July 23, 2021 Vol. LXXIII, No. 15

National Institutes of Health

SPEED, AGILITY, OPPORTUNITY

122nd ACD Discusses Wide Range of Topics

BY CARLA GARNETT

A lot has happened in the few months since President Joe Biden told a joint session of Congress on Apr. 28 that he wanted NIH to have a new component with the "singular purpose-to develop breakthroughs to prevent, detect and treat diseases like Alzheimer's, diabetes and cancer."

The proposed organization, an "Advanced Research Projects Agency for Health" (ARPA-H), to be built using DARPA (Defense Advanced Research Projects Agency) as a model, moved swiftly into high-level conversations-from briefings with lawmakers visiting NIH to



NIH director Dr. Francis Collins, during the recent virtual ACD meeting

hearings with NIH leaders visiting Capitol

Recently, NIH director Dr. Francis Collins moved ARPA-H further ahead, bringing the concept to his top thought leaders outside the agency—the advisory committee to the director (ACD). The group gathered June 10-11-virtually again-for its first meeting of 2021.

Accent on Boldness

And, who better to present the

paradigm-shifting ARPA-H premise than the President's chief science advisor and director of the White House Office of Science and Technology Policy Dr. Eric Lander, the first biologist appointed to the post and the first person to hold the position at Cabinet level. He's also a longtime NIH friend and a former ACD member.

"There are at least two reasons why we should always be thinking that even though we have the most amazing biomedical enterprise ever created, why couldn't it be better?" Lander said, after pointing out the nation's extraordinary biomedical ecosystem driven by two powerful forces—fundamental biomedical research and a vibrant commercial sector-that "connect in this virtuous cycle" to discover knowledge and therapies beneficial to all.

But, he asked, are there things missing in the ecosystem? And isn't now the perfect time to tackle some big questions in science

SEE ACD, PAGE 4

MOVING UPSTREAM

Manchanda Makes the Case for Whole Person Care, Equity

BY DANA TALESNIK

Doctors are trained to examine the biological causes of illness and many delve into

personal habits and other behavioral factors for a more complete health profile. Health professionals, though, often overlook a key component of well-being, said Dr. Rishi Manchanda, a physician, entrepreneur and public



Dr. Rishi Manchanda

health leader whose work experience has led him to speak out about this vital aspect of whole person care.

Health care institutions, he said, must

SEE MANCHANDA, PAGE 6

RESTORING LOST VISION

New Stem Cell Treatment Developed for AMD

BY AMBER SNYDER

Dr. Kapil Bharti of NEI is developing a stem cell-based therapy to prevent and restore



Dr. Kapil Bharti

vision loss caused by age-related macular degeneration (AMD). He spoke as part of the Sayer Vision Research Lecture Series, with his talk "Translating human RPE biology into disease treatments using induced pluripotent stem cells."

AMD typically occurs in individuals over age 65 and targets the retinal pigment epithelium (RPE) of the eye, which forms a monolayer of cells in the back of the eye



Monitoring the Future drug use report released. See Digest, p. 9.

ALSO THIS ISSUE

NEI Joins Nigeria Eye Research Centre in Partnership
NIMHD Calls for Coleman Research Award Nominations
Launer To Lead NIA Lab
Milestones
FAPAC Marks Heritage Month12

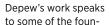
SEE AMD, PAGE 8

NHGRI Conference To Celebrate Work of David Denew

The NHGRI History of Genomics Program will host

a 1-day conference, From the "Baldwin Effect" to Genes of Small Effect: Celebrating the Work of David Depew. The event will be held virtually on Thursday, July 29 at 11 a.m. (ET).

Depew, professor emeritus at the University of lowa, was among the first philosophers and historians of genetics to also address some of the fundamental legacies of Aristotle in modern biology.



dational questions that have emerged out of the evolutionary synthesis, affirming that philosophy of biology without the history of biology cannot address fundamental questions about the natural world. His work underscores the political and social ramifications of biological knowledge, while also affirming that developments in philosophical vocabulary continually inform discussions of biology and evolution.

An NHGRI conference

will celebrate the work

of Dr. David Depew,

professor emeritus at

the University of Iowa.

Eight internationally recognized scholars will draw from themes in Depew's work across several areas of the history and philosophy of biology.

The History of Genomics Program collects, organizes and makes accessible historic materials related to the field of genomics and NHGRI. By bringing together historians and philosophers of biology, the conference will help to increase the understanding of genomics, its history and its philosophical and ethical implications in the scholarly community and among the wider public.

To register, visit https://nih.zoomgov.com/webinar/register/WN_lbUvTMIIS2KwS9wCyi1_aA.

Human Resources Clinic Scheduled

Aug. 3

NIH's Office of Human Resources will host an HR knowledge and personal connection clinic, "Partnering in Support of Science," on Tuesday, Aug. 3 for the scientific and administrative community. Join the virtual WebEx event from 8:30 a.m. to 4:30 p.m. for a full day of sessions hosted by HR subject matter experts. Topics include benefits, compensation, performance management, CIVIL and more. Attendees may select the session(s) they would like to attend throughout the day.

The clinic is an opportunity to connect with OHR

NIH Among 2020's 'Best Places to Work'

The 2020 Best Places to Work in the Federal Government rankings have been released and NIH is featured among six government agencies for its exemplary employee experience during the Covid-19 pandemic.

The rankings are calculated by the Partnership for Public Service, providing the most comprehensive measure of employee engagement across government.

NIH continues to be one of government's most prominent employers of choice with an employee engagement score of 81.7 out of 100, 12.7 points higher than the government-wide score of 69

NIH is ranked among Best Places to Work in the Federal Government.

PHOTO: LYDIA POLIMENI

and 6.4 points higher than the HHS-wide score of 75.3. More notably, if NIH were its own agency, our engagement score of 81.7 would put us in 2nd place among large agencies, right after NASA.

To learn more about how NIH prioritizes employee engagement, read https://bestplacestowork.org/analysis/profiles/cdc-nih/. View NIH's results at https://bestplacestowork.org/rankings/detail/?c=HE38 and the full government-wide rankings at https://bestplacestowork.org/rankings/?view=overall&size=large&category=leadership&.

and learn more about its components. Read details at https://hr.nih. gov/about/ events/hr-clinic. Register at https://www. eventbrite. com/e/ human-resourc-

es-clinic-part-



nering-in-support-of-science-tickets-160010821675. Questions? Contact OHRPartners@nih.gov.

FAES Coffee Bar, NIHFCU Branch Reopen in Bldg. 10

The Bldg. 10 FAES coffee bar and the NIH Federal Credit Union branch have reopened to staff, patients and visitors.

The coffee bar will be open Monday through Friday, 7 a.m. to 3 p.m., and is located adjacent to the FAES Bookstore (which is also open) on the 1st floor in Bldg. 10. Direct questions to ORS at (301) 827-3248 or ORSWEPB@ors.od.nih.gov.

Also, NIHFCU, on the B1 level of Bldg. 10 (next to the B1 cafeteria), is now providing full services. This branch will be open on Wednesdays and Fridays, 9 a.m. to 4 p.m. for the foreseeable future. For more information, visit: https://www.nihfcu.org.

As more people return to the physical workplace, ORS will continue to evaluate the return to work

levels of staff and determine what services can and should be provided.

Follow @NIHEmplSrvcs on Twitter for more information about services to help you balance work and family, make healthy food choices, as well as other programs and employee services to improve your well-being.



The FAES Bookstore and several other employee amenities have reopened in Bldg. 10.

NEI Joins Nigeria's National Eye Centre in Research Partnership

BY LESLEY EARL

The National Eve Institute has created a U.S.-Africa vision research collaboration with Nigeria's National Eye Centre (NEC) to study children's eye health. In a recent virtual ceremony, NEI director Dr. Michael

Chiang and NEC director Dr. Mahmoud Alhassan signed a memorandum of understanding between the two organizations. The event also hosted a virtual scientific symposium on vision research with speakers from the U.S. and Nigeria.

The agreement forms the framework for a new African vision research consortium and the African Longitudinal Eye (ALE) Study to be centered at the NEC in Kaduna, Nigeria.

ALE, focusing on visual outcomes, will be initiated as part of the Kaduna Infant Development (KID) Birth Cohort Study,

which is being created by Dr. Musa Kana, currently a postdoctoral fellow at the National Institute of Environmental Health Sciences. Although this new agreement is non-binding and provides no funding,

it clears a path for NEI and NEC to share expertise, resources, data and more in pursuit of vision research.

"It's our hope that through this program we can connect with the next generation of scientists in Africa and make a long-term collaboration Gyan Prakash, associate director of NEI's Office of International Program Activities. "There are tremendous research gaps and opportunities when it comes to genetics, infectious diseases and other eye conditions in Africa where we can learn from each other. We hope this collaboration will

help us work with our colleagues in Africa to close that gap, improving the health of people there, in the U.S. and around the world."

The partnership began with a chance meeting last year between Kana and Kerry Goetz, associate director of NEI's Office of Data Science and Health Informatics. Both were attending a virtual science event for the NIH Common Fund's DS-I Africa program.

Kana belongs to the first cohort of the African Postdoctoral Training Initiative (APTI) Fellowship, a program organized by NIH's Fogarty International Center that brings postdoctoral fellows from across Africa to NIH for several years of training. With a background in perinatal and pediatric epidemiology, Kana is

using his time at NIH to develop his KID Birth Cohort to study the genetic and environmental factors that contribute to stunting in Nigerian children.

Stunting—impaired growth and development in children—is a significant issue in Nigeria and other parts of Africa. But one of the major gaps for Kana has been how to manage data collection and storage for his massive project.

Goetz's knowledge of data science—and in particular, her experience running NEI's eyeGENE

> program—will help close that gap. eyeGENE is a database of genetic and phenotypic information from people with rare genetic eye diseases, paired with biological samples and contact information for participants. Over the 13 years since its inception, data and samples from eyeGENE have contributed to hundreds of research publications.

"eyeGENE has a robust framework for gathering clinical data and biobanking samples, and this kind of framework can serve as a model for Dr. Kana's project," said Goetz. "For now, we're

still building protocols and setting up the project, but hopefully we'll be working together for many years to come."

"When I saw that eyeGENE collects data from

all over the United States, trying to figure out what is the genetic basis of rare eye diseases, this really struck a chord with me," said Kana. "I had so many questions about how we collect, manage, store and archive our data, and Ms. Goetz is really helping me get answers to those questions."

To capitalize on Goetz's experience, Kana has expanded the vision component to his KID study, creating ALE. This vision research project will enroll pregnant women, collect environmental and genetic data and then follow the eye and vision health of children through their sixth year. Of

particular interest is the development of myopia, a condition that is rapidly increasing in prevalence around the world.

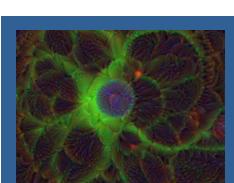
> "There haven't been a large number of studies about eye and vision health during prenatal and early childhood development in Africa," Kana said. "Collaborating scientists from NEI, from other U.S.-based research institutions, from institutions in Africa, will be able to come on board and ask questions about the developmental origins of eye health and diseases and use the platform that we're creating."

In addition, Kana intends to build a genetics and biobanking platform based on the eveGENE model, which will be available for future research

projects in Africa, the U.S. and around the world.

"Dr. Musa Kana has really proven himself to be a very strong scientist, communicator and organizer, and has really pushed this collaboration forward," said Dr. Peter Kilmarx, FIC deputy director. "The future looks pretty bright for this kind of collaboration. We're excited to assist NEI in setting up this project, especially with its strong emphasis on data science and vision science."

"Once I get this project up and running, I'd like to expand beyond Nigeria," said Kana. "I've gotten to know and establish collaborations with my colleagues in the [APTI] fellowship program, who come from many different countries. I hope to use these connections to expand this vision research project across Africa, really getting to understand the connection between the environment, genetics and vision health." R



ON THE COVER: Scientists teach computers to analyze brain cells. While analyzing brain cells, a computer "thinks" about which cellular structure to identify

IMAGE: STEVEN FINKBEINER, GLADSTONE INSTITUTES

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 nihrecord@nih.gov.

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Dr. Gyan Prakash

Kerry Goetz

of all areas of eye diseases," said Dr.





Dr. Eric Lander and Dr. Tara Schwetz

LANDER IMAGE: CASEY ATKINS PHOTOGRAPHY, COURTESY
BROAD INSTITUTE

ACD CONTINUED FROM PAGE 1

that don't naturally fit into the current research apparatus?

Advances in the last decade or so have

shown what's possible, he said, and the current "moment of unprecedented scientific promise" challenges us to look at critical gaps in the traditional research structure.

Noting that speed, risk and agility would be critical elements of ARPA-H, Lander said, "The idea is to have this entity coupled closely to NIH so it can draw on the vast knowledge, expertise and activities of NIH...

but it should be different. It should be something with a unique culture, organization and independence to take risks and do things in different ways."

Another familiar face, NIH associate deputy director Dr. Tara Schwetz, currently

on detail to OSTP, outlined aspects of DARPA that a fledgling ARPA-H could adapt.

ACD members expressed both excitement and some concern.

"Nobody's sold yet that we have [ARPA-H design] exactly right," Collins acknowledged, "but we have a pretty interesting shape that now needs some of those details to be filled in, and that's what we're going to be doing."

Listening Sessions on ARPA-H have been planned. See sidebar below for schedule.

Progress Versus Covid

The 122nd ACD meeting deliberated for more than 10 hours spread over the course of 2 days. Collins began day 1 of the ACD meeting as usual with a director's report covering NIH news, events, as well as budget



During the ACD virtual meeting, Dr. Monica Webb Hooper (I), Dr. George Mensah and Dr. Rachael Fleurence addressed NIH efforts against Covid.

and legislative outlooks that had developed since the December ACD gathering.

Of course, in the age of worldwide pandemic, "normal" updates have given way to progress reports on NIH's advances against Covid-19.

ARPA-H Listening Sessions Set

In July and August, NIH, in collaboration with the White House Office of Science and Technology Policy, is organizing a series of listening sessions with the science community to get feedback from patient advocacy groups, industry, scientific professional organizations and other stakeholders to inform the planning process for ARPA-H. Meetings are open to those who want to register.

Sessions will vary in format from broad, public discussions to smaller, invitation-only meetings to discuss more sensitive information.

Materials from the sessions, including agendas, summaries, presentations and videos will be posted on the ARPA-H website, as applicable.

Videocasts of open meetings that took place before July 26 are available here: https://www.nih.gov/arpa-h/events.

Information on Listening Sessions:

- July 26 | 2:15-3:30 p.m. ET Ophthalmology, Deafness and Communication Disorders, and Dental and Craniofacial Disorders Register https://nih.zoomgov.com/webinar/ register/WN_xyOCRIVhQNOEHkPbYZMvqA
- July 30 | 9-10:15 a.m. ET Minority Health and Health Disparities, and Nursing Register https://nih.zoomgov.com/webinar/ register/WN_DmDWe5pLQP2x6esau3LgXQ
- Aug. 2 | 9-10:15 a.m. ET Addiction and Alcoholism Register https://nih.zoomgov.com/webinar/ register/WN_WdrYgSdLQY-dJdMKJ-lhvQ
- Aug. 3 | noon-1:15 p.m. ET Diabetes, Digestive Disorders and Kidney Disease, Child and Maternal Health, and Complementary and Integrative Medicine

Register https://nih.zoomgov.com/webinar/register/WN_ENGS22LEQdSBNTm5fZz-rQ



Meharry's Dr. James Hildreth, during a 2018 ACD meeting

PHOTO: CHIA-CHI CHARLIE CHANG

Most of the first day focused on updates from senior leadership: NIAID director Dr. Anthony Fauci discussed vaccines. NIAID deputy director for clinical research

> and special projects Dr. Clifford Lane and NHLBI director Dr. Gary Gibbons talked about accelerating Covid therapeutic interventions (ACTIV).

NIMHD deputy director Dr. Monica Webb Hooper and NHLBI senior advisor Dr. George Mensah briefed the group on the Community Engagement Research Alliance (CEAL).

"We have begun to surface a number of important insights from the work of field research

teams who are on the ground working in real time—listening humbly and in a bi-directional way," noted Webb Hooper. "Their work is shaping the adaptation of public health messages and interventions, based

- Aug. 4 | 2-3:15 p.m. ET Biomedical and Translational Research and General Medicine Register https://nih.zoomgov.com/webinar/ register/WN_GPE5IdIBRdiicRBZgAbftQ
- Aug. 5 | 10:30-11:45 a.m. ET Allergies and Infectious Diseases, and Global Health Register https://nih.zoomgov.com/webinar/ register/WN_uqEpOrDvSfmcmpPha0G5WA
- Aug. 11 | noon-11:15 p.m. ET Genomics, Biomedical Engineering and Imaging, and Health Informatics, and Medical Libraries

Register https://nih.zoomgov.com/webinar/register/WN_u0tOSwDyRQagClpIjc-fnw

• Aug. 16 | 2:30-3:45 p.m. ET Neurology and Mental Health Register https://nih.zoomgov.com/webinar/

register/WN FZQ8HVvlQ8GrNmCX5mYAiQ



ACD member Dr. Barbara Wold PHOTO: CALTECH

on engagement within communities."

Field insights from more than 100 engagement activities include notable misinformation about Covid-19 and vaccines, elevated vaccine hesitancy and low vaccine confidence, inequitable access to vaccine, and overall adverse effects of the pandemic on mental health. For the latest CEAL news, visit https://covid19community.nih.gov/.

NICHD director Dr. Diana Bianchi and special assistant to the NIH director for Covid diagnostics Dr. Rachael Fleurence described progress with rapid acceleration of diagnostics (RADx).

NHLBI deputy director Dr. Amy Patterson ended the Covid presentations with a report on RECOVER (researching Covid-19 to enhance recovery), NIH's comprehensive effort aimed at understanding and addressing long-term effects of the illness (also known as PASC, or post-acute sequelae of SARS-CoV-2).

NIH deputy director for extramural research Dr. Mike Lauer and NIH deputy director for management Dr. Alfred Johnson closed the day's session with a presentation on NIH efforts to redress harassment.

UNITE Update Offered

Day 2 began with a report on UNITE by its co-chairs, new chief officer for scientific workforce diversity Dr. Marie Bernard, Johnson and NIH principal deputy director Dr. Lawrence Tabak. A representative of each of UNITE's five subcommittees briefly discussed objectives and long- and short-range targets to eliminate structural racism in biomedical science at NIH and in the broader scientific community that NIH funds and influences.

"Francis has done something extraordinary," said ACD member Dr. James Hildreth of Meharry Medical College, after UNITE's presentation of its initial goals and progress.

"What [NIH is] doing is going to change the prospects for folks who look like me in research for many decades to come."

NIH Office of Strategic Coordination program officer Dr. Gene Civillico and NIH deputy director for program coordination, planning and strategic initiatives Dr. James Anderson talked about the Common Fund's Bridge to Artificial Intelligence initiative.

Final Report Delivered on Animal Research

The ACD working group on enhancing rigor, transparency and translatability in animal research delivered its comprehensive 53-page final report, which contained a number of recommendations organized in five themes.

"What we're all working toward," concluded working group co-chair Dr. Barbara Wold of California Institute of Technology, "is a much more robust body of knowledge—for the time that we scientists put into the entire enterprise, for the use of animals in the most ethical way, for the dollars coming from the public and, ultimately, for the amount of benefit that we all get from improved health care."

After discussion, ACD members voted unanimously to accept the group's report, which is online at https://acd.od.nih.gov/documents/presentations/06112021_ACD_WorkingGroup_FinalReport.pdf.

Adjourning the 2-day meeting, Collins congratulated the group for surviving the marathon Zoom session with resilience and enthusiasm.

"It has been quite an intense and widely divergent set of topics that we put in front of you," he said, noting the impact of occurrences over the last 18 months of global pandemic coupled with national civic unrest. "We are energized by your presence and the opportunity to talk about these things. We do grow weary at times, but we don't lose heart. We're privileged to be involved in this noble enterprise of biomedical research. We do shoulder a lot of responsibilities, but we embrace that."

With notes of optimism, a video of Collins performing his Covid-specific rendition of *Here Comes the Sun* closed the meeting.

ACD day 1 is archived online at https://videocast.nih.gov/watch=42269 and day 2 is at https://videocast.nih.gov/watch=42270.

TIME TO NOMINATE

NIMHD Calls for 2022 Coleman Research Award Applicants

NIMHD recently announced its 2022 William G. Coleman Jr., Ph.D., Minority Health and Health Disparities Research Innovation Award. This competitive award program is designed



Dr. William Coleman, for whom the research award is named, died in 2014.

to support 1-year innovative research projects contributed by postdoctoral fellows, staff scientists and staff clinicians within the NIH Intramural Research Program that have the potential for high impact in any area of minority health and health disparities research.

Preference will be given to candidates

under the mentorship of NIMHD intramural or adjunct intramural investigators, although this is not a requirement for the award. Resubmissions are permitted. The award will allow up to \$15,000 for supplies and services to be spent by Friday, Sept. 9, 2022.

Interested applicants may submit as research teams or individuals.

Applications will be accepted until Monday, Aug. 2, 2021, 5 p.m. ET to nimhdcolemanawards@mail.nih.gov. Applicants will be notified of award status by Friday, Sept. 17, 2021.

Coleman became the first permanent African-American scientific director in the history of the NIH IRP in January 2011, when he was appointed to direct NIMHD's IRP. He was known for his belief in the power of mentorship. He dedicated himself to mentoring and training future scientists, from grade school students through postdoctoral fellows, particularly in health disparities research.

For award application details, visit https://nimhd.nih.gov/programs/intramural/research-innovation-award/eligibility.html.

Annual Food Drive Accepting Online Donations

NIH is participating in the Feds Feed Families virtual summer food drive now through Tuesday, Aug. 31. The campaign will again be run entirely online with three ways to contribute and track donations. The Office of Research Services is NIH's sponsoring organization. For more information, visit the website at https://www.ors.od.nih.gov/FedsFeedFamilies/Pages/default.aspx.

Manchanda

CONTINUED FROM PAGE 1

also address the social and structural drivers of health equity for patients and the communities they serve. Getting the fullest picture of health to provide the best care requires understanding patients' social needs and looking at the broader social and structural environment—where people eat, sleep, work and play, said Manchanda.

He has seen the need, having worked with low-income families, homeless veterans and rural immigrants. Currently, Manchanda is president and CEO of HealthBegins, a firm that helps health care and community partners address social and structural barriers to health equity.

"The needs are greatest in communities that have been historically marginalized due to structural racism and economic inequity," he said at a recent virtual Deputy Director for Management seminar.

And it's pervasive. Too many people are drowning in financial, food and/or housing insecurity.

Meet Mrs. M, a middle-aged widow with two young children. She works 2 low-wage jobs, 1 of which has a health plan. She spends \$2,600 annually on health premiums and out-of-pocket costs.

In March, Mrs. M was rushed to the ER after coworkers found her listless. Tests



confirmed hypoglycemia. It wasn't a rare episode. Mrs. M has type 2 diabetes and has had trouble keeping her blood sugar stable. Doctors search for what's causing her low blood sugar, but the problem is systemic.

that inferior care is disproportionately experienced by marginalized populations.

Research shows that lower-income diabetic adults like Mrs. M have an almost 30 percent higher rate of hospital admissions at the end of the month due to food

insecurity compared to higher-income adult diabetics, said Manchanda. Before the pandemic, 1 in 8 Americans reported food insecurity; now, millions more lack access to enough food.

"Improving the social and structural drivers of health equity is ...a practice, a part of what it means to deliver the highest standard of care for patients."

~DR. RISHI MANCHANDA

"At that bedside, in that health care system, more likely in that community, we don't really apply the same level of rigor [as

we do with biological or behavioral issues] when it comes to evaluatingwith precision and with efficacy-the social factors that drive poor and inequitable outcomes." Manchanda said. "I would argue from experience: the failure to do so is tantamount to providing sub-standard care." And

Manchanda explained that Mrs. M lives in a food desert that exists "because of policy and political choices we've all made as a society." Redlining, which dates back almost a century, "still ripples through the decisions and the zoning issues, not just for housing and banking, but also for other policies, including access to food."

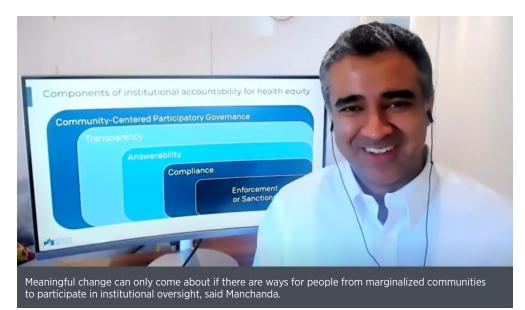
A new strategy is needed to turn the tide. Manchanda suggests an "upstreamist" approach, described by an old parable he adapted and retells to new practitioners.

Three friends are relaxing by the river when suddenly they spot people drowning. All three jump in to help.

The first friend jumps in to rescue people struggling in the water. The second goes farther upstream and grabs branches to build a raft so she can usher even more people to safety. The rescuer and the raft-builder play vital roles in saving people, but each day at the river, they find themselves rescuing the same people, said Manchanda. They're committed but getting fatigued and frustrated; implicit biases start surfacing.







Meanwhile, the third friend-"the upstreamist"-swims even farther upstream, to find out what's causing these people to fall in the water. The story offers a profound lesson for anyone involved in health care, Manchanda emphasized, and the moral and business case for moving upstream is getting stronger every day.

"Improving the social and structural drivers of health equity is not an academic pursuit primarily," he said. "It's a practice, a part of what it means to deliver the highest standard of care for patients and uphold the highest standards of institutional responsibility to our communities."

So, the question looms: how can health care institutions integrate and advance the social and structural drivers of health equity at scale?

The transformation, he said, needs to happen at all levels-individual, community and societal. For institutions to drive this transformation, Manchanda created a formula to describe what needs to be in place: E=AMC2. To advance equity, he said, requires accountability, motivation, workforce competencies and system capabilities.

Accountability has several integral components, he said. Meaningful change can only come about if there are ways for people from marginalized communities to participate in institutional oversight. There also must be mechanisms for transparency, answerability, institutional redress for past harms and consequences for persistent shortfalls in the pursuit of equity.

Manchanda called NIH's UNITE "a model

of what it looks like to build institutional transparency." Once health care institutions identify inequities among patients and employees, he said, the data must be made public and the rationale for how to address inequities should be explained and made available for public scrutiny.

As someone who has built clinics and helped design and lead health equity interventions in marginalized communities, Manchanda underscores addressing unmet needs, most of which tend to be social, not medical. In one case, he converted a health center into a medical-legal clinic where a public interest lawyer was the main attraction.

"When you address social and legal needs explicitly through an equity lens, you unlock possibilities to also improve health care access and other important measures of clinical quality and population management," he said. That integrated health-social care model stabilized lives and greatly reduced ER visits, while improving care satisfaction and reducing patient-level and systemic inequities.

"We're in a moment right now where many institutions across the country have committed publicly to addressing structural racism, to identifying racism as a public health crisis, to addressing social and structural drivers of health equity-to moving upstream," said Manchanda. "We're in a moment where I hope we can take the next step...to start to really interrogate the degree to which we're doing this work well." B

Launer To Lead NIA Lab

Dr. Lenore J. Launer has been named chief of the Laboratory of Epidemiology and Population Sciences (LEPS) in NIA's Intramural Research Program.

With her new appointment, Launer will strive to expand the NIA IRP's epidemiology program and its translational collaborations across NIH and



the wider scientific community, focused on improving the health of all older Americans.

Launer joined LEPS in 1999 as head of its neuroepidemiology section and has served as acting chief since 2010. She started her NIH career in 1988 as an NICHD epidemiology training fellow.

From 1990 through

1999, she developed her

interests in aging science through several academic appointments in the Netherlands (Erasmus University Medical School, Free University and the National Institute for Public Health), where she collaborated in studies of neurologic diseases including dementia and migraine headache. She earned tenure in 2005.

This summer, re-energize your goals to eat healthy and stay active!



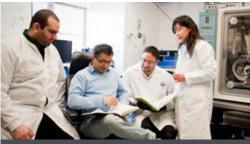
NIDDK Offers Tips to Help Reboot Your Healthy Routines

Following a challenging time, it can be tough to get back into a healthy routine. NIDDK is sharing tips to help people looking to start—or reinvigorate—an active and healthy journey. Try these tips to help manage your weight and stay active:

- · Add motion to your day.
- Have healthy snacks on hand.
- Reduce screen time and time spent sitting.
- Be prepared for setbacks—they are normal. Reach out to family and friends for support.

For more tips and strategies for healthy living, visit https://go.usa.gov/x6JVu.





Bharti and his team take blood cells from AMD patients, reprogram those cells into iPS cells and then give the iPS cells instructions to develop into RPF cells.

AMD

CONTINUED FROM PAGE 1

and provides a secure base for light-sensing photoreceptors to grow on. There are two types of AMD-dry and wet-and Bharti's new treatment applies to the dry form, which is more common.

In dry AMD, the cells that make up the RPE die off. Without the RPE to support them, photoreceptors also begin to die off, causing vision impairment.

"Symptoms of AMD start off as spotty vision in the center of your vision," Bharti said, and progresses to the point where patients "lose a big chunk of their central vision and go blind in the center part of their vision." It is estimated that 1 in 4 individuals over age 80 have some degree of AMD.

Before Bharti's new stem cell-based therapy of transplanting a patch of RPE cells, AMD patients were treated by injecting new RPE cells in fluid suspension into the retina. This method was not ideal, because the evidence that cells assembled into a functional monolayer is limiting.

Bharti's research has revealed a method to replace the RPE and its surrounding tissue: using induced pluripotent stem cells (iPS) that are made from the patient's own blood cells. Naturally occurring pluripotent stem cells are found in embryos and differentiate

into the numerous different types of cells in the human body as the embryo develops.

"iPS cells for all practical purposes are identical to embryonic stem cells," Bharti said, "but the beauty is that we can make them in a dish." The technique is fairly new but is often preferable for several reasons, such as to avoid the controversy surrounding embryonic stem cell use. iPS cells are also preferable to embryonic stem cells

When it comes time for the new cells to be surgically transplanted into the patient's eye, what remains of the biodegradable scaffold is implanted along with the cells, to provide structure as the cells integrate with the rest of the retina and grow on their own. Bharti has observed this newly grown layer "halt and reverse progression of disease."

One of Bharti's main hopes for this phase 1 trial is "to demonstrate that one can do

"iPS cells for all practical purposes are identical to embryonic stem cells, but the beauty is that we can make them in a dish."

~DR. KAPIL BHARTI

because they are sourced from the patient's own body and therefore their derivatives are less likely to be rejected when transplanted back into patients.

Bharti and his team take blood cells from AMD patients, reprogram those cells into iPS cells and then give the iPS cells instructions to develop into RPE cells. To make a patch of RPE cells, Bharti and his team let RPE cells mature on a biodegradable scaffold. This entire process takes about 6 months to make fully mature RPE cells starting from patients' own blood cells.

clinical trials for patients using their own iPS cells, and then we can demonstrate that the patients' own RPE patch can be delivered safely to the back of the eye, can stay and integrate safely to the back of the eye, and hopefully start functioning over time."

In the future, he hopes to develop a technique to replace the entire retina, which will help patients with severe dry AMD that have little to no remaining RPE and photoreceptors.

Towards this aim, Bharti's team also signals some cells to differentiate into photoreceptor and choroidal cells (a structure just behind the RPE) to make a fully functional 3-D-patch. The process is a slow one; component cells are 3-D printed as "bio-ink" onto a biodegradable scaffold, and these cells grow together to form a functional RPE with surrounding tissue as the scaffold breaks down.

View the entire lecture at https://www. youtube.com/watch?v=Vmad6JqmC-Q. B



Shown with NIH director Dr. Francis Collins (r), Bharti's team receives the NIH Director's Award in 2017.

Single-Shot Vaccine Effective Against Variants

In an NIAID-funded study, the immune response to the single-shot Janssen/Johnson & Johnson Covid-19 vaccine remained robust against variants. The results appeared in *Nature*.

The three vaccines against SARS-CoV-2—the virus that causes Covid-



Ongoing studies of all authorized Covid-19 vaccines have found promising results against circulating variants.

IMAGE: PROSTOCK STUDIO /ISTOCK/GETTY

19—that have received emergency authorization for use in the U.S. were developed early in the pandemic, before the virus mutated to produce the variants now found around the world.

In the current study, researchers examined the immune response to SARS-CoV-2 variants after vaccination with the Ad26.COV2.S vaccine, developed by Janssen/Johnson & Johnson. The researchers tested antibody and immune cell activity against the original strain of SARS-CoV-2 as well as the alpha, beta

and gamma variants and another variant first isolated in California.

Among those who received Ad26.COV2.S, the team found neutralizing antibodies against the variants. But the vaccine induced lower levels of neutralizing antibodies against the variants compared with the original virus. For example, the team saw a 3-fold reduction in antibodies that could recognize and bind to the gamma variant. They found a 5-fold reduction in those targeting the beta variant.

Yet other immune responses against the variants resembled those against the original virus. These included the production of non-neutralizing antibodies, which can help immune cells recognize an invading pathogen. Different types of T cells, which help recognize and kill pathogens, also responded similarly against the variants compared with the original virus.

The different types of immune responses to the vaccine may account for the protection against variants seen in South Africa and Brazil during earlier studies, when the beta and gamma variants dominated. Newer variants, such as the rapidly spreading delta variant, will also need to be tested.— adapted from NIH Research Matters

Adolescent Marijuana, Alcohol Use Held Steady During Pandemic

Adolescent marijuana use and binge drinking did not significantly change during the Covid-19 pandemic, despite record decreases in the substances' perceived availability, according to a survey of 12th graders in the U.S. The NIDA-funded research was led by investigators at the University of Michigan, Ann Arbor.

The study's findings, published in June's *Drug and Alcohol Dependence*, challenge the idea that reducing adolescent use of drugs can be achieved solely by limiting their supply.

"It is striking that...usage rates held steady for these substances," said NIDA director Dr. Nora Volkow. "This indicates that teens were able to obtain them despite barriers caused by the pandemic and despite not being of age to legally purchase them."



Adolescent marijuana use and binge drinking did not significantly change during the pandemic, *MTF* finds.

IMAGE: PROSTOCK/ISTOCK/GETTY

The legal purchase age is 21 for nicotine products and alcohol in all states and for cannabis in states that have legalized nonmedical cannabis use.

In contrast to consistent rates of marijuana and alcohol use, nicotine vaping in high school seniors declined during the pandemic, along with declines in perceived availability of vaping devices. Raising the federal minimum age for tobacco, including vaping, products from 18 to 21 in early 2020 may have contributed to this dip in vaping use. News reports on vaping-induced lung injuries may have also had a chilling effect on usage.

The data for the study came from the annual *Monitoring the Future* survey of substance use behaviors and related attitudes among adolescents. In a typical year, *MTF* surveys thousands of middle and high school students at more than 100 schools across the country.

Investigators issued surveys during early spring and summer 2020. Analysis of the responses revealed that students perceived a sharp decrease in availability of marijuana and alcohol in the months after the onset of the pandemic. The survey revealed the largest year-to-year decreases in perceived availability of marijuana and alcohol ever recorded since the survey began in 1975.

While pandemic-related restrictions limited social interactions, most students said they still had access to marijuana and alcohol.

Diet Changes Can Reduce Migraine Headaches

A diet higher in fatty fish helped frequent migraine sufferers reduce the frequency of headaches and intensity of pain compared to participants on a diet higher in vegetable-based fats and oils, according to a new study. The findings—by a team of researchers from NIA, NIAAA and the University of North Carolina at Chapel Hill—were published in *The BMJ*.

This study of 182 adults with frequent migraines expanded on the team's previous work on the impact of linoleic acid (a polyunsaturated fatty acid derived from



Women between the ages of 18 and 44 are especially prone to migraines.

IMAGE: FIZKES/ISTOCK/GETTY

corn, soybean and similar oils) on chronic pain. The earlier study found that a diet lower in linoleic acid and higher in omega-3 fatty acids (like those found in fish) could soothe this pain-pathway inflammation.

When the study began, participants averaged more than 16 headache days per month, over 5 hours of migraine pain per headache day, despite using multiple headache medications. In a 16-week dietary intervention, participants were randomly assigned to 1 of 3 healthy diet plans and received meal kits with foods containing varying levels of omega-3 and linoleic acid.

The diet lower in vegetable oil and higher in fatty fish produced between 30 and 40 percent reductions in total headache hours per day, severe headache hours per day and overall headache days per month compared to the control group. Blood samples from this group of participants also had lower levels of pain-related lipids.

Migraine, a neurological disease, ranks among the most common causes of chronic pain, lost work time and lowered quality of life. More than 4 million people worldwide have chronic migraine and more than 90 percent of sufferers are unable to work or function normally during an attack, which can last anywhere from 4 hours to 3 days. Current medications for migraine usually offer only partial relief and can have negative side effects including sedation and the possibility of dependence or addiction.

NIA scientific director Dr. Luigi Ferrucci said, "This research found intriguing evidence that dietary changes have potential for improving a very debilitating chronic pain condition like migraine without the related downsides of often-prescribed medications."

QUEST TO UNCOVER MOLECULE'S SECRET

NIDCR's Park Retires After 42 Years at NIH

BY TIFFANY CHEN

Dr. Myung Hee Park, a senior investigator in NIDCR's molecular and cellular biochemistry section, was clearing out her lab ahead of her retirement when she found a notebook from the 1980s. On the lines of the yellowed pages lay the beginnings of her unexpected journey unraveling a previously unknown biological pathway vital to nearly all life on Earth. Her work opened a new field

of research, and 42 years later, is revealing important clues about certain neurodevelopmental disorders.

Dr. Myung Hee Park retires from

NIDCR after 42 years.

"Nobody knew about this pathway—we stumbled on it by accident," says Park, who retired June 30 after four decades of service at NIDCR. "This is often how progress is made in science—you cannot plan on discovering certain things."

Such was the case in 1979, when, as a visiting fellow, Park joined the Laboratory of Biochemistry at the National Institute of Dental Research, NIDCR's predecessor. She was tasked initially with studying the activity of an enzyme called transglutaminase, which is involved in wound healing, blood clotting and hair formation. But a serendipitous



In 1979, biochemist Park with mentor NIDR's Dr. John "Jack" Folk

discovery led her down a new path.

In an experiment to pinpoint proteins modified by transglutaminase, one candidate containing an as-yet unidentified molecule showed up. Further analysis suggested that,

> contrary to the team's hypothesis, this protein candidate was not actually modified via transglutaminase reactions, but by some other reaction.

Park relayed her suspicions to her mentor, NIDR biochemist Dr. John Folk. "He asked me, 'If it is not a transglutaminase reaction, then what is it? You figure it out," recalls Park.

Within a couple of months, Park answered that question when she

discovered the reaction that formed the mysterious molecule, which she identified as hypusine, an unusual and little-studied amino acid.

Unlike most other amino acids, hypusine is found in only one protein, which Park and collaborators later identified as eukaryotic translation initiation factor 5A (eIF5A). Park's experiments showed that hypusine is formed in the eIF5A protein via a series of reactions catalyzed by enzymes in the so-called hypusine modification pathway.

In contrast to most other enzyme modifications, which often occur in many different types of proteins, the hypusine modification process acts only on eIF5A. Without it, the protein does not become activated to carry out its function.

"The cell devised this complicated pathway to modify a single protein," says Park. "From the very beginning, we knew this had to be a vital process in the cells. Otherwise, it's not economical for the body to develop these complex mechanisms."

From then on, Park made it her mission to understand the pathway and its biological significance. She spent her career characterizing each step, identifying the proteins and enzymes involved and defining their functions in cell growth and animal development.

Park's research showed that eIF5A indeed plays a crucial role in cells by regulating protein production, cell growth and tumor formation. Mice and yeast cannot survive without the eIF5A protein or the

enzymes that help activate it. People with impaired eIF5A or hypusine modification enzymes exhibit developmental delays, intellectual disabilities, seizures and mild abnormalities in facial features, according to a recent study by Park and her collaborators at Columbia University.

"From the very basic science discovery of the hypusine pathway to now understanding its connection to human health, it feels like a full circle," Park says.

She's now working to publish her team's research on new animal models they developed. The mice, which are engineered to express low levels of hypusine modification enzymes or eIF5A in the brain, display learning, memory and cognitive impairments. The animal traits reflect characteristics of patients with neurodevelopmental disorders linked to the hypusine pathway.

The animal models that Park leaves behind could help scientists find and test potential therapeutic compounds for these disorders. Her lifelong research findings could also serve as a foundation for studies to develop cancer interventions. Based on the pathway's important role in tumor formation, reducing its activity could curtail the growth of cancer cells.

While pioneering science at the lab bench, Park also has been a leading figure among the Asian American and Pacific Islanders communities and women scientists at NIH. She served as president of the NIH Korean Scientists Association and the NIH chapter of the Korean-American Women in Science and Engineering group, providing opportunities for collaboration and guidance in career development to a new generation of scientists.

"Science is exciting and being a scientist is a 24-7 calling," says Park. "It's always in my brain and I even dream about it."

While she welcomes the change of pace retirement brings, Park is not walking away entirely. She will serve as a special volunteer at NIH, following the latest scientific developments and providing her expertise to collaborators.

"Because of NIH's support, I was able to blossom as a scientist and carry out my ideas," Park concludes. "NIH is probably the best place in the world for scientists to get training, if they're willing to work hard."



Dr. Daniela Gerhard

NCI's Gerhard Remembered

Dr. Daniela Gerhard, director of NCI's Office of Cancer Genomics, passed away suddenly on June 25. She spent more than 17 years committed to developing and executing large-scale genomics research programs for NCI.

"Daniela was a special talent," said Dr. Louis Staudt, an NCI scientific director. "She lived for her work and was one of the best scientific administrators I've ever come across."

Gerhard earned her undergraduate degree from Barnard College and her Ph.D. in molecular genetics from Cornell University. She continued her molecular genetics research as a postdoc in the laboratory of Dr. David Hausman at MIT. She then became an assistant professor at the department of genetics at Washington University, St. Louis, before coming to NIH in 2004.

Gerhard had a hand in several major programs at NCI. She was a charter member of the influential cancer genomic characterization program known as "The Cancer Genome Atlas," for which she implemented patient sample collection and data processing pipelines.

She then led the counterpart program for childhood cancers known as TARGET, which is still ongoing and has provided valuable insights into the pathogenesis and therapeutic vulnerabilities of acute lymphoblastic leukemia, neuroblastoma and other devastating cancers. She had an immense knowledge of childhood cancers and steadfast dedication to improving the lives of these young patients.

Some of Gerhard's recent work focused on precision oncology—translating lab discoveries into new treatments that can be used in the clinic. She led a network of extramural investigators who used gene knockout technologies, high-throughput drug screening and other cutting-edge technologies to discover and exploit vulnerabilities of specific cancers. The discoveries in this program have already led to many clinical trials.

These are merely a few of Gerhard's many scientific contributions spanning the breadth of cancer genomics research.

Over the past several years, she initiated and led an ambitious charge to create and distribute a thousand new cancer cell lines, developed directly from patient biopsies using recent advances in cell culture technology. These new models will help researchers more accurately assess how patients will respond to various treatments.

As much as Gerhard was committed to her work, she also cared deeply for her many colleagues. Her team looked forward to chocolates, fruits or homemade sweets to start off group meetings. A cake was her group's annual tradition to celebrate International Women's Day. She was also known to routinely text colleagues to confirm if they caught their daily shuttle or inquire about a loved one's health.

Perhaps she will be best remembered and admired for her indomitable work ethic. "It is true Dr. Gerhard expected the absolute best from us and also herself," explains Dr. Subhashini Jagu, a health science administrator at NCI. "She never stopped encouraging us to become stronger and more independent so that we could become scientific leaders of her caliber."

Gerhard's family requested that any donations in her memory be sent to St. Jude Children's Research Hospital (https://www.stjude.org/donate/donate-to-st-jude.html?sc_icid=home-btn-donate-now) or to her alma mater Barnard College (https://giving.barnard.edu/s/1133/campaign/start.aspx).

Retired NEI Administrative Officer Napper Mourned

NEI retiree Churchman Louis Napper Sr., died May 24. He began his career at NIH in 1963 as a heart and lung technician. He had served from 1957 to 1961 as a medical technician in the U.S. Army. He worked as senior administrative duty officer at the Clinical Center before being appointed the first African-American administrative officer at NEI in 1970. Napper was instrumental in planning NIH's Combined Federal Campaign effort in 1975, when NEI served as the lead institute.

"I first met Mr. Napper in 1967 when
I began work at NIH," recalled Joan Lee,
a retired former EEO manager at NEI. "In 1970, Mr. Napper,
the administrative officer NEI-IR, hired me for the position of
secretary to the clinical director...In this position, [he] became my
advisor and my mentor. Under his leadership, my career, as well as
[the careers of] others, flourished...Mr. Churchman Napper, in my
judgment, was an administrative genius. He was instrumental in
encouraging teamwork—so important in the intramural area. [He]
was stern, but also compassionate and funny. He had high expectations for his staff members and provided the resources and support
to enable each of us to reach our fullest potential. I am fortunate



'Giving-An American Tradition' Is Theme; NIH Launches Drive to Surpass CFC Goal



NEI retiree Churchman Louis Napper Sr., died May 24; at right, he's shown in a 1975 NIH Record photo.

to have had Mr. Napper in my professional life. (Any wonder why I continually refer to 'Mr. Napper' rather then Lou), this is the respect he earned and deserved."

In 1978, Napper received an NIH Director's Award "in recognition of ingenuity, perseverance and dedication in establishing the best possible environment for the conduct of clinical vision research."

He retired in 1992 after more than 30 years of federal service. Survivors include his wife of more than 63 years, Annette, a son, daughter, grandchildren and great-grandchildren.

FAPAC Celebrates AANHPI **Heritage Month**

In observance of 2021 Asian American and Native Hawaiian/Pacific Islander (AANHPI) Heritage Month, the NIH chapter of the Federal Asian Pacific American Council (FAPAC) and partners from other federal agencies at the Department of Health and Human Services organized two events in May. The national theme was "Advancing Leaders Through Purpose-Driven Service."

Virtual Panel on Leadership

The first event, "Conversations with AANHPI Leaders at NIH: Tips on Leadership and Empowering the Next Generation," was a panel discussion featuring Dr. Noni Byrnes, director of the Center for Scientific Review; Dr. Michael Chiang, director of the National Eye Institute; and Dr. Rena D'Souza, director of the National Institute of Dental and Craniofacial Research.

The event recognized AANHPI leaders who have made significant contributions to public health and provided insights about leadership and vision for the future.



Screenshot from the virtual panel discussion on leadership

recognize a public health leader whose enduring efforts have made a significant impact on advancing public health.

At the first lecture, Murthy recognized internationally renowned cardiologist and global health expert Dr. Victor Dzau, president of the National Academy of Medicine and former chancellor for health affairs at Duke University, for his public health efforts during the Covid-19 pandemic.

After opening remarks by NIMHD director Dr. Eliseo Pérez-Stable, NIMHD deputy director Dr. Monica Webb Hooper moderated a conversation between Murthy and Dzau. They shared their personal experiences as immigrants from India and China,

Murthy and Dzau also reflected on the unprecedented challenges during the pandemic and discussed the root causes of health disparities. They noted the importance of the country coming together to recognize our shared values.

They discussed the underrepresentation of AANHPI individuals in leadership positions and how cultural differences in leadership styles may be a potential cause. Cultural factors were also touched upon when discussing mental health issues, which have increased during pandemic times.

Murthy offered helpful strategies for those experiencing emotional distress: spend 15 minutes a day reaching out to your loved ones, offer quality time over quantity and serve others. Finally, in addressing how public health leaders can build trust within our country and the world, Dzau said that they need to rely on science, recognize when they may not have the answer, communicate clearly and consistently and prioritize the welfare of others above their own.

Along with NIH's FAPAC, NIMHD organized the event in partnership with the USPHS Asian Pacific American officers committee, FAPAC's FDA and Parklawn chapters, AAPI groups at CDC and HRSA and NIH's EDI.

The conversation can be viewed at https://videocast.nih.gov/watch=42089. B



Dr. Victor Dzau (I) and Dr. Vivek Murthy have a virtual conversation, moderated by Dr. Monica Webb Hooper.

The three institute/center directors shared their personal journeys, particularly cultural impact on their decisions, encounters with discrimination and how they overcame and persevered. Their work and leadership have focused on empowering the emerging generation of leaders.

NIH principal deputy director Dr. Lawrence Tabak gave opening remarks, highlighting the UNITE initiative to increase inclusivity and diversity in biomedical science. Dr. Christina Liu, chief of the Biomedical Technology Branch at the National Institute of General Medical Sciences, served as moderator. NIH's Office of Equity, Diversity and Inclusion co-organized the virtual event that attracted more than 870 attendees.

The leadership discussion has been archived and can be viewed at https://videocast.nih.gov/ watch=41843.

Inaugural Murthy Lecture Series

The inaugural Dr. Vivek H. Murthy Distinguished Lecture Series for Public Health Leadership occurred on May 27.

This was the first in a series of fireside chats and lectures in honor of Murthy, the 19th and 21st U.S. surgeon general. The goal of the series is to respectively, their encounters with discrimination and how they persevered. Their stories covered themes of managing doubt and taking risks (both personal and professional), holding onto personal values and developing one's own destination.

Nominate a DDM Seminar Series Speaker

The Deputy Director for Management (DDM) invites you to submit speaker nominations for the 2021-2022 DDM Seminar Series. Nominations are open through July 31.

The DDM series offers the NIH community engaging presentations that provide meaningful insights into leadership and management concepts, challenges, and solutions. Each seminar provides NIH employees the opportunity to advance their knowledge of best practices in a variety of leadership and management issues.

To submit a speaker nomination, visit http://ddmseries. od.nih.gov/nominate.aspx.







Past speakers include (from I) Carla Harris, Cy Wakeman and Nick