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NIEHS Spotlight

'Scientific Grandchild' Presents Rodbell Lecture



Roger Davis, Ph.D., delivered the Rodbell Lecture April 12. Davis is an investigator at the Howard Hughes Medical Institute and is the H. Arthur Smith Chair of Cancer Research at the University of Massachusetts Medical School. Davis said he considers himself a 'scientific grandchild' of Martin Rodbell, former scientific director at NIEHS, whose work on signal transduction earned him a Nobel Prize. As a grad student, Davis trained under Rodbell-trained scientists. Hence, his term, "scientific grandchild" of Rodbell. Davis' signal transduction work focused on signaling mediated by protein kinases. In particular, he focused on the identification and characterization of stress-activated MAP kinase signaling pathways and their roles in cancer, inflammation, obesity and diabetes.

Take Your Child to Work Day a Big Success – Again

Score another successful Take Your Child to Work Day at NIEHS.

The kids started the day April 21 in the Rodbell Conference Room, where they received goodie bags containing donations from various NIEHS divisions: Frisbees, calculators, safety glasses, booklets and compasses. Chris Hunt, from the Health and Safety Branch, was on hand to go over some basic safety rules with the kids before they went off to their first activity.

With literally no budget for the event, NIEHS staffers donated their own money to provide goodies for the kids, like tree seedlings and ice-cream to ensure the kids had a good time.

The program is limited to 20 kids ages 8 to 15. In the morning they are divided into two groups, with older kids in one group and younger kids in the other group. Harris said keeping the groups small keeps the quality of the program high. Demand for the program has increased in recent years, so Harris asks parents to limit their kids' participation to one year.

Organizer Reva Harris said she is amazed at how different activities appear to different kids. If the kids at the end of the day voted on their favorite activity, it would be a tough election. There is no one favorite activity for them.



Chaz Copeland gets a boost up to the microscope as well as some personal instruction from Julie Foley.



Ashley Herbert, above, gets up a close-up look at a slide in Julie Foley's lab. Rose Reinlib, right, makes a birdfeeder by pouring birdseed on a pinecone she smeared with peanut butter. Take Your Child to Work Day was also NIEHS Earth Day.



Sam Arbes, left in the photo below, looks on while Geoffrey Mueller freezes balloons, bananas and flowers so the kids can see the effects of liquid nitrogen.



The two groups, one lead by Reeves, the other by Rob Levine, alternated these activities throughout the day:

In Building 102, the kids visited the utility plant and went to the roof. Hosts were Bill Blair and Crystal Green.

Health and Safety Branch staffers Vee Vee Shropshire, Bill Fitzgerald and Denise Warren-Hinton showed the kids how to test for radioactivity and identify certain hazards, let try on safety clothing.

them

In Pat Stockton's laser capture lab, they learned how lasers are used in research. Gordon Flake demonstrated how lasers are used to cut diseased cells away from normal cells.

In the MRI building, the kids learned about magnets as well as liquid nitrogen. They watched as staff froze balloons, flowers and bananas. Geoffrey Mueller and Eugene DeRose explained how magnets and liquid nitrogen are used in scientific research.

At the Earth Day displays, Colleen Anna, Jeanelle Martinez, Trisha Castranio, Danica Ducharme, Laurie Johnson and Wanda Holliday helped the kids plant seeds, make bird feeders, gave them tree seedlings to take home, and showed them the vermicomposting area, where they learned how worms turn food scraps into nutrients.

Rob Levine's computer demonstration, introduced the kids to the NIEHS Kids' Pages, where they solved puzzles, told jokes, colored and, of course, giggled a lot. In Julie Foley's lab, the kids learned about tissue array and microscopy. They were able to slice tissue, stain it and look at it under the microscope with the help of Tiwanda Marsh.

"Be a DNA Detective" hosted by Cindy Innes and Dianne Spencer with help from Ron Cannon and others, showed the kids how to extract DNA from cells. They were given a fictional scenario in which the lab staff had a birthday cake stored in the break room to celebrate a coworker's birthday, but somebody snuck in and took a piece, cutting themselves in the process. From the blood left on the knife, Cannon told the kids, they could determine who the culprit is. On the other side of the lab, Margaret



It seemed like all fun and games when Margaret George taught the kids how to make Flubber, but they were really learning about polymers, and what happens when you mix them as you do white glue and Borax, to make Flubber.



Kellie Levine gets a laugh from the NIEHS Kids' Pages during a computer demonstration by her dad, Rob Levine. Maliki Anthony, next to her, intently checks out one of the pages.

George showed the kids how to make Flubber, and in the process, taught them about the properties of polymers.

Last but not least, the kids rejoined their parents and hosts for an ice-cream social. Gerard Roman, Vee Vee Shropshire and Elliott Gilmer dished up the ice cream.

Harris begins planning the annual event each January, and said her reward is in knowing the children have been exposed to the NIEHS experience.

“It was a very diverse group of young bright minds this year,” Harris said. “It is just fun to be exposed to those who are bright and energetic.”

Katie Reinlib, 12, said she learned that DNA is negative and worms are good for gardens because they help the soil. “The DNA kind of grossed me out at first,” she said.



Elliott Gilmer, right, was among the volunteers who dished up ice cream and toppings at the culmination of Take Your child to Work Day April 21. From the left, Mia Yakel, Sean DelCorral with his mom Debra, and Katie and Rose Reinlib.

Flubber

Materials:

- Container 1(4 cup capacity): 1 1/2 cups warm water, 2 cups white glue, and a few drops of food coloring
- Container 2: 1 1/3 cups warm water and 3 teaspoons Borax. Make sure the Borax is completely dissolved in warm water.

Mix the ingredients in each container thoroughly. What do they look like? How are they different? Pour container 2 into container 1. Gently lift and turn the mixture until only about a tablespoon of liquid is left. What do you observe? What does it feel like? It will be sticky for a moment or two. Let the excess liquid drip off and the Flubber will be ready.

Experiment with it: roll it, stretch it, stretch it over a jar, stretch it over an object like a golf ball.

Flubber is a polymer made by a chemical reaction. Polymers are very long chains of repeating units. When the two solutions are combined, polyvinyl acetate chains (a polymer from the white glue) are linked together in a 3-dimensional arrangement by borate ions from the Borax and other chemical bonds. This produces a thick, sticky polymer called Flubber.

Lydia Cozart spent a few minutes picking the worms out of the cup containing NIEHS vermicomposting mixture in which she had just planted some Sweet William. She said she was taking the worms out because she knew her mom would not like them. Nearby, Malcolm Harris also planted flowers. These are for his mom, he said, who is out of town.

The kids got a tour of the animal facilities from Clay Rouse and David Goulding, who explained the role animals play in research. Christian Spencer, a seventh grader, said the veterinary medical group presentation most interested him. He said he liked learning how animals help science, but especially liked the animal facilities. Kaitlyn Innes said she, too, liked the animal presentation. One of the animal parts that was in a jar looked like a lima bean, she said. When asked if she know what part it was, she replied, “Yeah, the kidney.”

To see more photos of the kids, go to:
[\\catoe\public\kidsatwork](http://catoe/public/kidsatwork).

The NIEHS Earth Day Photo Contest – You be the Judge

The polls are open for the NIEHS Earth Day Photo Contest, and you can be the judge. Photos are categorized as follows: categories: sky, earth, water, fauna, flora, and people in their environment. Dick Sloane, recycling coordinator and organizer for the contest, said there are 96 entries, with the largest category being fauna, or animal photos. The photos are on display outside the Rodbell Conference Room, but will also be available May 5, along with electronic voting ballots, at <http://www-apps.niehs.nih.gov/odconfer/photocontest/>.



Greg Scott checks out the entries.



Science Notebook

Insecticide Use Linked to Neurological Problems for Farmers

A new NIEHS study shows that farmers who used agricultural insecticides had increased neurological symptoms – like headaches, fatigue, dizziness, nausea, hand tremors and numbness – even when they were no longer using the chemicals.

NIEHS researchers, as part of the ongoing, multi-agency Agricultural Health Study, looked at data collected in nearly 19,000 questionnaires that asked North Carolina and Iowa farmers about their exposure to herbicides, fungicides and fumigants. Some of those products are still on the market, while others, like DDT, have been banned or restricted.

Unlike many past studies, which focused on high-dosage exposure, the study looked at levels that are common for farmers, according to NIEHS researcher Freya Kamel. They found that nearly 3,000 participants had a high lifetime exposure to insecticides, defined as more than 500 days, and nearly 800 of them reported more than 10 neurological symptoms than the farmers who reported less than 50 days of exposure.

The study showed no significant association between neurological symptoms and other chemicals, including herbicides or fungicides, and only a weak association between fumigant exposure and neurological symptoms.

The study is available at <http://ehp.niehs.nih.gov/> and will appear in the June issue of the NIEHS journal, *Environmental Health Perspectives*.

Advancing Medical Technology: Standardized Microarrays and Personalized Medical Treatment

Science has taken medical care a step closer to customized treatment based on an individual's unique genetic make-up and medical conditions, researchers say.

NIEHS funded a study by the Toxicogenomics Research Consortium that began in 2001 to find out more about why results of gene expression experiments vary among labs as well as within and among microarray platforms. Microarrays, or gene chips, allow scientists to see how differences in gene expression are linked to specific diseases. Improving and standardizing microarray experiments will allow earlier detection of diseases like cancer.

The Toxicogenomics Research Consortium consists of seven research centers at:

- The NIEHS Microarray Group in the National Center for Toxicogenomics
- Duke University
- Fred Hutchinson Cancer Research Center at the University of Washington
- Massachusetts Institute of Technology
- Oregon Health and Sciences University
- The University of North Carolina at Chapel Hill
- Icoria, Inc.

In 2001, researchers began systematically examining the processes involved in most microarray studies, and found that using a standardized process led to more consistent results. Commercially manufactured microarrays produced the best results and are easier to replicate, while microarrays made in-house by lab staff gave less consistent results, researchers found.

Microarray technology allows scientists to look at very subtle changes in many genes at one time, providing a snapshot of what genes are expressed or active in normal and diseased cells. Comparisons of normal cells or tissues with those known to be diseased allow scientists to classify the severity of the disease and identify genes that can be targeted for therapy.



After Hours

Jamie Bell Wins \$20,000 Scholarship

Jamie Bell is a typical teen in some aspects, especially when it comes to doing things herself, like her entry in the Young Epidemiology Scholars competition. She chose her topic, researched it, collected her data, and then consulted her dad.

The daughter of Doug Bell, a senior investigator in the NIEHS Laboratory of Molecular Genetics, Jamie did not want to design a project like her father would. Parents of teens know that translates to: “I am my own person, and I can make my own decisions, thank you.” While the attitude might be typical for a teen, the level of success in her independent venture is not.



Jamie’s success speaks for itself: she won a \$20,000 scholarship, taking third place among some 650 entries in the nationwide Young Epidemiology Scholars competition.

Her project looked at the accuracy of physical fitness assessment based on body mass index. “The Freshman Nutrition and Exercise Study” looked specifically at the eating habits, exercise patterns and body composition of high school freshmen, tracking changes in the percentage of body fat.

Like father, like – daughter? NIEHS senior investigator Doug Bell is undoubtedly pleased with his daughter’s success in the Young Epidemiology Scholars competition. Jamie, who is a senior at Jordan High School in Durham, took third-place, with a \$20,000 scholarship. But, the NIEHS researchers said, his daughter came up with the idea for her project, took the initiative to check it out and completed it with minimum input from her parents.

Doug Bell noticed the announcement from the Robert Wood Johnson Foundation, which sponsors the Young Epidemiology

Scholars contest, and urged his daughter to enter last year. She took it from there, consulting with two of her teachers at Jordan High School in Durham. Last summer, she began collecting data. Her father said he knew nothing about her study until she asked him for money to buy a body fat scale, which uses electrical current to determine how much body mass is fat and how much is muscle. She later asked for some tips on using Excel that would allow her to use formulas to analyze data. That, Doug said, was about all the information he had until she the day before the project was due, when she asked her parents to review it. “She put the whole thing together without any involvement from me,” her father said.

Jamie’s project was one of 60 chosen as regional finalists who presented and defended their work in Washington, D.C. in April. After a day of presentations to a panel that included some of the nation’s leading epidemiologists, the judges make their choices, and invited 12 finalists to return to make additional presentations. “It was more exciting to hear that I had made the cut from 60 to 12 people,” Jamie said. “That’s like them telling you that your work is good enough to hear again.”

As for dad, he says it was wonderful to see how many kids are interested in studying public health problems. He said the experience helps the kids establish the value of serving the public. “My hope is that Jamie and these other kids will be able to get involved and help solve some of these problems,” Doug Bell said.

An athlete, Jamie knows that muscle weighs more than fat. But the Body Mass Index uses height in relation to weight – rather than body fat – to determine physical fitness. “I don’t think BMI should be used as a primary tool to measure health, and it’s nice to have some data to support that” she said.

Her research showed that some participants had large increases in their body fat over a 2 ½ month period, which could have health implications for them later in life.

The path to a career in science for Jamie, until now, has been paved with small steps, including the NIEHS Summers of Discovery Program, internships at Duke, and even the Take Your Child to Work Day at NIEHS. (See related story on Take Your Child to Work Day: [Take Your Child to Work Day a Big Success – Again](#))

She recalls that she became very interested in a career in medicine when she was in sixth grade. She broke her leg and was treated by an orthopedic surgeon. That doctor obviously made an impact. Not long after that, she attended the NIEHS Take Your Child to Work Day, where she said she was for the first time exposed to more in-depth biomedical research. In the summer of 2004, while participating in the Summers of Discovery program at NIEHS, Jamie learned about secondary data analysis with Stephanie London, and later that same summer, working with CODA, a contactor handling part of the NIEHS Sister Study, Jamie learned about the paperwork involved in conducting studies of people. She spent a summer in a cancer immunology lab as part of Duke University’s Summer on the Edge program. There, she was allowed to conduct her own research. That same summer, she shadowed a Duke oncologist for several days.

This fall, Jamie will enter Duke University to study biomedical engineering. She plans to go to medical school, and eventually specialize in – yep – orthopedic surgery.

A list of the national winners and finalists and their winning entries is at:
http://www.collegeboard.com/yes/fs/winners_0405.html.

NIEHS Basketball Team Takes RTP Tournament Championship



The NIEHS winning basketball team: from left, A.G. Carrington; Al Caviness, league coordinator and coach; Stephanie Bullock-Allen, fitness room manager; Mark Rubino; and Gordon Caviness. Other team members not shown are: Mark Rubino, Anthony Redd, Fred Hunter, Claude Springs, Floyd Monroe and Thomas Allen.

All team members are NIEHS employees, past employees or immediate family members of employees. Some members of the team have played every year for the last 20 years. There were two NIEHS teams and a total of five teams in the league. The 2005 tournament was held April 2 in Durham.



Did You Know?

Feng Shui: An Ancient Art Comes to NIEHS

Feng Shui, which literally translated means wind and water, is an external catalyst that brings internal change, according to Annie Payne, author, presenter and feng shui consultant. Payne came to NIEHS April 15 for a seminar sponsored by the NIH Work/Life Center. The presentation, “Feng Shui and You: A new Mix at Home & Work,” focused on achieving balance in home and work space.

According to feng shui principles, your surroundings determine you quality of life, therefore, creating an environment that is conducive to your goals is vital for success, Payne said.

“You become your surroundings, because you become what you think about,” she said. Deliberately changing your surroundings will automatically change your thoughts, she said.

Payne described feng shui as Montessori for adults. Reflecting

Montessori principles, feng shui, too, is based on the philosophy that everything has its place based on how it is used. Clutter is the equivalent of stuck energy, and eliminating it is one of the first objectives of feng shui.

Payne outlined nine steps to do it:

- 1) Start in a small contained space such as a medicine cabinet or two kitchen cabinets at a time, a top nightstand drawer or fireplace hearth and mantle.



Annie Payne, of Woodbridge, Va., came to NIEHS April 15 for a presentation on Feng Shui.

- 2) Only address areas you can see such as an open shelf, the top of a counter, a desk top, bathroom vanity top, inside tub or shower, hallway and stairs or foyer, focusing on the easiest and quickest spaces first.
- 3) Touch everything and skip nothing. Decide where every item belongs.
- 4) Use three boxes for sorting: One box for those things that you love but do not belong there; another box for things that you will get rid of; and a third box for those things you are not sure about. You can go back to that box in a few days to decide.
- 5) Categorize every item and place in the appropriate box: If it makes you feel good – it stays; if it makes you feel bad or sad – it goes; and if it makes you feel nothing or guilty – wait three days, then decide.
- 6) Realize time and opinions change. What stays this month might need to go next month. Address toys and papers first.
- 7) Clear the floor first, and then move to horizontal surfaces, and then walls, including shelving and glass cabinets.
- 8) Do closets individually and in this order: linen closets, bath towel closets, foyer or hall closets; and finally, clothes closets, which will need to be done as separate projects.
- 9) Create a staging area for entering and leaving your home or office. This includes creating a place for mail to be sorted, a place for coats, briefcases, pocketbooks, etc.
- 10) Make task-specific areas. For example, your home should have a place for paying bills, another place for work tools, another place for sports equipment.

For more information, or to order Payne's new book that will be released this month, "The Dance of Balance – Feng Shui for Body, Mind & Spirit," visit her website at www.EastCoastFengShui.com or contact her by e-mail at: <mailto:AnnAndCompany@aol.com>.

Up and Coming

- The NIEHS Work Life Center career counselor will be available **May 10 and 24** for private career consultations. To schedule a session, call the NIH Work Life Center at (301) 435-1619. This is a free service for all NIH employees.
- **NIEHS Health Week** will be **May 16-20**. Further information on locations and sign-ups will be released prior to Health Week.
 - **May 16:**
 - 9:30-11 a.m.: nutrition one-on-one in the fitness room
 - 10-10:30 a.m.: Bureaucratic Run Around and the Rat Race relays
 - 11 a.m.: nutrition seminar, 101 B
 - **Tuesday, May 17:**
 - 10-11 a.m.: Basketball Shoot Out, basketball court
 - 10 a.m.- noon: chair massages, C mall (contact fitness room to make an appointment)
 - 11 a.m.-1 p.m. Health Recipe Swap and food sampling in the cafeteria
 - Noon: sleep disorders seminar, 101C
 - 1-3 p.m.: health assessment, fitness room
 - 3-5 p.m.: table tennis tournament, F module connector
 - **Wednesday, May 18:**
 - 9:30-10:30 a.m.: 5K run/1 mile walk
 - 11 a.m.-1 p.m.: health fair
 - Noon-1 p.m.: Bosu ball step class demonstration, patio area
 - 2-4 p.m.: 3-on-3 basketball tournament, basketball court
 - 3-5 p.m.: table tennis tournament, round 2, F module connector
 - **Thursday, May 19:**
 - Noon-1 p.m.: healthy lifestyle seminar, 101B
 - 1-1:45 p.m.: jump rope contest, patio area
 - 1:45-2:30 p.m.: football throw contest, patio area
 - 3-5 p.m.: table tennis tournament, round 3

- Friday, **May 20**:
 - 7:30-9 a.m.: Bike to Work Day, Rall Building entrance
 - 10-11 a.m.: table tennis tournament finals, F module connector
 - 11:30 a.m.-2 p.m.: spinal posture analysis, 101B
 - 1-3 p.m. softball/volleyball games, NIEHS athletic fields

Valerie Barbour Retires

Valerie Barbour, personnel officer for NIEHS and other institutes as well in recent years, retired at the end of April after 37 ½ years at NIH. Barbour said she doesn't have any specific plans other than traveling to Florida, Hawaii and Denver. She was the personnel officer at the National Eye Institute before coming to NIEHS 11 years ago. Barbour, who lives in Cary and intends to remain there, said she will likely be back for social events and parties related to NIEHS. Barbour planned to spend her first day of retirement at the mall and at a day spa. She has four sons and two grandkids in the area who will, no doubt, help fill her free time.



New Payroll System Reminders

NIH converted to the Defense Finance and Accounting Service payroll system in April. All NIH employees should have received a new PIN for the myPay system that replaced Employee Express in April. To access the system, go to <https://mypay.dfas.mil/mypay.aspx>.

From the DFAS site, employees will be able to view, print or save leave and earnings statements and tax statements, change federal and state tax withholdings, update bank account and electronic fund transfer information, manage allotments, make address changes, manage savings bonds, control Thrift Savings Plan health benefit enrollment.

For more information, go to <http://hr.od.nih.gov/dfas-mypay>.

eFactor
Your On-Line Source for NIEHS News

The e-Factor, which is produced by the Office of Communications and Public Liaison at the National Institute of Environmental Health Sciences, welcomes your comments and suggestions. The e-Factor is published as a communication service to employees of NIEHS.

- [Christine Bruske](#), Director of Communications
- [Colleen Chandler](#), Editor

