

BEYOND THE BUGS

New NIAID Director Discusses Goals

BY AMBER SNYDER

A new leader is at the helm of NIAID. Dr. Jeanne Marrazzo became the sixth director of the National Institute of Allergy and Infectious Diseases in September 2023. She joined NIAID from the University of Alabama at Birmingham, where she was director of the Division of Infectious Diseases.

The transition from Alabama to Maryland has been smooth, she said. “People are very welcoming here—I can’t say enough good things about the [NIH community].”

The pace of life is faster in Maryland, though, she noted: “People walk [much] faster here.”

Marrazzo is no stranger to the research infrastructure at NIH, having been a principal investigator on NIH grants continuously since 1997. She’d had a distinguished career in academic medicine leading to her candidacy and selection for the NIAID directorship.

“I’m thrilled to be here [and have this opportunity] to serve my country,” she said.

Her research has focused on sexually transmitted infections (STIs), with an emphasis on women’s health. She became involved in

HIV research early in her career, and quickly began to expand her focus into other STIs.

An infectious disease fellowship opened her eyes to the gender disparities in STI research and treatment.

“It became clear to me that not only did people not talk about STIs very much, but the impact [of the disorders] was much more profound on women’s genital tracts,” Marrazzo explained. “And, the health effects may not be noticeable [until later in life].”

As NIAID director, Marrazzo is eager to bring her perspective to the table.

One of her favorite parts of the week, she



NIAID Director Dr. Jeanne Marrazzo

SEE **MARRAZZO**, PAGE 4

NATURAL OR HUMAN DRIVERS?

Ancient Bison DNA Might Help Explain Effects of Climate Change

BY ERIC BOCK

DNA from bison that roamed North America thousands of years ago can provide insights into protecting and preserving species amid the threat of climate change, said Dr. Beth Shapiro, during a recent Wednesday

Afternoon Lecture in Lipsett Amphitheater.

“The diversity we see today is the product of lots of different expansions and contractions, local extinctions, replacements,



Dr. Beth Shapiro

SEE **BISON**, PAGE 8

WHAT’S YOUR POP-TART?

Wooten Offers Tips for Everyday Leaders

BY DANA TALESNIK

Leadership is a critical skill that defies job title.

“Each of us are everyday leaders,” said Dr. Lynn Perry Wooten, president of Simmons University in Boston, at a recent NIH Deputy Director for

Management (DDM) series seminar. Her virtual presentation contained four mini classes with lively discussions on communicating and collaborating in usual and unusual times.



Dr. Lynn Perry Wooten

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5K race held for Minority Health Month. See p. 12.

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Cruz-Correa To Give NCI Seminar, May 16

May 16

Dr. Marcia Cruz-Correa will present the next lecture in the NCI Center to Reduce Cancer Health Disparities' (CRCHD) Continuing Umbrella of Research Experiences (CURE) Distinguished Scholars Seminar (DSS) Series on Thursday, May 16, from 1:30 to 3 p.m. ET. Her talk is titled, "Molecular Disparities in Familial and Sporadic Gastrointestinal Cancer: A Model for a Physician-Scientist Career," and can be attended in person at NCI Shady Grove or via Webex.



Dr. Marcia Cruz-Correa

Cruz-Correa will describe hereditary cancer syndromes in gastrointestinal (GI) cancers, as well as germline and molecular profiles most predominant in Hispanic GI cancer patients. She will also review her involvement in developing a population- and clinic-based cancer registry and share a physician-scientist pathway within a minority serving institution, focusing on people, place, passion and purpose.

A former CURE K22 and R21 scholar, Cruz-Correa is professor of medicine at the University of Puerto Rico (UPR), investigator at the UPR Comprehensive Cancer Center and adjunct associate professor of medicine at Johns Hopkins University. In 2020, she became the first woman executive director of the UPR Comprehensive Cancer Center.

A physician-scientist with a strong focus on prevention, hereditary cancer and health disparities, Cruz-Correa is lead investigator for multiple NCI-funded clinical research programs and has been continuously funded by NIH for more than 19 years. Her research focuses on understanding the etiology and genetics of GI cancer, use of endoscopic methods for screening and surveillance of GI cancer and use of biological agents to intercept or treat cancer using early-phase clinical trials.

Cruz-Correa's career as a clinical investigator has combined her advanced endoscopic therapeutic skills focused on GI oncology, specifically understanding interception in the progression of disease for patients with familial adenomatous polyposis, Lynch Syndrome, Barrett's esophagus, GI metaplasia and colorectal cancer.

In addition to being a two-time CURE grantee, Cruz-Correa has also been involved in CRCHD's Partnerships to Advance Cancer Health Equity program as an investigator, principal investigator and internal advisory committee member for the UPR-MD Anderson Cancer Center U54 partnership. She is also a member of the center's newly announced Cancer Equity Leaders.

Director Celebrates Anniversary of Framingham Study

NIH Director Dr. Monica M. Bertagnolli joined Massachusetts State Rep. Katherine Clark (D-MA) and Boston University School of Medicine Dean Dr. Karen Antman at BU on Apr. 8 for an event celebrating more than 75 years of groundbreaking research from the Framingham Heart Study (FHS).

The long-term study began in 1948 with more than 5,200 adult residents in Framingham, Mass., and has resulted in over 3,000 peer-reviewed scientific papers and numerous breakthroughs in heart science, including insights into the cardiovascular effects of diet, exercise and smoking. Framingham is the U.S.'s longest running cohort study.

To learn more about the study, visit <https://www.nhlbi.nih.gov/75years/making-a-difference/framingham-heart-study>.



Celebrating Framingham's milestone are (from l) Boston University School of Medicine Dean Dr. Karen Antman, U.S. Rep. Katherine Clark and NIH Director Dr. Monica Bertagnolli.

Since 2021, she has been elected to the governing board of the Association of American Cancer Institutes and the Alliance Foundation for Clinical Oncology. Cruz-Correa was recently elected as the first Puerto Rican female member of the honorary Association of American Physicians. She is founding president of the Puerto Rico Colorectal Cancer Coalition, a not-for-profit organization focused on increasing awareness for colorectal cancer, education, and health policy efforts in Puerto Rico.

Cruz-Correa is a past board member of the National Cancer Advisory Board and the American Gastroenterological Association. She is also editor of several medical journals, including *Gastroenterology* and *AACR Cancer Prevention Research*. She has more than 130 peer-reviewed scientific articles and has mentored over 50 graduate students, residents and GI fellows as thesis/research advisor.

CURE supports individuals from diverse backgrounds across the academic continuum through a pathway of research funding opportunities. The DSS series recognizes outstanding former CURE scholars and their research.

Attend in person (NCI Shady Grove, Seminar Rm. 110) or via Webex at <https://bit.ly/3JCzs4e>. Individuals who need reasonable accommodation, email victoria.coan@nih.gov at least five business days before the event.



BTWD employer award presentation 2023

PHOTO: ERIC BOCK

Register for Bike to Work Day, May 17

The NIH Bicycle Commuter Club and the Division of Amenities and Transportation Services will host a Bike to Work Day (BTWD) pit stop on Friday, May 17 in front of Bldg. 1 from 7 a.m. to 8:30 a.m. Colleagues can celebrate bicycling as an environmentally friendly, fun and healthy alternative to driving, and can help NIH retain its title. Last year, NIH won the BTWD Employer Challenge for being the organization with the most participants biking to work in the Washington, D.C. area.

To register, visit <https://bit.ly/4dvkKtA> and enter "MD Montgomery Co National Institutes of Health Bldg. 1." Enter your employer as "National Institutes of Health." For more information, visit <https://www.biketoworkmetrodc.org>.

NIH Leaders, Massachusetts Policymakers Meet at the Broad Institute

NIH leaders met recently with Massachusetts policymakers at the Broad Institute of MIT and Harvard in Cambridge.

They shared highlights of the work of the *All of Us* Research Program in building its national health research infrastructure.

Staff from the U.S. congressional delegation representing Massachusetts also attended the briefing, which was led by NIH Director Dr. Monica Bertagnolli, *All of Us* CEO Dr. Josh Denny, Dr. Stacey Gabriel, principal investigator of the Broad-LMM-Color *All of Us* Genome Center, and Dr. Todd Golub, director of the Broad Institute. Also at the meeting were several members of the Cambridge City Council, Massachusetts Life Sciences Center and Kendall Square Association.

The program's enrollment and engagement partners in Massachusetts also attended, including principal investigators from Mass General Brigham and the Department of Veterans Affairs.

"The program's rich and diverse dataset is now a vital resource for medical researchers

across NIH, the country and indeed the world," said Bertagnolli.

Since the program's national launch in 2018, 790,000 people have enrolled, including 51,000 volunteers from Massachusetts. Participants are invited to share a wide range of data about themselves to help build one of the most diverse biomedical data resources of its kind.



NIH Director Monica Bertagnolli (second from l) joined Drs. Josh Denny (c) and Karriem Watson (r) at a meeting with Massachusetts policymakers, including Dr. Todd Golub (l), director of the Broad Institute of MIT and Harvard and Dr. Beth Karlson, co-principal investigator with the *All of Us* New England consortium.

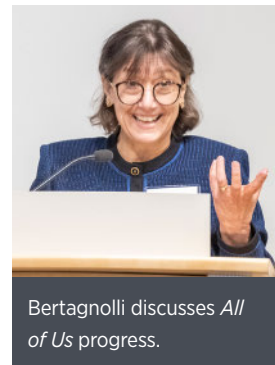
"*All of Us* is building an indispensable component for advancing health research," said Denny. "Our partners in Massachusetts and around the country have been integral in this success."

Broad serves as one of the *All of Us* genome centers, responsible for processing participants' biosamples so genetic data can be analyzed by researchers.

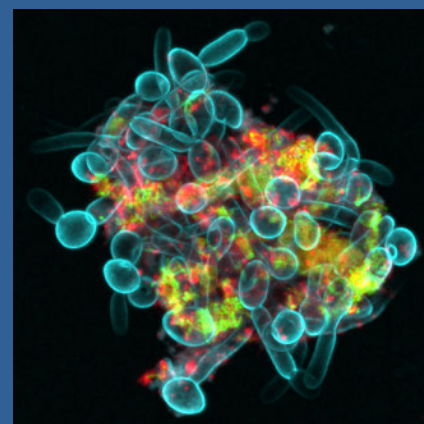
Working with Vanderbilt University Medical Center, Broad also helps coordinate the *All of Us* Data and Research Center, working to ensure the data is organized, secure and safely accessed by registered

scientists through the Researcher Workbench.

More than 10,000 investigators so far have registered for access to explore the data and make new discoveries. That includes more than 800 researchers from 44 organizations in Massachusetts. **R**



Bertagnolli discusses *All of Us* progress.



ON THE COVER: An interkingdom assemblage formed by fungi (*Candida albicans* in blue), bacteria (*Streptococcus mutans* in green), and bacteria-derived extracellular polymers (α -glucans in red) in human saliva.

IMAGE: ZHI REN/UNIVERSITY OF PENNSYLVANIA WITH SUPPORT FROM NIDCR

The NIH Record

Since 1949, the *NIH Record* has been published biweekly by the Editorial Operations Branch, Office of Communications and Public Liaison, National Institutes of Health, Department of Health and Human Services. For editorial policies, email nihreford@nih.gov.

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NIH leaders joined Massachusetts policymakers for a discussion about *All of Us* research.

PHOTOS: KYLE KLEIN



At left, Marrazzo (r) shares a light moment with NIH Director Dr. Monica Bertagnoli at the September swearing-in event. At right, Marrazzo is sworn in as NIAID director as Bertagnoli (l) administers the oath.

PHOTOS: CHIA-CHI CHARLIE CHANG

Marrazzo

CONTINUED FROM PAGE 1

shared, is the institute and center directors' meeting, where she and her counterparts get to collaborate on initiatives. This spirit of community factors into her vision for NIAID.

"By focusing so much of our research on the 'bugs,' we've missed [seeing] the whole person," she said.

Support for people with HIV, for example, requires mental health care as well as targeted treatment for the virus. In order



Marrazzo (l) meets with Dr. Michinari Hamaguchi, director general of Japan's Agency for Medical Research Development. See story, p. 5.

to have a more inclusive, whole-person approach to research, she said, we need to "consider how people really live."

Marrazzo is also looking forward to issuing NIAID's strategic plan this year. The institute hasn't released one since before the Covid-19 pandemic, so Marrazzo sees this as "a real chance to shake things up and ask ourselves hard questions."

As the first woman appointed to the NIAID directorship, Marrazzo is very aware of the need to foster inclusivity at NIH and beyond. She has observed improvements in gender parity and racial representation in clinical trials and wants to do more to hold grantees accountable.

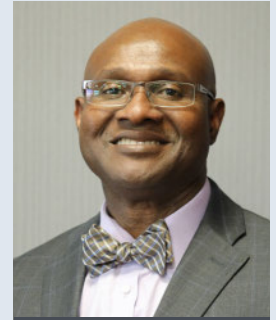
"When you diversify the people in the room, you invite in viewpoints that weren't there before," she said. "You can't help but be positive about it." **R**

HEALTH DISPARITIES IN DIABETES

Annual Gordon Lecture Features Egede, May 15

Dr. Leonard Egede of the Medical College of Wisconsin will deliver the annual Robert S. Gordon, Jr. Lecture on May 15 at 2 in Lipsett Amphitheater, as part of the Wednesday Afternoon Lecture Series (WALS).

The talk is titled "Addressing Health Disparities in Diabetes: Intersection of Structural Racism, Social Determinants, and Racial/Ethnic Disparities" and can be viewed online at <https://videocast.nih.gov/watch=53833>.



Dr. Leonard Egede

Egede is professor of medicine, the inaugural Milwaukee Community chair in health equity research and chief of the Division of General Internal Medicine at the Medical College of Wisconsin. He is known for creating interventions to improve health outcomes for high-risk racial and ethnic minorities.

His talk will focus on the evolution of the understanding of health inequalities and their impact on health outcomes for adults with diabetes. The focus will be promising interventions to meet social needs in adults with diabetes and novel policy-focused studies that can address upstream structural drivers of poor health outcomes.

The Gordon lecture is named in honor of the former assistant U.S. surgeon general and special assistant to former NIH Director Dr. James Wyngaarden. Topics focus on clinical research and epidemiology. Speakers are selected by NIH's Office of Disease Prevention.

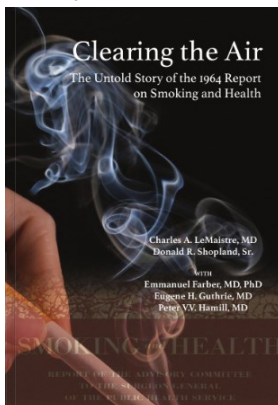
Learn more on the website at <https://oir.nih.gov/wals>.—**Diana Gomez**

BEHIND THE SCENES AT NIH

Book Available on 1964 Smoking Report

A book about the groundbreaking 1964 Surgeon General's report on smoking and health was recently published. Written by former National Library of Medicine employee Donald R. Shopland and colleagues, *Clearing the Air: The Untold Story of the 1964 Report on Smoking and Health* is available free to read online or via download.

The book provides a behind-the-scenes look at the work that went into compiling the 1964 report and the team appointed to get it done. To access *Clearing the Air*, go to: <https://bit.ly/44s6VrO>.



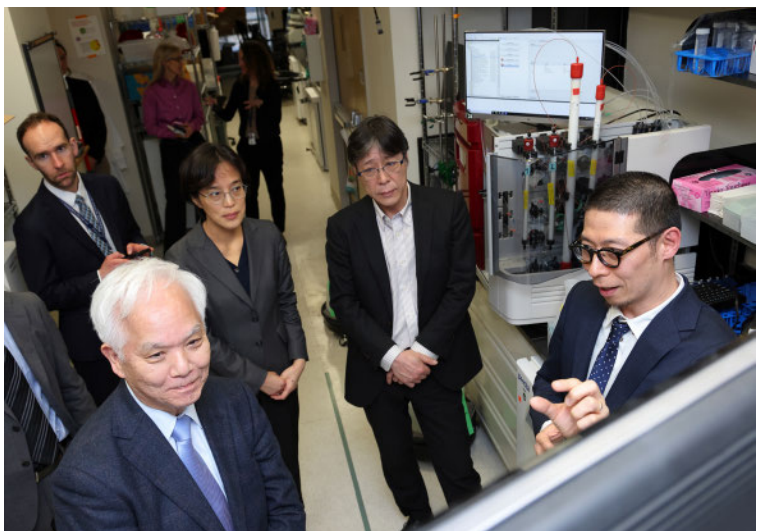
May 20

OBSSR Hosts White Riley Honors

The Office of Behavioral and Social Sciences Research (OBSSR) is hosting its 17th annual NIH Matilda White Riley Behavioral and Social Sciences Honors on Monday, May 20 from 1 to 4:30 p.m. ET.

The event recognizes both emerging scientists and leaders in the field whose research reflects White Riley's vision of research excellence in health-related behavioral and social sciences. She was a celebrated scientist and member of the National Academy of Sciences whose transformative work and leadership left a lasting impact in the behavioral and social sciences across NIH and beyond.

Register at <https://bit.ly/4bkzsBN>. Closed captioning will be available for the event. People who need reasonable accommodation may email ahurst@scgcorp.com at least three days in advance.



Vaccine Research Delegation from Japan Visits VRC

On Apr. 3, the Vaccine Research Center (VRC) hosted a delegation from Japan. Members affiliated with the Strategic Center of Biomedical Advanced Vaccine Research and Development for Preparedness and Response (SCARDA) in Japan's Agency for Medical Research and Development (AMED) learned about the VRC's pioneering research and activities.

The group toured the VRC's Bldg. 40 laboratories, during which they learned from VRC scientists about current research activities involving Nipah virus and influenza vaccine development.

Dr. Masaru Kanekiyo, chief of the VRC's molecular immunoengineering section, discussed his influenza research program involving novel, mosaic nanoparticle-based, supraseasonal vaccine candidates designed to provide long-lasting protecting against multiple flu strains.

Lab staff from the VRC's immunotechnology section demonstrated the use of probes to label and sort B cells as part of the isolation and development of therapeutic antibodies for Nipah virus.

The visit also included fruitful discussions about pandemic preparedness including a roundtable with delegation members, National Institute of Allergy and Infectious Diseases leadership, including NIAID Director Dr. Jeanne Marrazzo and VRC leaders.

ABOVE: At left, participating in the visit are (from l) Daniel Charlton, regional officer for Asia, NIAID Office of Global Research; Dr. Michinari Hamaguchi, SCARDA director general; Dr. Haruko Tsurumi, deputy director, Japan AMED Washington office; Dr. Minoru Tobiume, director, Group of Infectious Disease Emergency Action Simulation, SCARDA; and Dr. Masaru Kanekiyo, chief, VRC molecular immunoengineering section. At right, in another VRC lab, are Ashley Heimann, VRC biologist; Dr. Rosemarie Mason, head, VRC Monoclonal Antibody Isolation Program; Dr. Kristen Reifel, VRC staff scientist; and Hamaguchi.



ABOVE: In a conference room at the Vaccine Research Center in Bldg. 40, NIAID Director Dr. Jeanne Marrazzo (center, r) and VRC Director Dr. Ted Pierson (center, l) lead a roundtable discussion on pandemic preparedness. BELOW: The vaccine briefing included (from l) Tsurumi; Hamaguchi; Pierson; Marrazzo; VRC Deputy Director Dr. Richard Koup; Tobiume; and Takuto Miyamoto, director, Japan AMED, Washington office.

PHOTOS: CHIA-CHI CHARLIE CHANG



Wooten

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Good communication, she said, starts with presenting your authentic, best self. Your identity, values and unique skills all are strategic assets in the workplace.

“What are you bringing into NIH that influences your communications strategy?” Wooten challenged. Identity encompasses many strategic nuggets—culture, upbringing, family, interests, personality, age and generation, and experience among them. Job title also is an asset.

“You show up with your role and you show up with your soul,” she said.

Your values offer another source of competitive advantage. What among many dozens of core values guide your work and can help empower your colleagues? Awareness, empathy, motivation, learning, fairness, diversity, resilience, to name a few. One of Wooten’s is the pursuit of excellence.

“I’m that mom if you get a 99 on the test, I’m going to ask you about that one point,” she said. “In my communications strategy, I’m always talking about excellence. What are the results we want to produce? What does excellence look like? How can I support you in excellence?”

Bringing your authentic self to the table engenders trust and strengthens relationships, Wooten said, drawing on advice from Carla Harris, senior advisor at Morgan Stanley and a past DDM speaker.

Another powerful way to lead with impact is storytelling.

“Stories define who we are, give us a purpose and show where we’re going,” Wooten said in her second mini class. At work, stories help colleagues connect, share values and have difficult conversations. Stories can grab attention. They can be memorable and persuasive.

“Our brains are wired for stories,” she said. “They make us visualize something; they personalize it. Every story becomes relational and a call to action.”

In telling stories at work—perhaps about an



opportunity or an inspirational person or overcoming an obstacle or highlighting a personal value—make the characters vivid, she said. Set the scene. Have a goal in mind. Define the desired outcome or lessons learned. Use data where appropriate. Make your story a teachable moment.

A third mini class addressed a topic many people dread—meetings. Wooten has a different take.

“Meetings are where things happen in organizations,” she said. “Meetings are where work is planned, where work is done, where we build community. It’s where we have learning.”

Whether in-person, virtual or hybrid, meetings boost engagement and keep staff in the loop. They’re a place to showcase stories, persuade and inspire.

“Everyday leaders,” she said, take note. “If you want to be effective at communication, you need to know how to show up and engage in meetings and how to plan them.”

Be intentional, Wooten advised. Go in with a vision and a path to action. Use that time to build relationships and foster teamwork and trust.



NIH Deputy Director for Management Dr. Alfred Johnson moderates a Q&A, with NINDS Associate Director for Management Maryann Sofranko and NIH Associate Director for Budget Neil Shapiro.

“Everything you say in a meeting should advance the individual and team learning,” she said. Reverse the bad reputation of meetings. “People should look forward to meetings for personal reasons and professional development.”

Leaders also must adapt communication during unusual times. Crises are inevitable, yet there are strategies to help navigate them. In the fourth mini class, Wooten tied in her earlier tips and tools, showing how meetings, storytelling and being authentic are all integral during times of crisis.

“When crisis hits, communications and actions must change,” Wooten said. “We have those meetings, but we’re uncertain. Decision-making happens under pressure. The team must come together to be agile, creative and seize opportunities.” It’s a time for collective action while leaders are managing and adapting for resiliency and learning.

Wooten outlined five crisis phases. The first is scanning the environment, gathering data and perspectives, making sense of the emerging situation. Then, there’s the preparation and prevention phase—debating and employing creative practices and solutions. Next comes containment, a period that may require risk-taking and certainly requires communicating to allay fears among teams and across the organization. During the last two phases, business recovery and learning in action, leaders bounce back and plan ways to improve.

“Even in a crisis situation, you can have innovation,” she said. “You can boost employee morale. You can make sure stakeholders feel supported.”

During the pandemic, storytelling was a successful strategy to motivate people to get vaccinated, Wooten noted. And purchasing data in crisis times helped a major chain keep up with demand. Data showed people not only stocked up on water and batteries, but they also bought a lot of Pop-Tarts—a quick, ready treat that appeased their kids.

“What is your Pop-Tart in the organization?” Wooten asked. “How are you preparing? In a crisis, it’s ‘all hands on deck.’ There’s no expert in the room. You’re like a jazz band—everybody is improvising.” What will you learn and how will you bounce back?

“Crises are opportunities to communicate and be creative and really think about how we can build a better world.” **R**

Alter To Deliver 2024 NIAID Chanock Lecture

Dr. Galit Alter, distinguished immunologist, virologist and vice president of immunology research at Moderna, will deliver this year's NIAID Robert M. Chanock Memorial Lecture.

Her talk, "Defining Humoral Correlates of Immunity Across Pathogens," will take place on Tuesday, May 14, at 9 a.m. in the Bldg. 50 first floor conference room. The lecture is in-person only, and all members of the NIH community are welcome to attend. The lecture honors Chanock, who served as chief of the NIAID Laboratory of Infectious Diseases for more than three decades.



Dr. Galit Alter

Alter established her laboratory at the Ragon Institute of Massachusetts General, MIT and Harvard. There, she developed new tools to study how antibodies could direct the potent activity of the innate immune system. She found inspiration in the field of systems immunology, an innovative approach to designing and developing vaccines. This approach directed her efforts toward defining the unexplored role of the humoral immune response in fighting global threats such as HIV, tuberculosis, malaria, Ebola, influenza and more.

Her work in this area resulted in developing a new field of study called systems serology that aims to improve our understanding of how the immune system works. This field, combined with systems-based antibody Fc-engineering, has begun to define the mechanistic basis of protection against pathogens within tissues.

In her lecture, Alter will discuss how comprehensive antibody profiling strategies, including systems serology, provide critical insights into mechanisms by which humoral immune response can leverage the innate immune system to fight and control disease. Coupled with next-generation vaccine strategies, understanding the correlates of immunity may help guide the development of new classes of highly effective vaccines for some of our most elusive pathogens.

Alter is a member of the American Society of Immunologists and Glycobiologists, has received awards from Merck, NIH and the German Society for Virology, sits on advisory boards for the Pasteur Institute and the Instituto de Medicina Molecular, and serves on organizing committees for the Federation of Clinical Immunology Societies, Keystone Symposia and the mRNA Health Conference.



NIMHD colleagues serve as volunteer chefs at the Children's Inn. Front row (from l): Elizabeth Garofalo, Shilpa Amin, Seema Desai, Rina Das, Maryline Laude, Monica Webb Hooper, Nancy Jones, Gina Roussos. Back row (from l): Olga Herren, Kimberly Allen, Kristen Moseley, and Julie Anderson

PHOTOS: KRISTIN ARABIAN

NIMHD Staff Bring Curated Cuisines to Children's Inn

BY JACKIE BARNES

When the National Institute on Minority Health and Health Disparities (NIMHD) staff recently served as volunteer chefs for the Family Dinner Program at the Children's Inn, they brought a lot to the table.

For hours, the kitchen was abuzz with the tap-tap-tap of knives mincing vegetables, the hissing of crockpots and the fun of colleagues working together in new ways.

The aromas of coconut rice and Alfredo and tomato sauces filled the air.

The culinary efforts culminated in a pasta bar and a taco-fajita fusion—meals as diverse as the 12 administrators, researchers, staff and directors who cooked them. The combined volunteer chefs represent more than six different cultures and are just a portion of the people working to promote health equity at NIMHD.

"Our meals were inspired by our diverse team members who wanted the children and their families to taste the foods they associate with comfort and love," said Kimberly Allen, NIMHD executive officer and one of the organizers of the experience. "In the process, it was heartwarming to see our teams share and learn one another's unique and special ways of cooking in togetherness."

Another group of 13 staff, including NIMHD Director Dr. Eliseo Pérez-Stable, also volunteered.

The Family Dinner Program at the inn hosts volunteers who prepare meals for children with rare and serious diseases and their families in a home-like environment. To learn more about the program, visit <https://childrensinn.org/get-involved/family-meals-program/>.



Serving at the inn are (front, from l) Assen Assenov, Stan Viner, Laude, Desai, Das, Moseley, Karen Nieves-Lugo, Anderson, (back, from l) Kelly Jones, Antoinette Percy-Laurry, Ranae Johnson, NIMHD Director Dr. Eliseo Pérez-Stable and Allen.

Bison

CONTINUED FROM PAGE 1

turnovers in populations,” said Shapiro, professor in the department of ecology and evolutionary biology at the University of California, Santa Cruz. “Climate—not humans, not hunters coming in and killing things for the first time—is really the first-order driver of these events.”

There are two types of bison living in North America today: plains and woods. Plains bison are generally smaller in size and have a smaller and more rounded hump than woods bison. Plains are more common in the South, while woods are found more often in the North.

Their ancestors first crossed into North America at least 160,000 years ago from Asia. Bison quickly spread and became one of the most abundant species on the continent until the turn of the 20th century when they nearly went extinct.

Shapiro and her team use the latest experimental and computational approaches to analyze bison DNA extracted from fossil and archived remains buried in permafrost. By studying ancient DNA, she can track the evolution of species over time.

“Ancient DNA refers to the state of DNA,” she said. “It’s mostly degraded—chopped up into tiny little fragments. Those fragments contain different types of DNA damage. These typical types of DNA damage make it hard to recover and make sense of the DNA.”

The field of ancient DNA first started in 1984 when Dr. Allan Wilson’s extinct species study group at the University of California-Berkeley isolated a tiny fragment of DNA from the pelt of a quagga, an extinct zebra relative. At the time, it was surprising that DNA could remain in old tissue. The research inspired Michael Crichton’s *Jurassic Park*.

DNA can last a very long time, but it doesn’t last forever. DNA stays preserved longest in cold areas of the world, like Siberia or the Yukon. Caves are also a great environment for long-term DNA preservation because they are cool, temperature-controlled and dark.

wetter. Plants and grasslands become more abundant, she said. This habitat allowed the bovids to range further South into present-day United States. Abundant grasslands even encouraged some of these bison to evolve into *Bison latifrons*, also known as the giant bison.



“Is there something from the past...that we might be able to use and apply to make more informed decisions about how to protect and preserve species today?”

-DR. BETH SHAPIRO



Shapiro and her team collect samples in Siberia or Canada, a part of the world where the Bering Land Bridge once was. During the Pleistocene, the planet’s last Ice Age, glaciers formed and sea levels dropped. A 1,000-mile-wide bridge was exposed.

Many of the iconic animals from

this period, such as mammoths, mastodon and woolly rhinoceros, lived in the area, she said. Fossils from these animals can help scientists learn how fluctuating temperatures and the introduction of people affected the animals.

“The hope was to use ancient DNA to figure out why some of these species disappeared while others survived,” Shapiro said. “Is there something from the past that could tell us why some ecosystems are more resilient

in the face of harsh habitat climate change that we might be able to use and apply to make more informed decisions about how to protect and preserve species today?”

When bison first arrived from Asia, they shared grassland with horses and other megafauna, or large animals. In between Ice Ages, the climate became warmer and

During the coldest part of the Ice Age, a glacier formed in present-day Canada. It created a barrier. For 10,000 years, species couldn’t cross it. As a result, bison populations in the North and South became genetically distinct from each other.

During the peak of the Ice Age, 20,000 years ago, the climate became colder and drier. Grasslands declined. Once grass disappeared, bison populations declined. Horses outcompeted bovid populations temporarily, but eventually went extinct in North America. Around this time, the mammoth also went extinct. Bison nearly went extinct, as well.

“Whatever was driving these processes was driving all these animals simultaneously,” Shapiro said.

After the Pleistocene, grassland returned and the bison population exploded. Millions of bison lived on the Great American Plains. For thousands of years, they were an important source of food, clothing, shelter and tools for Native Americans. Shapiro added archeological records that show evidence of “bison jumps,” where hunters herded bison and drove them over cliffs. Tens of thousands of buffalo would be slaughtered at the same time.

In the late 1800s, European settlers hunted bison to near extinction. Conservationists intervened and the population slowly rebounded. Today, both plains and woods bison are protected separately from each other.

A changing climate is no longer changing the genetic diversity in these populations. “Instead, it’s us,” Shapiro concluded. **B**



Shapiro holds up an ice age bison skull found in Yukon, Canada.

NIH Researchers Develop AI Tool Toward More Targeted Cancer Treatment

NCI researchers developed an artificial intelligence (AI) tool that uses data from individual cells inside tumors to predict whether a person's cancer will respond to a specific drug. This model potentially could be used to help doctors more precisely match cancer patients with drugs that will be effective for their cancer. Findings from this pilot study were published in *Nature Cancer*.

Current approaches rely on bulk sequencing of tumor DNA and RNA. However, tumors contain more than one type of cell and often have many different types of subpopulations of cells. Individual cells in these subpopulations are known as clones. Researchers believe these subpopulations of cells may respond differently to specific drugs.

A newer technology known as single-cell RNA sequencing provides much higher resolution data, down to the single-cell level. Using this approach to identify and target individual clones may lead to more lasting drug responses.

In the new study, researchers investigated whether they could use machine learning to predict drug responses using widely available data but fine-tuning it using single-cell RNA sequencing data. Using this approach on published cell-line data, researchers built AI models for 44 FDA-approved cancer drugs. The AI models accurately predicted how individual cells would respond to both single drugs and combinations of drugs.

Researchers then tested their approach on published data for 41 patients with multiple myeloma treated with a combination of four drugs, and 33 patients with breast cancer treated with two drugs. Scientists discovered that if just one clone were resistant to a particular drug, the patient would not respond to that drug, even if all the other clones responded.

In addition, the AI model successfully predicted the development of resistance in published data from 24 patients treated with targeted therapies for non-small cell lung cancer.

Researchers developed a website and guide for how to use the AI model, called Personalized Single-Cell Expression-based Planning for Treatments In Oncology (PERCEPTION), with new datasets.

Skin Test Detects Evidence of Parkinson's

A research team led by Dr. Christopher Gibbons of Beth Israel Deaconess Medical Center has been working to identify accessible biomarkers that could help diagnose Parkinson's disease and other neurodegenerative disorders.

Alpha-synuclein is a protein found in brain and nerve cells. When an abnormal form of this protein accumulates in the brain and nervous



PHOTO: PEOPLEIMAGES.COM-YURI A/ SHUTTERSTOCK

system, it can lead to serious neurodegenerative disorders. Of these disorders, collectively known as synucleinopathies, Parkinson's disease is the most common. Others include dementia with Lewy bodies, multiple system atrophy and pure autonomic failure.

Common symptoms of these disorders include tremors, cognitive changes and progressive disability. There's been no reliable way to detect them; diagnosis often depends on assessment by specialists in movement or cognitive disorders.

Gibbons and his team had previously found that abnormal forms of α -synuclein (phosphorylated, or P-SYN) could be detected in skin nerve fibers. They designed a study to test whether the presence of P-SYN in simple skin biopsies could identify people with synucleinopathies.

More than 400 participants were enrolled in the study across 30 sites between February 2021 and March 2023. This included 277 people who had been diagnosed with one of the four synucleinopathies based on clinical criteria. Another 151 people with no history of neurodegenerative disease served as controls.

All participants underwent an expert panel review to confirm their diagnoses. They had small skin biopsies (3 mm) taken from the neck, knee and ankle. These were then tested for the presence of P-SYN. Results were reported in the *Journal of the American Medical Association*.

The team found that skin biopsies could detect a high proportion of participants with synucleinopathies. P-SYN was found in 93% of those with clinically confirmed Parkinson's disease, 98% of those with multiple system atrophy and 96% of those with Lewy body dementia. In addition, the biopsies recognized all of the 22 participants clinically diagnosed with pure autonomic failure. Levels of P-SYN in biopsies also correlated with disease severity.

Gibbons said, "With a simple, minimally invasive skin biopsy test, this study demonstrated how we can more objectively identify the underlying pathology of synucleinopathies and offer better diagnostic answers and care for patients."—**Vicki Contie**, adapted from *NIH Research Matters*

system, it can lead to serious neurodegenerative disorders. Of these disorders, collectively known as synucleinopathies,

Drug Shows Promise for Slowing Progression of Rare Genetic Disease

A drug used to treat certain bone diseases shows promise for slowing the progression of a rare, painful genetic condition that causes excessive calcium buildup in the arteries, known as arterial calcification due to deficiency of CD73 (ACDC). The results are from a first-in-human clinical trial supported by NHLBI. The study, published in *Vascular Medicine*, could lead to the first effective treatment for the rare disease.

ACDC, which has no known cure, often targets the arteries of the legs and can make walking painful and difficult.

It can also affect the joints of the hands, causing pain and deformities. In severe cases, the condition can lead to potential limb loss. Symptoms often begin in the late teens and 20s. An extremely rare disease, it is believed to affect only about 20 people worldwide.

In the study, NHLBI researchers evaluated the safety and effectiveness of an existing drug, etidronate, in treating calcification of the arteries and impaired blood flow in the legs of seven people (four women and three men) with ACDC. Although few, they collectively represent about one-third of all the known cases in the world.

Treatment consisted of taking the oral drug daily for two weeks, every three months, over a three-year period. Researchers measured calcium deposits using CT scans and tested blood flow using the ankle brachial index, a non-invasive tool, at the start of the study and at annual follow-ups.

The treatments appeared safe, with no adverse side effects reported. The drug appeared to slow the progression of new calcium deposits in the blood vessels of the legs and patients reported their symptoms, such as pain and motion impairment, improved. However, the drug did not reverse calcium deposits already present in the affected blood vessels and joints.

Lessons learned from the current study could allow development of novel therapies for ACDC as well as shed light on other diseases involving excessive calcium buildup in the arteries, including peripheral artery disease and atherosclerosis.



A CT angiography scan of a person with ACDC disease showing abnormal calcification of the blood vessels in the legs and feet.

PHOTO: NHLBI

NINDS's Nath Receives Humanism in Neurology Award

Dr. Avindra Nath, clinical director at the National Institute of Neurological Disorders and Stroke



Dr. Avindra Nath

(NINDS), recently received the 2024 Ted M. Burns Humanism in Neurology Award from the American Brain Foundation.

The award celebrates scientists whose work embodies humanism in patient care, education, advocacy and everyday encounters. The award acknowledges the influence of neurologists

who advance the field and make knowledge more accessible through innovative teaching.

He received the award at the American Academy of Neurology Annual Meeting, during its Commitment to Cures Gala on Apr. 13 in Denver, Colo.

Nath was honored for humanism that shows in his everyday interactions with staff and colleagues and his commitment to diversity—both in recruitment of participants for clinical trials and in his mentorships.

Throughout his career, Nath's personal touch with patients has helped advance his virological research, often leading to significant findings for many diseases. As a resident in neurology, Nath began seeing people with AIDS despite the social stigmas that were present at the time.

During the Ebola epidemic, when the virus was spreading, he traveled to Liberia to evaluate patients. Nath journeyed to Brazil to discuss microcephaly during the Zika epidemic and trekked to remote areas of Uganda to visit patients with Nodding syndrome in their living environments.

With knowledge gained there, Nath identified that Nodding syndrome is likely a complication of onchocerciasis (also known as river blindness). Onchocerciasis is a disease caused by the parasitic worm *Onchocerca volvulus*. Although this is still being studied, public health measures taken in response to this discovery have significantly reduced the incidence of nodding syndrome.

When Covid-19 emerged, Nath was one of the first to identify and characterize its neurological complications. His current work includes leading a multi-institute project on the pathophysiology of myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) and studying Long Covid.

Nath earned his medical degree from the Christian Medical College in Ludhiana, India. He completed both a neurology residency and a

neuroimmunology fellowship at the University of Texas Health Science Center, and a fellowship in neurovirology at NINDS—working in the section on molecular virology and genetics in the Laboratory of Viral and Molecular Pathogenesis.

In 1990, Nath left NIH to join the University of Manitoba faculty in Winnipeg, in the departments of medical microbiology and internal medicine. He joined the faculty of the University of Kentucky in the microbiology and immunology and neurology departments in 1997.

He joined NINDS in 2011 as clinical director, director of the Translational Neuroscience Center, and chief of the section of infections of the nervous system. In addition to his work on ME/CFS and Long Covid, Nath's research focuses on understanding the pathophysiology of retroviral infections of the nervous system and developing new diagnostic and therapeutic approaches for these diseases, as well as characterizing the HIV virus in the brain and studying the mechanisms by which the virus persists for extended periods of time.

In collaboration with other NIH researchers, Nath and his colleagues also are learning from people with undiagnosed neuroimmune and neuroinfectious diseases and developing new diagnostic methods and modes of treatment for these diseases.—**Shannon E. Garnett**

Gordon To Step Down as NIMH Director

Dr. Joshua Gordon was managing a thriving career as a professor, researcher and clinician when his mentor suggested he apply for the position of director of the National Institute of Mental Health (NIMH).

At the time, Gordon was an associate professor of psychiatry at Columbia University Medical Center, a research psychiatrist at the New York State Psychiatric Institute (NYSPI) and an associate director of the Columbia University/NYSPI Adult Psychiatry Residency Program. He also maintained a psychiatry practice, providing one-on-one care for patients living with mental illnesses.

"I was blessed with a rich array of enthusiastic collaborators and committed trainees, a supportive university administration, and funding—my lab was flourishing," said Gordon. "I'd never thought about being an institute director. But the opportunity to think broadly, serve communities around the country and contribute to transformative new treatments beckoned."

In July 2016, then-NIH director Dr. Francis Collins announced the selection of Gordon as the next NIMH director. Gordon brought his unique perspective—as a neuroscientist and psychiatrist—to

NIMH, the lead federal agency for research on mental disorders.

Eight years later, after shepherding NIMH to its 75th year, Gordon announced he would step down as NIMH director on June 14.



Dr. Joshua Gordon heads back to Columbia University in June.

Gordon's vision and influence are evident across NIMH's intramural and extramural research programs. Under his leadership, the institute has made strides in enhancing suicide prevention research, expanding neural circuit research to include translational efforts, and investing in computational psychiatry to bring powerful modeling approaches to mental health research. NIMH has also supported groundbreaking advances in mental health practice and services, from innovative treatments to

developments in telemedicine and other digital health technologies, which proved instrumental during the Covid-19 pandemic.

"I'm proud of our initiatives and the people at NIMH, NIH and beyond who helped bring them to life," said Gordon. "As NIMH celebrates its 75th anniversary, I can confidently say that the institute has made many impactful contributions to

support the nation's mental health. It fills me with pride and excitement to be part of it."

Sharing these advances with the public—through social media, blog posts, media interviews, online Q&As, podcasts and videos—has also been a priority throughout Gordon's tenure.

"It's crucial that people see our work and understand how mental health research can help make a meaningful difference in people's lives," said Gordon.

In June, Gordon plans to return to Columbia University as chair of the Department of Psychiatry at the Vagelos College of Physicians and Surgeons and psychiatrist-in-chief of the New York Presbyterian Hospital campus at Columbia University Irving Medical Center. Gordon will also serve as director of NYSPI. The move reunites Gordon with his family, who reside in New York.

"It's been a fantastic journey and I know I'm leaving the institute in great hands with NIMH's talented and dedicated staff," said Gordon.

Following Gordon's departure, NIMH deputy director Dr. Shelli Avenevoli will serve as acting NIMH director while NIH conducts a national search to fill the role.

"Dr. Gordon's commitment to advancing neuroscience and psychiatry is only matched by his dedication to helping the millions of people impacted by mental illnesses," said Avenevoli. "He will be missed."

NIH Scientist Emeritus Korn Remembered

Dr. Edward Korn, an NIH scientist emeritus since 2016 who retired in May 2023 from the National Heart, Lung and Blood Institute (NHLBI), died on Mar. 31.

Born in 1928 in Philadelphia, Korn received his Ph.D. in biochemistry from the University of Pennsylvania (UPenn) in

1954. As a graduate student he accepted fellowships with both UPenn and the new intramural research program of the former National Heart Institute (NHI, now NHLBI), joining renowned NIH staff including Drs. Christian Anfinsen, Robert Berliner, Earl and Thressa "Terry" Stadtman, Jack Orloff and Martha Vaughan, among others.

Korn began his research initially in the lab of Anfinsen, working on the hydrolysis of lipoproteins, then moved on to establish his own Laboratory of Cell Biology in 1974, where he pursued pioneering research for the next 65 years.

Korn's work in biochemistry and cell biology defined the fundamental basis of actomyosin contractility. He discovered single-headed, non-filamentous myosins and the regulation of nonmuscle myosins by heavy chain phosphorylation. He also obtained early evidence for actin filaments in nonmuscle cells and their association with the plasma membrane and the regulatory roles of actin-binding proteins and ATP hydrolysis in actin polymerization.

Seminal discoveries such as those earned Korn many accolades, including election into the National Academy of Sciences in 1990, the NIH Merit Award in 2001 and the Nencki Award from the Nencki Institute of Experimental Biology in Poland.

"Ed was one of NIH's giants," noted Dr. James Sellers, senior investigator in NHLBI's Cell and Developmental Biology Center (CDBC). "He was a great example of a biochemist who defined a



Dr. Edward Korn

biological system and worked to understand how it worked in detail."

Dr. Clare Waterman, CDBC director, describing the unparalleled impact of Korn's research, said, "When I was being recruited to NIH in 2007, as a cytoskeletal cell biologist, one of the most exciting things about the prospect of coming here to NHLBI was the idea of following in the footsteps of the actual 'father of cytoskeletal research.' Ed Korn revealed the most fundamental basic principles of how the cytoskeleton worked, and his discoveries lie at the very foundation of our understanding of how eukaryotic life is animated. His passing truly signifies the end of an era."

Korn also served as NHLBI's fifth scientific director (SD) from 1989 to 1999.

"Ed's commitment to building a robust scientific and clinical intramural research program cannot be overstated," said NHLBI SD Dr. Rick Childs, in an email to NHLBI's Division of Intramural Research staff. "He was a key proponent in establishing the shared resources subcommittee of NIH scientific directors to fund and oversee trans-NIH initiatives and facilities and served as the committee's first co-chair."

NIH's Nuclear Magnetic Resonance (NMR) Center, globally recognized as a center of excellence for NMR research, is one of the initiatives created while Korn was chair. Additionally, he championed the idea of establishing scientific core facilities within NHLBI to provide state-of-the-art services, techniques, instrumentation and expertise to DIR investigators. This concept—novel at the time—was subsequently widely adopted across the IRP, leading to more strategic resource management for NIH's intramural research environment.

Dr. Robert Balaban, who succeeded Korn as NHLBI SD of the Laboratory Research Program, summarized his impact.

"As SD, his goal was to have excellence and precision in the science conducted in the DIR," Balaban explained. "He believed that providing investigators the intellectual freedom to follow their nose and perform innovative, high-risk science was the best approach, as long as the quality and impact of their research was outstanding."

Korn authored or co-authored more than 250 peer-reviewed papers, and wrote and edited over 60 book chapters.

Dr. John Hammer, CDBC senior investigator, shared his experience working as a postdoctoral fellow in Korn's lab: "Ed had a steel-trap mind, an unwavering desire to define biological mechanism, and, while tough, was always fair. What shone through most in Ed's science was its rigor—'You must do science with the utmost rigor so that others can build upon what you have done.' His passing is certainly an end to an era in NHLBI, but the essence of what he taught and practiced will remain deeply ingrained in the DIR."

The Edward D. Korn fellowship was established in 2018 to support outstanding NHLBI

postbaccalaureate fellows for their Ph.D. training through an affiliated NIH Graduate Partnership Program.

Korn's survivors include wife Mickey, daughters Betsy and Sarah, and a granddaughter. NHLBI plans to organize a ceremony to celebrate Korn's life in science. **R**

FEEDBACK

Feedback: Is there a reason there is no employee handicapped parking in the Bldg. 10 parking garage? General NIH employee parking on the P3 level has zero handicapped parking spaces. To find handicapped spaces, one has to go to MLP-9 outside the blood bank entrance, be exposed to the elements and walk/roll farther than if parking in the Bldg. 10 garage.

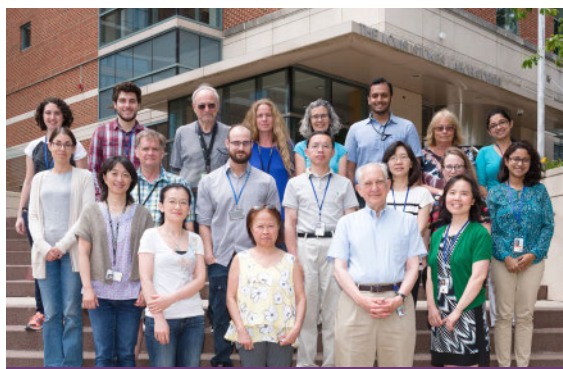
Response from the Employee Transportation Services Office (NIH Parking Office), Division of Amenities and Transportation Services:

Disability parking spaces for patients, visitors and employees in the Bldg. 10 (ACRF garage) are located on the P-1 level. To avoid parking fees, employees will need a Gold Disability Hanger issued by the NIH Parking Office and patients must have been validated by the Patient Service Desk when exiting from the P-1 level. Parking attendants are available on P-1 and can help address your needs or questions. If you have additional questions or concerns, contact the NIH Parking Office at (301) 496-5050 or email nihparkingoffice@nih.gov.

VOLUNTEERS

Brain Anatomy Study Recruits

Dr. Armin Raznahan, along with his team at the National Institute of Mental Health, is conducting research using MRI to delve into brain function and anatomy. They are currently looking for healthy female volunteers ages 6-18 to explore connections between brain and behavioral measures. Receive \$400 if you complete all parts of the study. If you reside outside the Washington, D.C., region, travel and lodging for the volunteer and one accompanying parent will be provided. Minors are welcome with parental consent. If you are interested in participating or have any inquiries, contact the Clinical Center Office of Patient Recruitment at (866) 444-2214 (TTY users dial 711) or ccopr@nih.gov. Refer to study #89-M-0006. Find more information at <https://go.nih.gov/3pT1c9m>.



Korn, with his lab, in front of the Stokes Bldg. in 2017

NIMHD Hosts Walk/Run/Roll 5K for Minority Health Month

BY SEPPIDEH SAMI

Several hundred NIH'ers gathered Apr. 11 on the front lawn of Bldg. 1 on the Bethesda campus to participate in the NIH Minority Health Walk/Run/Roll 5K event.

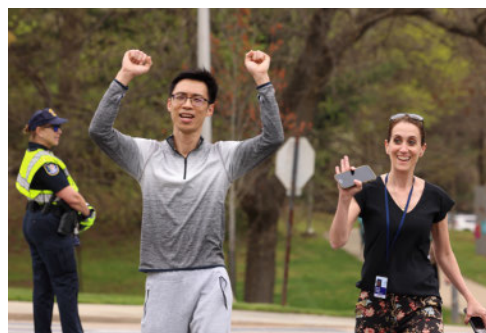
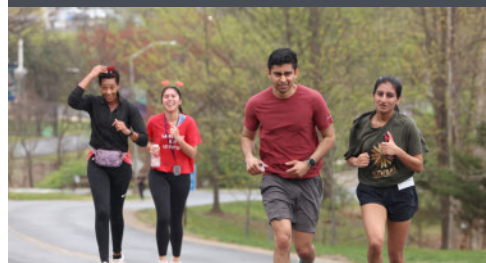
Sponsored by the National Institute on Minority Health and Disparities (NIMHD) and the Office of Research Services (ORS), the event is held annually in observance of National Minority Health Month (NMHM). Its goal is to raise awareness about the importance of improving the health of racial and ethnic minority communities and reducing health disparities.

Race participants and volunteers came from more than two dozen institutes, centers and offices, and included NIH staff from sites on Democracy Blvd. and other workplaces. NIMHD Director Dr. Eliseo Pérez-Stable and guest speaker Capt. Tarsha Cavanaugh, principal deputy director of the HHS Office of Minority Health, offered inspiration to the crowd. Then, at noon, participants raced in solidarity to support the public health observance.

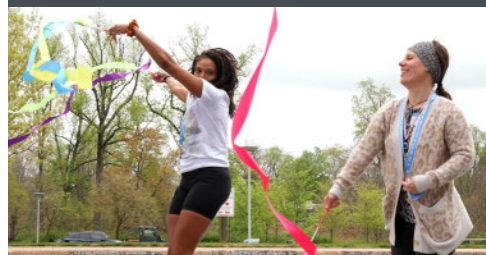
The 2024 NMHM theme, “Be the Source for Better Health: Improving Health Outcomes Through Our Cultures, Communities and Connections,” aimed to raise awareness about the need to provide quality, equitable and respectful care and services that are responsive to diverse cultural health beliefs and practices, preferred languages, economic and environmental circumstances, and health literacy levels. This year’s theme focused on topics critical to advancing health equity among minority populations—social determinants of health and cultural competency and humility.



Above, Capt. Tarsha Cavanaugh, principal deputy director, DHHS Office of Minority Health, offers inspiration to racers. Below, runners take the final uphill slope toward the finish line.



Above, participants celebrate the finish. Below, ribbon dancers celebrate the race.



NIMHD's Kelli Carrington cheers on the event.



NIMHD Director Dr. Eliseo J. Pérez-Stable greets the crowd.



Overcast skies did not dim enthusiasm for the annual 5K.



Racers start their run in front of Bldg. 1 on NIH's Bethesda campus.

PHOTOS: CHIA-CHI CHARLIE CHANG