

## NIH Research Festival Returns to Campus in Full Force

### Premier Intramural Science Event Back Bigger Than Ever

The 2023 NIH Research Festival certainly made up for lost time—essentially three years lost time, due to the Covid-19 pandemic that shuttered a lot of in-person work by NIH’s Intramural Research Program (IRP) and halted the 33-year stretch of on-campus science festivals.

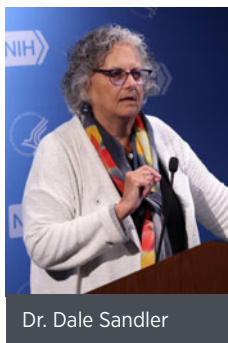
“We are part of an incredible history,” said NIH Deputy Director for Intramural Research Dr. Nina Schor, tracing the festival back to its earliest iteration in 1986 through the last in-person event in 2019. Schor opened the first lecture session of the 2023 festival on Sept. 18, noting that this year’s version of the event “represents every

SEE **FESTIVAL**, PAGE 6

### SISTER STUDY TURNS 20 NIEHS’s Sandler Expounds on Breast Cancer Risks

BY DANA TALESNIK

This year, nearly 300,000 women will have been diagnosed with breast cancer in the



Dr. Dale Sandler

U.S. While annual incidence has leveled off, it is increasing for some groups and breast cancer still accounts for 30% of all new cancer cases among women, many of whom had no family history of the disease.

SEE **SANDLER**, PAGE 8



Research Festival 2023 included five poster sessions over the course of five days.

### Scientists Showcase Findings at Festival Poster Sessions

BY MYRANDA TARR

Dozens of NIH researchers gathered in the FAES Terrace at the Clinical Center to present their recent studies during the NIH Research Festival Poster Sessions on Sept.

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### STAFF PERSPECTIVES

#### NIH’sers Discuss Proposed Changes to Mission Statement

BY DAVID KOSUB

NIH’s mission statement is going under the microscope again. In an August 2023 email to staff, Acting NIH Director Dr. Lawrence Tabak announced proposed changes, saying it is “important that the mission statement accurately reflects NIH’s goal of turning scientific discoveries into better health for all.”

The step follows a recommendation by the advisory committee to the director (ACD) working group on diversity’s subgroup on individuals with disabilities. Its December 2022 report suggested NIH “remove the language of ‘reducing disability’ from the NIH mission statement” to support disability inclusion.

Currently the mission statement reads: “To seek fundamental knowledge about

SEE **MISSION**, PAGE 4

### CHALLENGE RELAY

#### Runners Take a Break from Work While Breaking Records

BY MYRANDA TARR

Endorphins were high at the 38th NIH Institute Challenge Relay on Sept. 14. More than 500 NIH staffers traded their lab coats and business attire for running gear to participate in the NIH-wide athletic event of the year on the Bethesda campus.

The relay boasted a record-breaking number of participants and

SEE **RELAY**, PAGE 10



Race day spirits were high, with great weather.



Sculptures dedicated at the CC. See story, p. 12.

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## Sears To Give 2023 Astute Clinician Lecture

Nov. 1

Dr. Cynthia Sears will give the Astute Clinician Lecture as part of the NIH Director's Wednesday Afternoon Lecture Series on Nov. 1 from 2 to 3 p.m. ET in Lipsett Amphitheater, Bldg. 10 and via NIH videocast. She will present "Sleuthing the Microbiome Reveals Undercover Agents of Oncogenesis."

The lecture marks the 26th anniversary of the Astute Clinician Lecture Series.

Sears is a physician, mentor and professor of medicine and oncology at Johns Hopkins University School of Medicine and a professor of molecular microbiology and immunology at Johns Hopkins Bloomberg School of Public Health. Her research focuses on studies to determine how the microbiota contributes to colorectal cancer. Her team studied in detail the carcinogenic bacterium, enterotoxigenic *Bacteroides fragilis* (ETBF), using this organism as a model for inducing colon inflammation and carcinogenesis.



Dr. Cynthia Sears

Over time, the team identified the *B. fragilis* toxin gene, purified the protein (BFT) and defined its mechanism of action in vitro and established in vivo models of ETBF colitis and colon tumorigenesis. Using these models, her lab identified that ETBF induce selective immune responses in the colon and that these pathways, at least in part, contribute to colon tumorigenesis.

Sears earned her M.D. from Thomas Jefferson Medical College and completed her internal medicine residency and fellowship at the New York Hospital-Weill Cornell Medical Center. In 1985, she began teaching as an assistant professor of medicine at the University of Virginia before transitioning to JHU School of Medicine.

The Astute Clinician Lecture was established in 1998 through a gift from the late Dr. Robert W. Miller and his wife, Haruko. It honors U.S. scientists who have observed unusual clinical occurrences and, by investigating them, have opened important new avenues of research. Learn more at <https://go.nih.gov/HQhE69w>.

In-person attendance is encouraged or tune in at <https://videocast.nih.gov/watch=51118>. Continuing Medical Education credits will be available.

Sign language interpreting services are available upon request. Individuals who need interpreting services or other reasonable accommodation

## Schwetz Speaks on Capitol Hill at Medical Research Rally Reception

NIH's Acting Principal Deputy Director Dr. Tara Schwetz highlighted some of the extraordinary scientific opportunities that exist today to improve health and save lives during a Sept. 13 reception preceding the annual "Rally for Medical Research Hill Day."

Each September, a broad coalition of groups representing the medical research advocacy community meet on Capitol Hill with House and Senate offices to urge members of Congress to fund NIH as a national priority.

The rally, in its 11th year, is coordinated by the American Association for Cancer Research and supported by nearly 350 partner organizations. Along with Schwetz, a number of institute/center directors and other NIH senior leaders attended the reception, which was held in the Senate Dirksen Office Building.



Shown at the Rally for Medical Research Hill Day reception are (from l) Dr. Margaret Foti, CEO, American Association for Cancer Research; U.S. Sen. Dick Durbin (D-IL); Dr. Keith Churchwell, president-elect, American Heart Association; and Dr. Tara Schwetz, NIH acting principal deputy director.

should email [WALSoffice@od.nih.gov](mailto:WALSoffice@od.nih.gov) or call (301) 594-6747.

## Texas A&M's Young To Deliver Stetten Lecture, Nov. 8

The 2023 DeWitt Stetten Jr. Lecture will be held on Wednesday, Nov. 8 from 2 to 3 p.m. ET in Lipsett Amphitheater, Bldg. 10, and broadcast live via



Dr. Ry Young

IMAGE: AGRILIFE MARKETING AND COMMUNICATIONS DEPARTMENT

videocast. Dr. Ry Young will present "The Great Escape: Phage Lysis and Its Control."

Young is director of the Center for Phage Technology and emeritus professor in the department of biochemistry and biophysics at Texas A&M University. He has dedicated

his career to understanding bacteriophages, especially how they lyse bacterial cells.

He will discuss how phages control lysis in a time-dependent fashion and how they might be harnessed in developing new antibiotic therapeutics. The hybrid NIH Director's Wednesday Afternoon Lecture Series event is sponsored by the National Institute of General Medical Sciences.

Phages have evolved at least two systems for lysis of the host bacterial cell. One involves multiple genes and proteins, conducted in a precisely timed

manner. The second method involves a single protein capable of independently triggering bacterial lysis, and these proteins may provide alternative strategies for developing antibiotic therapies.

Much of the modern field of phage lysis comes directly from Young's research. Even when others turned away from the field, he saw the potential to use phages, with their facile genetics, molecular biology, and biochemistry, to ask specific biological questions. Recently, the scientific community has started looking to phages as a tool for developing antibacterial therapeutics and manipulating human microbiota.

The Stetten Lecture series was established in 1982 to honor NIGMS's third director. Read more about him at <https://go.nih.gov/YzlvJUw>.

The lecture is open to all. To attend virtually, go to <https://videocast.nih.gov/watch=51120>.

For series details, visit <https://go.nih.gov/ANK18yi>.

People who require sign language interpretation or other reasonable accommodation to participate should email [WALSoffice@od.nih.gov](mailto:WALSoffice@od.nih.gov) five days before the lecture.

## 'Feds Feed Families' Ends for Summer

The 2023 Feds Feed Families Virtual Campaign has ended. NIH donated more than 130,000 pounds of food to local communities to assist children, older adults, veterans and families who are in need. This amount exceeds the goal of 118,000 pounds. NIH once again proved to be an agency with a heart.

## 'DOGGED DEDICATION' RECOGNIZED Grantees Karikó, Weissman Awarded 2023 Nobel Prize

NIH grantees Dr. Katalin Karikó and Dr. Drew Weissman were jointly awarded the 2023 Nobel Prize in Physiology or Medicine by the Nobel Assembly at Karolinska Institutet on Oct. 2 for “discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against Covid-19.”

Announcing the prize, the Assembly said, “The discoveries... were critical for developing effective mRNA vaccines against Covid-19 during the pandemic that began in early 2020. Through their groundbreaking findings, which have fundamentally changed our understanding of how mRNA interacts with our immune system, the laureates contributed to the unprecedented rate of vaccine development during one of the greatest threats to human health in modern times.”

A senior vice president at BioNTech RNA Pharmaceuticals, a professor at University of Szeged in her native Hungary and an adjunct professor at Perelman School of Medicine at the University of Pennsylvania, Karikó joined Perelman in 1989 and began collaborating with Weissman in 1997.

She received her bachelor's degree in biology in 1978 and her doctorate in biochemistry in 1982

from Szeged. She was working at the Biological Research Center of the Hungarian Academy of Sciences in Szeged before immigrating to the United States in 1985.

Born in Lexington, Mass., Weissman, an immunologist, is the Roberts family professor in vaccine research at Perelman School of Medicine and director of the Penn Institute for RNA Innovations. He earned his M.D. and Ph.D. degrees from Boston University in 1987. He did clinical training at Beth



Dr. Katalin Karikó and Dr. Drew Weissman

PHOTO: PEGGY PETERSON PHOTOGRAPHY/PENN MEDICINE

Israel Deaconess Medical Center at Harvard Medical School and completed a fellowship at NIH in the lab of Dr. Anthony Fauci at the National Institute of Allergy and Infectious Diseases. In 1997, Weissman established his research group at Perelman.

NIH Acting Director Dr. Lawrence Tabak, acknowledging

the challenges involved in the research that led to the prize, congratulated the newest NIH-supported Nobel pair in a recent blog.

“I'd like to thank them for their persistence in pursuing their investigations,” he noted. “While the lifesaving benefits of mRNA vaccines are now clearly realized, Karikó and Weissman's breakthrough finding in 2005 was not fully appreciated at the time as to why it would be significant.

“However,” Tabak continued, “their dogged dedication to gaining a better understanding of how RNA interacts with the immune system underscores the often-underappreciated importance of incremental research. Following where the science leads through step-by-step investigations often doesn't

appear to be flashy, but it can end up leading to major advances.”

The 2023 Nobel earned by these two grantees, Tabak concluded, “is a tribute to all scientists who do the painstaking work of trying to understand how things work. Many of the tools we have today to better prevent and treat diseases would not have been possible without the brilliance, tenacity and grit of researchers like Karikó and Weissman.”

Karikó has received funding from the National Heart, Lung, and Blood Institute (NHLBI) and National Institute of Neurological Disorders and Stroke; Weissman's research has been supported by NIAID, the National Institute of Dental and Craniofacial Research and NHLBI.

To date, 171 scientists either at NIH or whose research is supported by NIH funds have been the sole or shared recipients of 102 Nobel Prizes. **R**



ON THE COVER: Polarized crystals (photographed through a microscope) of the drug 2-3 dideoxyadenosine, also known as ddA, a drug that is closely related to AZT or azidothymidine. The antiviral effect of ddA against HIV was discovered at the National Cancer Institute.

IMAGE: LARRY OSTBY, NCI

### The NIH Record

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#### Editor:

Carla Garnett • [Carla.Garnett@nih.gov](mailto:Carla.Garnett@nih.gov)

#### Associate Editor:

Dana Talesnik • [Dana.Talesnik@nih.gov](mailto:Dana.Talesnik@nih.gov)

#### Assistant Editor:

Eric Bock • [Eric.Bock@nih.gov](mailto:Eric.Bock@nih.gov)

#### Staff Writer:

Amber Snyder • [Amber.Snyder@nih.gov](mailto:Amber.Snyder@nih.gov)

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The *NIH Record* is recyclable as mixed paper.

### Bldg. 31B Restrooms Begin Conversion to Gender-Neutral

The restrooms on the first floor of Bldg. 31B are now closed until July 2024 for extensive renovations. They will be converted to gender-neutral restrooms.

These restrooms are located just outside the Division of Personnel Security and Access Control “badging office” next to the elevators.

During renovation closures, restrooms will remain open in the A and C wings as well as in the B wing above and below the first floor.



Restrooms near the Bldg. 31B badging office are closed for renovation.

PHOTO: ERIC BOCK

## Mission

CONTINUED FROM PAGE 1

the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life and reduce illness and disability.”

The subgroup calls for NIH to “identify and remove any ableist language and images that may exist in its communication and policy practices” in order to “promote inclusion of disabled people.”

The report defined ableism as a deeply embedded belief in society that people with disabilities are flawed and less valuable than nondisabled people, leading to increased stigma and exclusionary practices. To their point, the current mission statement could be interpreted as perpetuating ableist beliefs that disabled people are flawed and need to be “fixed.”

The mission statement changed a decade ago to its current form. The previous iteration ended with “reduce the burdens of illness and disability,” which some believed had ableist undertones. The change happened after an NIH’er questioned using “burden” to NIH leadership. The *NIH Record* reported David Rice, a deaf staff member then with NEI, suggesting the term could “offend people who do not consider their disabilities to be burdensome.”

See article at <https://go.nih.gov/U9b36lO>.

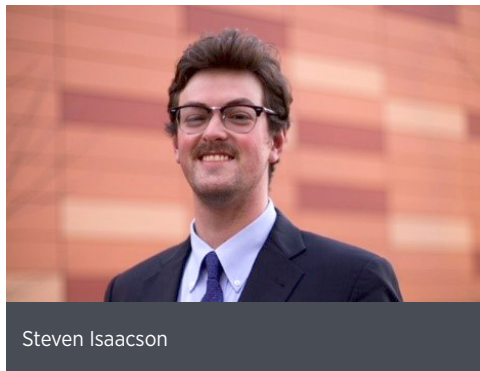
As mission statements can be thought of as living documents, the newly proposed language evolved to “to seek fundamental knowledge about the nature and behavior of living systems and to apply that knowledge to optimize health and prevent or reduce illness for all people.”

NIH asked the public for feedback via a Request for Information (RFI) to ensure the revision “reflects the NIH mission as accurately as possible.” Read the RFI at <https://go.nih.gov/7B0lCFZ>.

NIH staff who participate in the 3 Blind Mice and ABILITIES employee resource groups were asked to contribute their



Dr. Amanda Alise Price



Steven Isaacson

perspectives on the proposed changes. Several members responded. Note, the expressed views are their own and are not representative of their employer or professional duties.

Steven Isaacson identifies as an autistic social worker with the National Institute on Mental Health. He applauds the change aimed at reducing stigma around disability.

“Environmental and systemic barriers can prevent people with disabilities from having equal access, but agency culture plays the biggest role,” he said. “I’m glad NIH is taking this step by considering how organizational culture plays a role in ableism.”

Dr. Heather Kimmel agrees with the need for the change too, recognizing that “unfortunately, it has been my experience that individuals with disabilities are often overlooked when discussing diversity.” She serves as a health scientist administrator at the National Institute on Drug Abuse. “It is also important to recognize that there is tremendous diversity within the disability community and one cannot assume that all individuals with a certain type of disability have the same perspectives or needs,” she said.

“It would be a major step forward to remove the framing of disability as something that needs to be fixed in our mission statement and to move towards inclusion and accessibility for people with disabilities in everything we do at NIH,” said Dr. Amanda Alise Price, director of the Office of Health Equity and chief scientific diversity officer at the *Eunice Kennedy Shriver*

National Institute of Child Health and Human Development. “Despite belonging to multiple underrepresented groups, the greatest impediment to pursuing my scientific career has been ableism—the unjust treatment I have experienced when people perceive my academic abilities as less than because I navigate the world with the help of mobility aids and assistive devices. I am a stronger scientist because of my disability and the skills I have gained from managing my complex medical care, by coping with the daily challenges through resilience and savvy problem-solving and in expertly balancing competing demands while pursuing the career I love.”

From my personal perspective as a



Dr. Heather Kimmel


person with a visual impairment, the proposed revised mission statement’s shift away from “reducing disability” refocuses NIH’s attention towards seeing people for who they are, not what they are. The true test going forward is seeing if words lead to action.

My hope is NIH will actually implement and achieve this target in the research it funds and support staff who make up our agency in order to optimize health for all.

Reiterating a point I made in the NIH Virtual Tour, I appreciate NIH’s willingness to open its arms to hearing the needs and concerns of persons with disabilities, but we must continue making progress.

Read more about ACD’s subgroup at <https://go.nih.gov/VtcTNnr>.

To see Kosub’s excerpt on the tour, go to <https://go.nih.gov/YHWkC4d>.

And, there’s still time until Friday, Nov. 24, 2023, to provide feedback on the revised mission statement. Use the form at <https://go.nih.gov/sPscmqI>. 



The author is senior advisor for legislative and media affairs, Office of Extramural Research, Office of the Director, NIH, and occasional *NIH Record* correspondent.

## Klimczak Named NIH Associate Director for Legislative Policy, Analysis

Katherine “Kate” Klimczak has been named NIH associate director for legislative policy and analysis and director of the NIH Office of Legislative Policy and Analysis (OLPA).

She returned to NIH from the U.S. Food and Drug Administration, which she joined in 2019 to serve as deputy director of its congressional appropriations office.

While with FDA, Klimczak oversaw the formulation and execution of FDA’s annual appropriations strategy; advised senior FDA leadership on actions, policies

and issues concerning appropriations, legislation and oversight activities; and managed the implementation of legislative action plans to ensure that the FDA complied with legislative requirements.

Previously at NIH, Klimczak served as an OLPA senior legislative analyst. She managed NIH’s interactions and relationships with congressional appropriation committees. She also led negotiations with Congress for NIH’s budget and legislative needs. At the Department of Health and Human Services (HHS), she served as a congressional liaison specialist, formulating HHS legislative appropriations strategies.

Klimczak has a bachelor’s degree in government from Georgetown University and a master of public policy degree from Duke University.



Kate Klimczak

## VOLUNTEERS

### Severe Aplastic Anemia Study Recruits

NHLBI seeks adults with severe aplastic anemia (SAA) for a research study determining viability and safety of early initiation of oral therapy with cyclosporine and eltrombopag in patients with SAA. All patients will receive standard treatment with cyclosporine, eltrombopag and horse antithymocyte globulin (h-ATG) unless there is complete count recovery with oral therapy. Compensation will be provided. For more information, call the Office of Patient Recruitment at 1-866-444-2214 (TTY users dial 711). Refer to study 20-H-0033. Online: <https://go.nih.gov/KNlRlpY>.

## ‘GIVE HAPPY’

### Annual CFC Effort Launches

BY ERIC BOCK

NIH employees work hard every day to advance medical research, said NIH Acting Director Dr. Lawrence Tabak during the 2023 NIH Combined Federal Campaign (CFC) virtual kickoff event on Oct. 4.

“Your work affects the lives of so many,” he said. “And your generosity and support of the CFC is another way you can help make the world a better place.”

The CFC is the annual workplace fundraising drive among federal employees that serves more than 5,000 charities. The National Institute of Nursing Research (NINR) is the lead institute this year.

“You all are the heart and soul of our campaign,” said Olga Acosta, NINR Executive Officer and 2023 CFC campaign manager, thanking the other institutes, centers and CFC coordinators and keyworkers for their efforts.

David Timpane, NINR deputy executive officer and professional opera singer, opened the program by singing the National Anthem.

NINR Director Dr. Shannon Zenk said she is honored to be co-chairing the 2023 campaign with Tabak because of NIH’s strong CFC tradition. Over the past 18 years, employees have raised nearly \$37 million.

Last year, employees contributed more than \$2 million, exceeding the target of \$1 million. Zenk hopes NIH will once again exceed its goal.

“Every dollar counts,” she said. “No pledge is too great or too small.”

Two CFC charities sent representatives to the kickoff to talk about the campaign’s impact on their organizations.

Echoes of Nature is one of the many local charities benefiting from the CFC, said Echo Uzzo, education director of the organization. Founded in 2002, the Maryland-based nonprofit presents nature-themed programs featuring live-animal ambassadors throughout much of the state.

“The funds we receive go toward animal care needs that include food, enrichment items, housing and vet care,” Uzzo said.

In 2022, the nonprofit presented more than 700 programs to over 33,000 people. This year, Echoes is on track to present more than last year’s total and hopes to expand their programming and animal care roster, hire more staff, increase volunteer opportunities and open a nature center.

Habitat for Humanity Metro Maryland also receives support from the CFC, said Sandra Limjuco, volunteer supervisor and safety officer. The nonprofit organization creates affordable homeownership opportunities in Montgomery and Prince George’s counties.



CFC officially started on Sept. 1 and will end on Jan. 15, 2024. The theme is “Give Happy.”

**GIVE HAPPY**



Thousands of residents in the area are living at or below the poverty line, she noted. In addition, housing costs are skyrocketing while wages are not keeping pace. Habitat’s unique homeownership model helps break down barriers through community partnerships, increasing access to opportunities through rehab of vacant and distressed properties, new home construction, repair of existing homes and advocacy for affordable housing.

“Habitat for Humanity believes that no matter who you are or where we come from, we all deserve the opportunity to have a decent life,” Limjuco said.

Concluding the kickoff, Acosta said, “Your participation today and throughout the campaign will help make a crucial difference in many, many lives.”

CFC officially started on Sept. 1 and will end on Jan. 15, 2024. The theme is “Give Happy.”

For more information about the campaign, visit <https://cfc.nih.gov/>.



NIH Deputy Director for Intramural Research Dr. Nina Schor opens Research Festival 2023.

PHOTO: MARLEEN VAN DEN NESTE

## Festival

CONTINUED FROM PAGE 1

corner of all of the NIH campuses. You will see the work of scientists at every level of expertise from every area of biomedical science.

“You will have the opportunity to network with your colleagues, ask questions, to make suggestions, and generally just to schmooze with other people interested in biomedical science and its application to the health and wellbeing of people everywhere,” Schor continued. “That’s what makes this most



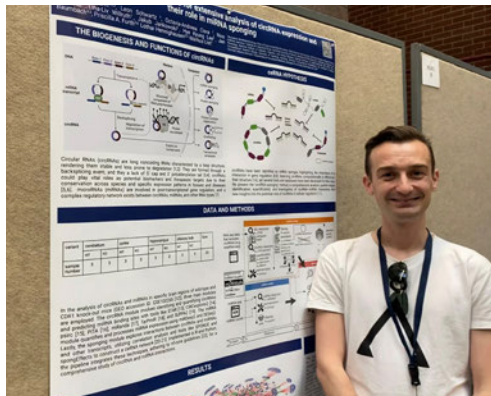
Dr. Parinaz Fathi of NIBIB and Dr. Tokunbor Lawal of NINR co-chair an Independent Research Scholars lecture session.

PHOTO: MARLEEN VAN DEN NESTE

exciting—the fact that it allows for interaction among people who might not otherwise get to see each other every day, the fact that it allows junior and senior members of our community and everyone in

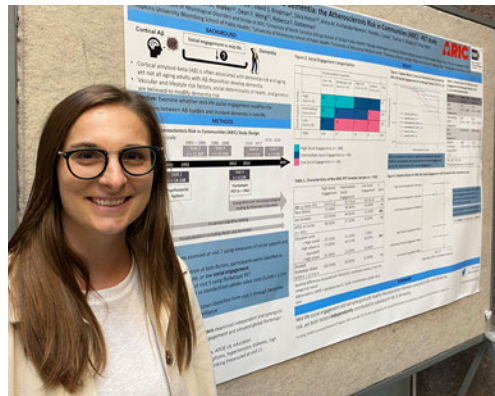
between to think together, talk together, have food together and to socialize around science and its application to the human condition.”

Over the course of five days, Research Festival 2023 held 12 workshops; four lecture sessions; a research resource vendor fair and exhibition; five poster sessions (see story, p. 1); a green labs fair; the 16<sup>th</sup> annual Philip S. Chen Jr. Distinguished Lecture on Innovation and Technology Transfer; the yearly salute to research animals (see story, p. 9); a National Academy of Sciences mini-symposium featuring NIH electees over the past two years; the G. Burroughs Mider Lecture, a special edition of the Wednesday Afternoon Lecture Series (see story, p. 1); a postdoc appreciation event; and an ice cream social. **R**



Markus Hoffman (left) shares the pipeline he developed to include circRNA analysis routinely in research. Renée Groechel (right) shared her research on how healthy social relationships in midlife protect one from developing Alzheimer’s disease and related dementias.

PHOTOS: MYRANDA TARR



## Posters

CONTINUED FROM PAGE 1

18 and 19. (A virtual poster session was held on Sept. 20.) From health disparities and stem cell biology to cancer and genomics, postbacs and postdocs shared their findings with peers and other members of the research community.

Dr. Renée Groechel, a postdoc with the National Institute of Neurological Disorders and Stroke, investigated how healthy social relationships in midlife might later protect one from developing Alzheimer’s disease and related dementias, even if the individual has amyloid pathology that is highly associated with dementia.

Data showed that having strong social relationships in midlife doesn’t necessarily modify the association between pathology and developing dementia, but Groechel and her co-authors found that strong social relationships in midlife did offer some level of protection from getting dementia in later life.

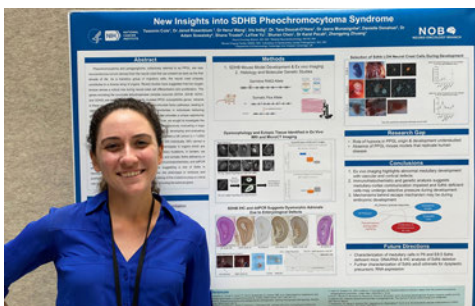
“While social relationships didn’t weaken the association between having amyloid

pathology and dementia, it independently showed that you’re a bit less at risk to develop dementia if you have healthy social relationships in midlife,” she explained.

In efforts to further understand how social relationships are linked to reduced dementia incidence, Groechel is now examining whether strong social relationships in midlife may modify the association between imaging markers of cerebrovascular disease and dementia.

Markus Hoffmann has been working with the National Institute of Diabetes and Digestive and Kidney Diseases for the last six months as he transitions to a postdoc position. He was interested in delving deeper into the circular RNA field—an area not widely researched because it can be hard to grasp.

He aimed to investigate data sets and make computational analysis feasible for biologists with no computation experience to investigate circular RNA in their data. This goal led to the development of a nextflow pipeline that is easy for everybody



At left, Ph.D. student Yasemin Cole presents her research on hypoxia and how it can regulate whether someone develops cancer. PHOTO: MYRANDA TARR At right, CC nurse Tracy Williams describes her research on the challenges of end-of-life pain in clinical trials. PHOTO: MARLEEN VAN DEN NESTE





The Clinical Center's South Entry lobby became "fair central" for Research Festival Week, as several events used the space for information booths, equipment demos and networking. At right and below, many workshops and small groups met in FAES classrooms. PHOTOS (EXCEPT WHERE NOTED): MARLEEN VAN DEN NESTE

to use and in the end will produce visual insights into the user's data.

"Data is linear so how would you get information about something circular in a linear context?" posed Hoffmann. "With the current tools, biologists were just overwhelmed with technicalities. With my pipeline, they can now finally include circRNA analysis routinely in their research."

A Ph.D. student in the Neuro-Oncology Branch of the National Cancer Institute, Yasemin Cole is studying hypoxia, a low quantity of oxygen, and how it can regulate whether someone develops cancer.

"Oxygen is very important—as we go up to a high altitude, we can feel like we're in need of air," explained Cole. "Similarly, our cells need that air to replenish nutrients to survive, and—at least in this case with mice—we think that having a lack of oxygen may be causing these cancerous cells to proliferate and develop further."

Through a first-of-its-kind mouse model focusing on hypoxia and pheochromocytoma, a rare adrenal gland tumor, Cole saw that changing one gene influences cancer development. The findings explore the concept of cancer and how it develops.

"Is it something we see in older age or something that happens really early in development, continues to persist and then progress into a cancer?" posited Cole. "We are studying the mechanisms to why we are seeing that."

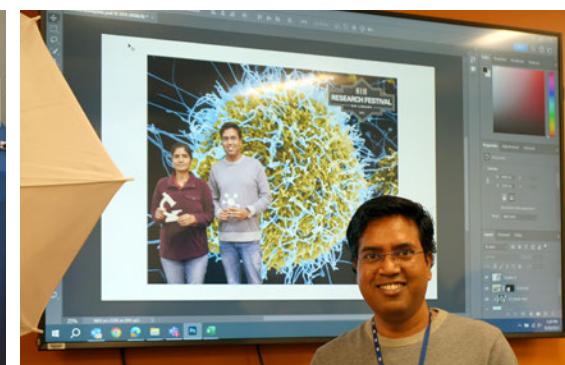
The poster sessions were one component of the first in-person festival since September 2019. The week-long event highlights the diversity of scientific disciplines within NIH's Intramural Research Program. **R**



Poster sessions were held on the FAES Terrace in the Clinical Center.



Reducing the lab footprint was a common theme at this year's Research Festival.



At left, NCI's Dr. Daoud Meerzaman addresses the NIH Bioinformatics Community Fair. Research festivities at the NIH Library: At center, 3D-printed scientific objects on display; at right, Dr. Kumar Ashish smiles in the NIH Library's recording studio for a souvenir postcard as part of this year's technology demo.

LIBRARY PHOTOS: DANA TALESNIK

## Sandler

CONTINUED FROM PAGE 1

Researchers have long attributed breast cancer to a combination of genetic, hormonal, lifestyle and environmental factors, though discerning precise environmental triggers remains tricky. An ongoing NIH research effort continues to shed light on those triggers.

In the early 2000s, public concerns over the rising rates of breast cancer inspired the National Institute of Environmental Health Sciences (NIEHS) to take action.

“Our institute leadership challenged us to do something new and gave us the opportunity to think big,” said Dr. Dale Sandler, chief of NIEHS’s Epidemiology Branch, who recently delivered the annual G. Burroughs Mider Lecture—part of the Wednesday Afternoon Lecture Series—during the NIH Research Festival.

This year marks the 20th anniversary of that landmark effort called the Sister Study, the largest national cohort of its kind to explore environmental causes of breast cancer, from pollution to personal care products.

“Women, especially, and environmental groups, were concerned not only about the steep rise in breast cancer incidence but also, in parallel, a steep rise in the use of

endocrine-disrupting chemicals in personal care products and common household products,” said Sandler.

For developing a breast cancer cohort, Sandler’s team deemed sisters of women who had breast cancer the ideal population to track over time.

“It occurred to us that sisters have twice the risk of developing breast cancer,” she said. And sisters likely share early-life experiences and exposures that could yield novel clues. “This would give us greater power to study gene-environment interactions and also to identify unusual or previously unknown environmental risks.”

Starting in 2003, over several years, the Sister Study enrolled 50,884 sisters of women who had breast cancer. All of the study participants had no breast cancer at the time of enrollment, though more than 4,000 of them have since been diagnosed with breast cancer.

Heartening to researchers is the sustained participation. The follow-up response rate has been 85-95% over time, not surprising given the emotional connection the sisters have to this research. The high response rate continues to drive a wealth of data.

Participants submit annual updates along with detailed questionnaires every three years. Women diagnosed with breast cancer also provide medical records. At enrollment, the researchers visited the homes of every participant to take clinical measurements, collect biological specimens—blood, urine, nail clippings—and even house dust.

“We collect extensive amounts of data across the lifespan,” Sandler said, from health to residential histories. The goal is to understand “periods



Sister Study recruiters discuss their research efforts in a new 20th anniversary video.

of enhanced susceptibility. For example, puberty is a period of rapid breast changes and growth and exposures during this time may be particularly relevant to breast cancer risk later in life.”

In analyzing early-life events, researchers found those who experienced early-life trauma—such as sexual trauma or household dysfunction—had elevated breast cancer risk.

“Part of the impetus for [probing trauma] was, when we met with interest groups in designing the study, many wanted to know if stress caused their breast cancer,” recounted Sandler.

The researchers also found that such early-life environmental factors as exposure to a parent’s tobacco use or living on or near a heavily trafficked road were associated with increased breast cancer risk.

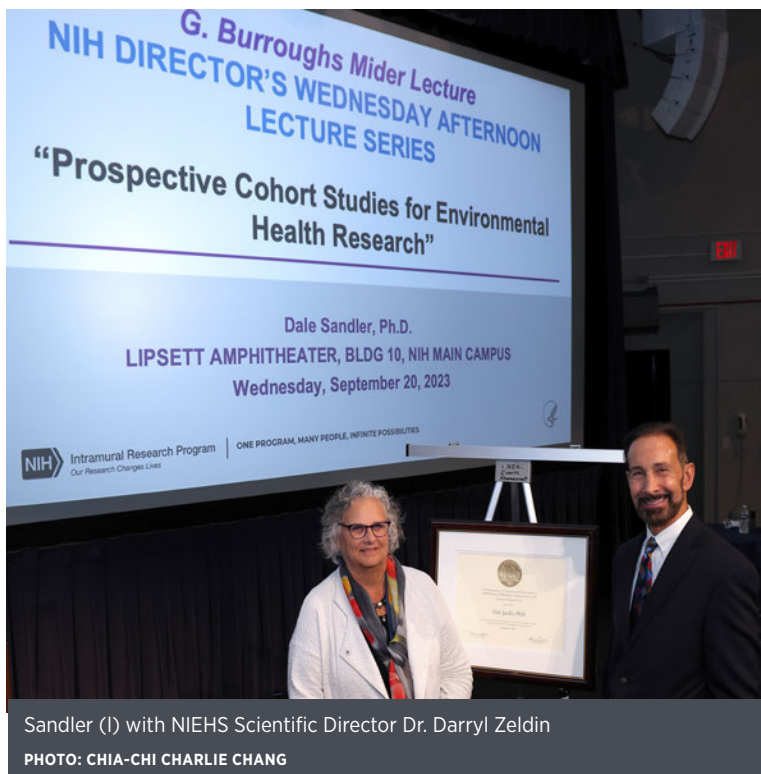
“Where you live matters,” Sandler said. “Where you live is a source of exposure to multiple stressors. It also determines your access to health care and other resources and services.”

Overall, breast cancer rates actually are higher among people with higher education and income levels, Sandler noted. The researchers found evidence however that a specific type, estrogen receptor-negative breast cancer, is more common among women living in disadvantaged communities.

Among lifestyle factors and chemical exposures, the Sister Study released noteworthy findings earlier this year involving the effects of hair products on breast cancer risk. Participants were asked how frequently they used hair dyes and straighteners in adolescence and adulthood. The findings reflect stark racial disparities.

Researchers found using hair straighteners at least four times a year increased breast cancer risk by 35%. This statistic is especially concerning for Black women, many of whom use hair straighteners throughout their lives, starting at a young age.

Permanent hair dyes showed a 7% increased breast cancer risk for White women and a staggering 45% increased risk



Sandler (l) with NIEHS Scientific Director Dr. Darryl Zeldin

PHOTO: CHIA-CHI CHARLIE CHANG





NIH Deputy Director for Intramural Research Dr. Nina Schor with former DDIR Dr. Michael Gottesman, before the lecture

PHOTO: CHIA-CHI CHARLIE CHANG

for Black women, Sandler said, “potentially reflecting the different products marketed to Black women as well as differences in hair texture and absorption.”

Racial disparities are an ongoing area of concern. The incidence rate of breast cancer in Black women is climbing and approaching that of White women. And, Sandler noted, “the mortality rate still remains disturbingly higher in Black women than in others.”

Subsets of the larger cohort are used for comparison and gaining deeper insights into noncancerous conditions and other health outcomes. Data on dietary patterns—sleep and light exposure at night, for example—are revealing more about obesity risk.

Obese women who are postmenopausal have a higher risk of breast cancer. Obese women are also at higher risk for type 2 diabetes, a disease that raises the risk of some types of breast cancer.

Going forward, Sandler’s team is expanding questionnaire topics to include hair texture, sunscreen use, housing characteristics and climate resilience. They’re also planning to collect more biologic samples from subsets of participants—including women who developed breast cancer during follow-up—to better understand changes in exposures over time in relation to breast cancer risk.

“This time, we’re going to focus on making sure we include a larger sample of our Black and Hispanic participants,” she said, “and also focus on the rare breast cancer subtypes.”

To learn more about Sister Study participants and findings, visit <https://sisterstudy.niehs.nih.gov>. **R**

## CELEBRATING ‘ALL MY RELATIONS’

### Reflecting on Animal Research

BY HEATHER DYAN SMITH

The seventh annual Animal Celebration and Reflection Ceremony was held on Sept. 18 as part of NIH Research Festival 2023 to honor the contributions research animals have made to biomedical research advances at NIH. The event was hosted by Dr. Mark Hoon of the National Institute of Dental and Craniofacial Research, vice chair of the animal research advisory committee, and featured remarks from NIH Deputy Director for Intramural Research Dr. Nina Schor and Rev. Diana Gomez de Molina of the Clinical Center’s spiritual care department.

The ceremony, held virtually for the past two years, was celebrated in person on the south lawn of the CC on a sunny fall afternoon. More than 50 individuals attended.

Schor began by acknowledging the purpose and importance of the event.

“I think of this ceremony, first and foremost, as paying tribute to the animals whose lives were given to the conduct of the studies that are so critical both for human health and for veterinary health,” she said. Schor also recognized individuals who support animal research at NIH and who “make it possible, not only for us to utilize animals as subjects in our research, but for those animals to be cared for in a way that looks after their physical wellbeing, their mental health and their use in appropriate numbers to make their use worthwhile.”

Gomez de Molina shared a phrase from the Lakota tradition, “*Mitákuye Oyás’ín*,” which means, “all my relations.” She invited everyone to “look at seeing not just humans as being related to each other, but at all the created order as being related to us.”

With that perspective, the event concluded as 23 flowers were laid at the commemorative plaque, symbolizing the 23 institutes and centers that comprise the NIH animal research program.

The plaque, originally dedicated in 2016, is located on the CC’s south lawn. Visitors are encouraged to visit the plaque and reflect with gratitude.

To watch a videocast of the event, go to <https://videocast.nih.gov/watch=52571>.



Visitors are encouraged to visit the plaque located on the CC’s south lawn.

PHOTOS: HEATHER DYAN SMITH



At left, Rev. Diana Gomez de Molina gives remarks Sept. 18 at the annual nod to animals used in research. At right, a visitor views the plaque dedicated in 2016 to recognize the important role animals play in scientific discovery.



At left and center, NIH'ers cheer on their favorite teams. At right, NINDS team ChloRide Like the Wind holds up their lab chief, Dr. Joe Mindell.

## Relay

CONTINUED FROM PAGE 1

teams—109 teams to be exact. K-Space Invaders dethroned last year's winner, The PCR: Postbac Chain Relay, with a final time of 14:03. Second place went to Run DMC (Da MRSP Crew) with a close time of 14:19, and Kuka Family came in third with a final time of 14:33.

On the beautiful 70-degree morning, NIH Deputy Director for Management Dr. Alfred Johnson welcomed participants to the relay.

“We really appreciate how you take the time to not only come do this, but what you do on a regular basis in terms of trying to stay healthy,” said Johnson, addressing the crowd. “Running is certainly one of those great activities that enables your body to continue to rejuvenate



Starting whistle: Dr. Alfred Johnson, NIH deputy director for management, with ORS Director Colleen McGowan

itself, so we ask that you continue to participate.”

Colleen McGowan, director of the Office of Research Services, was pleased to see such an overwhelming turnout the second year back in person after the pandemic.

“We’re very excited that many of you are out here because of your commitment to wellness and also being just part of “Team NIH,”” said McGowan.

“Representing your ICs, your labs, your office communities—this is what NIH is all about.”

Teams from across NIH brought the cre-

ativity once again with their unique names like You’re on Mute, Flossed & Furious, and Slow Fytometers.

After a high-energy warm up, the race was underway. The relay was divided into two



Race ya to the refreshment stand! Sometimes the running is all about the rewards afterward. Food trucks and swag bags awaited attendees at this year's relay.

heats, and teams consisted of five runners who each ran a loop around Bldg. 1. The last runner from each team trekked uphill between Bldgs. 1 and 2 to the finish line.

The Circulators, a group from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, had a few returning participants this year. While they classified themselves as “kind of” runners, they did prepare by running the course a few days before the relay.

“We’re ready,” declared Miranda Marvel, a



At left, Team CocoNUTS bears a striking resemblance to 2022's Team Golden Girls from the post-anesthesia care unit. At right, runners in mid stride

PHOTOS: MARLEEN VAN DEN NESTE

postdoctoral research fellow on the Circulators.

Returning team ChloRide Like the Wind was excited to participate in their first relay post-pandemic. The group from Dr. Joe Mindell's lab within the National Institute of Neurological Disorders and Stroke had several runners ready to leave their competitors in the wind.

The post-race cool down looked different for each runner. Some celebrated with their teams, some headed right for the water station or refueled with a banana, and others sprawled out on the grass as they caught their breath.

When one runner was asked by a fellow teammate "how it went," they simply huffed, "I finished."

Spectator Craig Rhodes has worked at NIH for 30 years and took some time in the afternoon to watch the relay and "relive the glory days." Rhodes has attended many relay events—even participating many years ago—and was impressed with how the relay has improved over the years.

"I've been here a lot of times," added Rhodes, "and it's grown quite significantly."

### Relay Top 30 Finishers

PLACE	TIME	#	TEAM NAME
1	14:03	20	K-Space Invaders
2	14:19	6	Run DMC (Da MRSP Crew)
3	14:33	59	Kuka Family
4	15:16	89	X-raycers
5	15:37	52	Get Off My GCase
6	16:01	62	Ignorance is Blisters
7	16:02	65	Hertz So Good
8	16:40	16	LMBeasts
9	16:58	45	qPAD: Cure Parkinson's & Alzheimer's Disease
10	17:00	70	Brew Crew
11	17:04	28	Wurtz Possible Runners
12	17:04	49	Paper Tigers
13	17:09	37	Running NOOb Association
14	17:25	82	Running to happy hour
15	17:28	13	Bacteria Blasters
16	17:29	42	Phelps Flyers
17	17:32	9	Mitochondria Maniacs
18	17:42	55	RuntimeError
19	17:48	97	Danio Dashers
20	17:49	91	Allele Avengers
21	18:07	80	Intrinsically Disordered Runners
22	18:14	8	ChloRide Like the Wind
23	18:16	84	cereBros
24	18:19	12	BSL-5
25	18:20	34	Easier Said than Run
26	18:20	46	Athletes Analyzing Alcohol
27	18:25	79	You're on Mute
28	18:27	1	All pain no gain
29	18:31	21	Please don't step on mitosis
30	18:35	68	Hear Today Gone Tomorrow



Above, K-Space Invaders finish first; Below, Run DMC (Da-MRSP Crew) takes second and Kuka Family come in third.



At left, several teams gather for a photo opp. At right, team Athletes Analyzing Alcohol show their team spirit.

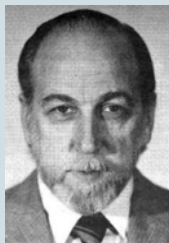


At left, Bernstein family and friends gather at one of two sculptures by Dr. Lionel Bernstein that they donated to NIH. Above, CC patient representative Capt. Antoinette Jones (l) greets Bernstein's wife, Jodie.

## Bernstein Sculptures Dedicated at CC

Two wood sculptures by Dr. Lionel M. Bernstein were dedicated at the Clinical Center (CC) on Oct. 6 in a ceremony held on the 7th fl. atrium, outside the CC chapel. A gastroenterologist born in Chicago in 1923, Bernstein had a long career at NIH, including serving as director of the National Library of Medicine's Lister Hill Center from 1978 to 1983.

The art was donated by Bernstein's family in October 2019 to promote a greater understanding of the intricate relationship between the arts



Dr. Lionel Bernstein, from the *NIH Record* 1978

and science and to enhance the aesthetics of the hospital environment. The dedication ceremony had been postponed for several years due to the Covid-19 pandemic.

At the ceremony, CC CEO Dr. James Gilman offered remarks, along with former CC Director Dr. John Gallin, close Bernstein friend and longtime NIH investigator Dr. Irwin Arias, Chaplain John Pollack and CC patient representative Capt. Antoinette Jones. Bernstein's wife, Jodie, also spoke.

Inspired by artist Henry Moore, Bernstein created his first sculpture after a trip to London with Jodie in 1970. That same year, Bernstein, who was also a specialist in internal medicine, was named associate director for extramural programs at what was then the National Institute of Arthritis and Metabolic Diseases.

By June 1978, he was serving as assistant deputy

director for research and education at NLM, receiving a Public Health Service Commendation Medal "in recognition of his development of a prototype computerized information transfer system for health care practitioners." Later that summer, he was named Lister Hill Center director.

When Bernstein started sculpting at age 46, he began to chip away at a six-foot-high piece of oak with chisels; frustrated at the slow pace of the work, he switched to a chainsaw. He also worked in metals and soapstone. He had his first gallery show in 2017 at age 93. Bernstein died in 2019.



At left, CC CEO Dr. James Gilman and Dr. Win Arias speak about art in a hospital's environment and Bernstein's unique contributions to NIH as scientist, administrator and sculptor. Above, the dedication ceremony was held on the CRC's 7th fl. atrium.

PHOTOS: CHIA-CHI CHARLIE CHANG