exams, no matter how healthy one might be. According to Schmid, even mammograms do not detect all tumors, particularly in women who have dense breast tissue. She used the analogy that looking for tumors in dense breast tissue is like looking for a polar bear in a snow storm. Tumors appear white on an x-ray, as does dense breast tissue.

Density is described on mammogram reports as—fatty, minimally scattered density, heterogeneously dense or extremely dense. The last two categories are indicative of dense breasts, though there is some density in all breasts. “If you have dense breasts, it’s important to know that a mammogram may not show all of your tumors,” she said. “You should know if you have dense breasts (and only a mammogram can tell you that), and be diligent

with self breast exam, clinical breast exam, and regular annual mammograms. Follow up any palpable lump or other identified concern with further imaging. If a facility offers screening ultrasound, it can be a valuable tool to use in addition to mammography in dense breasts. The use of screening ultrasound is not routine, but its use is being studied.” Schmid also noted that digital mammography has recently been proven to be 15% more sensitive than regular film mammography in women with dense breasts.

Schmid said women should trust their own intuition, and be persistent in requesting further testing when they feel a lump. In her case, she could feel a lump in her left breast, but her doctor could not. He suggested she wait and get a follow up in six months, and she did—to her detriment. Six months later she was diagnosed with stage 2B breast cancer that had spread to her lymph nodes. Her treatment consisted of a mastectomy ,five months of chemotherapy , 6 weeks of radiation, followed by 10 years of estrogen blocking drugs.

Schmid is passionate about educating women about the importance of exams and early detection. She kicked off a personal campaign in October, Breast Cancer Awareness month, to tell her story to one million women. She is building a web site for information at KnowYourDensity.com.

Schmid wears a breast cancer pin upside down. After the presentation, she asked if anyone wondered why she wore the pin that way. She explained that when turned upside down, the emblem looks like a “V,” which symbolizes victory. The bottom loop stands for the first tear a woman sheds when she gets diagnosed with breast cancer, and the color pink stands for courage.

First NIEHS/EPA Biathlon for CFC

Approximately 86 employees of NIEHS and EPA participated in the first NIEHS/EPA Biathlon for the Combined Federal Campaign on Nov. 15. Participants ran and rode bicycles in the 5K and 16K team biathlons and 5K and 16K individual biathlons. For those who did not choose to run or ride a bicycle, a 5K Fun Run/Walk was also included.



Clockwise:

**Kim Peterson and Robin Jones participate in the Fun Run/Walk.*

**Liam O'Fallon takes first in the Individual category.*

**Lars Pederson pedals toward second place in the Individual category*

**and they're off! NIEHS and EPA employees begin the first NIEHS/EPA Biathlon to raise funds for CFC.*

(Photos by Steve McCaw, Image Associates)

NIEHS biathletes Liam O’Fallon and Lars Pedersen took first and second place respectively in the individual biathlon category. Scott McCulloch, Jeremy Smith and Rob Levine also competed in the individual category. Thirteen other NIEHSers participated in the team biathlon and run/walk categories. The event was held to raise funds and awareness for the Combined Federal Campaign. NIEHS employees contributed \$175 in entry fees.



Maria Sifre and Alyson Scoltock are all smiles after getting a little exercise while contributing to the CFC. (Photo by Steve McCaw, Image Associates)

The CFC today is known to be the most inclusive workplace fundraising campaign in the world, with the number of participating charities and nonprofit organizations estimated at more than 20,000 worldwide.

Up and Coming

- The annual NIEHS Director’s award ceremony will be held on **Dec. 15** at 2 p.m. in the Rodbell auditorium.
- NIEHS will celebrate International Day **Dec. 15** in the cafeteria immediately following the Director’s Awards ceremony. Phil Hanson will be the Master of Ceremonies. There will be a celebration of holiday traditions from all over the world, including NIEHS band performances, Polish dancers, Chinese dancing, international foods and other entertainment.
- Learn how cancer patients and survivors participate in clinical research to find new treatments for cancer at the NIH Clinical Center. Tune into a free teleconference **Dec. 16** at 1 p.m. eastern standard time. John Gallin, director of the NIH Clinical Center; Dottie Cirelli, Clinical Center Patent Recruitment coordinator and Susan Lowell Butler, Clinical Center Patient and Consumer Advocates in Research and Related activities member will discuss clinical trials at NCI. A question and answer session for participants will follow the panelists’ presentations. The call is toll free, and no registration is required. Call 800-857-6584. The pass code is 4683#. The toll-free playback number is 800-216-4418, which will be available until Jan. 16 at 11:30 p.m. eastern standard time.

The *e-Factor*, which is produced by the Office of Communications and Public Liaison, is the staff newsletter at the National Institute of Environmental Health Sciences. It is published as a communication service to NIEHS employees. We welcome your comments and suggestions. The content is not copyrighted. It can be downloaded and reprinted without permission. If you are an editor who wishes to use our material in your publication, we ask that you send us a copy for our records.

eFactor
Your On-Line Source for NIEHS News



- Director of Communications: [Christine Bruske](#)
- Writer-Editor: [Blondell Peterson](#)