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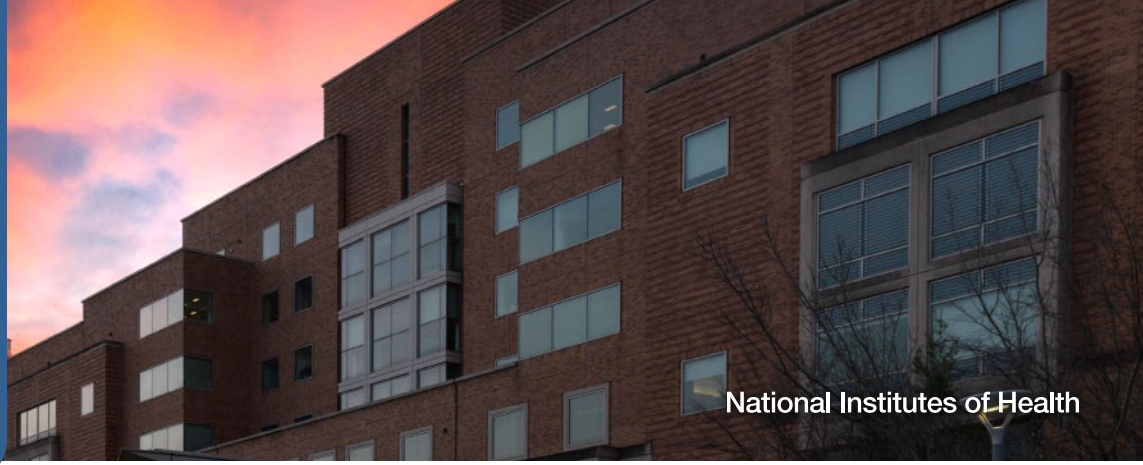

RESEARCH FESTIVAL KICKOFF

Smell, Taste Play Important Role in Early Disease Detection

BY ERIC BOCK

This story is the first in a series highlighting notable Research Festival lectures. The annual Research Festival is the premier event of NIH's Intramural Research Program, featuring several days of lectures, poster sessions and workshops.

Dr. Paule Joseph's mother-in-law is a phenomenal cook. Her pozole is unparalleled. But something changed a few years ago. The dishes coming out of her kitchen tasted extremely salty.

"At first, we laughed about it, calling her the 'la reina de la sal,' or the salty queen," Joseph said during the kickoff session of the NIH Research Festival on Sept. 9 in Lipsett Amphitheater. As senior investigator and nurse practitioner at NIH's National Institute on Alcohol Abuse and Alcoholism with a joint appointment at NIH's National Institute on Deafness and Other Communication Disorders, and co-director of NIH's National Smell and Taste Center, Joseph knew this change could mean a lot more.

Dr. Paule Joseph talks sensory science at Research Festival. **PHOTO: MALIK LONON**

Joseph tested her mother-in-law's smell. Sure

SEE **SENSES**, PAGE 4

Congressional Staff See NIH Innovation in Action

BY JENNIFER BEIERLEIN

Dr. Kelli Wilson (r) describes work of the NCATS Pharmaceutical Collection lab.

NIH's National Center for Advancing Translational Sciences (NCATS) hosted four congressional staffers on Sept. 5. The group was given a hands-on tour of NCATS labs in Shady Grove and met with NCATS leaders

SEE **NCATS**, PAGE 5

WINDOW TO THE FUTURE

Bertozzi Reflects on the Potential of Bioorthogonal Chemistry

BY AMBER SNYDER

What's a chemist to do when her ambitions expand beyond the limits of her field? If the chemist in question is Dr. Carolyn Bertozzi, the answer is clear: invent a new type of chemistry.

"As abstract as that sounds, I had a very specific application in mind," said the Nobel laureate and Stanford University academic at a Wednesday Afternoon Lecture Series (WALS) lecture earlier this year.

Nobel laureate Dr. Carolyn Bertozzi
PHOTO: CHIA-CHI CHARLIE CHANG

As a postdoctoral fellow in the early 1990s, Bertozzi was conducting basic science research in an immunology lab studying changes in patterns of cell surface glycosylation related to inflammation. The glycocalyx, or the pattern of sugar molecules on the cell surface, changes in response to diseases such as cancer. Bertozzi became interested in imaging these changes, and came up with a method that would require doing chemistry on live cells within live animals, and ultimately within human patients.

But her envisioned approach would require an

SEE **BERTOZZI**, PAGE 6

NIH Director visits University of Oklahoma, p. 3.

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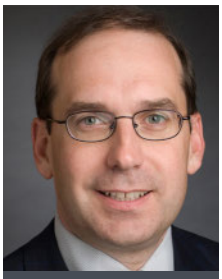
Letai Takes Helm as NCI Director



Dr. Anthony Letai

Dr. Anthony Letai was sworn in on Sept. 29 as director of NIH's National Cancer Institute (NCI).

Letai takes the helm at NCI after serving as professor of medicine at Harvard Medical School and medical oncologist at the Dana-Farber Cancer Institute. He possesses decades of experience studying cell death in cancer, developing treatments and identifying predictive biomarkers.

"Dr. Letai has been immersed in the relevant science for decades and has been on the cutting edge of how we think about cancer treatment," said NIH Director Dr. Jay Bhattacharya. "His drive, integrity and expertise make him the right leader to harness the resources and talent at NCI to reverse America's cancer crisis."

Letai said the appointment is a great honor. "We will work around the clock to identify cancer's root causes, predictive biomarkers and most effective treatments," he said. "Advances in understanding cell death and replication are essential [in the fight against cancer]."

Letai's research has been central to bringing venetoclax, a BCL-2 inhibitor, from the laboratory to the clinic. His lab work has led to advancements in knowledge of both liquid and solid tumors, as well as a wide range of treatments, including cellular immunotherapies.

After graduating from Princeton University with a bachelor's in physics, Letai received his M.D. and Ph.D. from the University of Chicago. He completed his Ph.D. on the molecular basis of heritable blistering diseases before residency in internal medicine at Brigham and Women's Hospital and a clinical fellowship in hematology and oncology at Dana-Farber Cancer Institute. Letai began his studies of programmed cell death in cancer in a postdoctoral fellowship before establishing his laboratory at the Dana-Farber Cancer Institute.

Lorsch Named Deputy Director for Extramural Research

Dr. Jon Lorsch

Dr. Jon Lorsch has been named NIH deputy director for extramural research (DDER) after having served in this role in an acting capacity since April 2025. As DDER, Lorsch serves as the principal scientific leader and advisor to the NIH director on all matters relating to the substance, quality and effectiveness of the NIH extramural research program and administration.

Lorsch is stepping down as director of NIH's National Institute of General Medical Sciences (NIGMS), a position he has held since August 2013. His experience at NIGMS makes him well-suited for the DDER role.

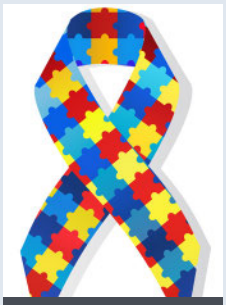
For more than 10 years, Lorsch oversaw the institute's mission-related activities, supporting basic research that increases understanding of biological processes and lays the foundation for advances in disease diagnosis, treatment and prevention. He led the development and expansion of the Maximizing Investigators' Research Awards (MIRA) program. He also championed the Institute's research capacity-building efforts, including the Institutional Development Awards (IDeA) program, which develops biomedical research in states that have historically received low levels of NIH funding.

Lorsch came to NIGMS from the Johns Hopkins University School of Medicine, where he was a professor of biophysics and biophysical chemistry. A leader in RNA biology, he studies the initiation of translation, a major step in controlling how genes are expressed. He has led a lab conducting this research with NIH's *Eunice Kennedy Shriver* National Institute of Child Health and Human Development since 2013.

Dr. Erica Brown, acting NIGMS deputy director, will serve as acting NIGMS director.

NIH Launches $50M Autism Data Science Initiative

NIH has launched the Autism Data Science Initiative (ADSI), a landmark research effort that will harness large-scale data resources to explore contributors to the causes and rising prevalence of autism spectrum disorder. More than $50 million in awards will support 13 pioneering projects that draw on genomic, epigenomic, metabolomic, proteomic, clinical, behavioral and autism services data. These projects will integrate, aggregate and analyze existing data resources, generate targeted new data and validate findings through independent replication hubs.



SARYCHEVA OLESIA/ SHUTTERSTOCK

"Our Autism Data Science Initiative will unite powerful datasets in ways never before possible," said NIH Director Dr. Jay Bhattacharya. "By bringing together genetics, biology, and environmental exposures, we are opening the door to breakthroughs that will deepen our understanding of autism and improve lives."

A key feature of ADSI is the use of exposomics—the comprehensive study of environmental, medical and lifestyle factors in combination with genetics and biology. Projects will investigate a wide range of influences, including environmental contaminants such as pesticides and air pollutants, maternal nutrition and diet, perinatal complications, psychosocial stress, and immune responses during pregnancy and early development.

Examples of funded efforts include examining how prenatal exposures interact with genetic risk in large autism cohorts, how causal inference methods can clarify contributors to rising prevalence, and how adult outcomes such as community participation and mental health can be improved through service innovations.

Each ADSI research team will work in partnership with the autism community to help shape the direction of the research and ensure the perspectives of autistic individuals, caregivers and service providers inform the initiative.

According to Centers for Disease Control and Prevention data, autism prevalence in the United States has risen from fewer than 1 in 2,000 children in the 1970s to approximately 1 in 31 today. Autism is a highly variable condition characterized by challenges in social communication and interaction, alongside restricted or repetitive patterns of behavior and interests.

While these trends underscore the urgency of this research, the underlying causes remain complex and multifaceted. Research supported by NIH and others has shown a strong genetic component to autism risk. However, non-genetic factors—such as environmental exposures and maternal health conditions—are less understood.

ADSI will apply advanced analytic methods, including machine learning, exposome-wide analyses, and organoid models, to study how gene-environment interactions contribute to autism, how these and other factors influence prevalence over time, and how treatments and services may be improved.

ADSI is a collaborative effort managed by NIH's Division of Program Coordination, Planning, and Strategic Initiatives within the Office of the Director, along with NIH's National Institute of Environmental Health Sciences; NIH's *Eunice Kennedy Shriver* National Institute of Child Health and Human Development; NIH's National Institute of Neurological Disorders and Stroke; NIH's National Institute of Mental Health and NIH's National Institute on Deafness and Other Communication Disorders.

For a list of awardee institutions and project descriptions, see https://go.nih.gov/ZqTHCQD.

Bhattacharya Visits Oklahoma to Discuss Collaborations

NIH Director Dr. Jay Bhattacharya visited Oklahoma on Aug. 29 for a series of meetings. During the visit, hosted by U.S. Rep. Stephanie Bice, Bhattacharya toured the University of Oklahoma (OU) Stephenson Cancer Center, OU Health Sciences Center, Dean McGee Eye Institute and the Oklahoma Medical Research Foundation (OMRF).

Bhattacharya met with OU leaders and members of Oklahoma's congressional delegation to discuss efforts to improve health outcomes across the state. The OU visit included a roundtable discussion and presentations on various facets of the OU healthcare system and NIH-funded research projects.

From l, Dr. Jay Bhattacharya, U.S. Rep. Stephanie Bice (R-OK) and OU President Joseph Harroz, Jr.

PHOTOS: TRAVIS CAPERTON/OU

Much of the state's $165 million in active NIH projects is concentrated in Bice's congressional district in Oklahoma City, home to the state's two largest medical research facilities, the University of Oklahoma Health Sciences Center and OMRF.

In FY 2024, OMRF researchers received nearly $50 million in NIH funding, with projects spanning from Alzheimer's to heart disease.

"Chronic diseases such as cancer, heart disease, diabetes and obesity continue to cause poor health outcomes in every community across the U.S.," Bhattacharya said. "Novel biomedical discoveries that enhance health and lengthen life are more vital than ever to our country's future."

Bhattacharya met with scientists researching a range of chronic health conditions, from age-related muscle loss to arthritis and autoimmune diseases. He also toured labs and scientific facilities, including OMRF's new Center for Biomedical Data Sciences, a center supported in part by private funding.

"Medical research thrives as the result of public-private partnerships like those Director Bhattacharya saw today in Oklahoma and that serve as the gold standard for discovery and innovation," Bice said.

Dr. Andrew Weyrich, OMRF president, said Bhattacharya's visit provided a welcome opportunity to highlight the groundbreaking science going on in Oklahoma. Weyrich said, "With leaders like Dr. Bhattacharya and congressional champions like Representative Bice, we are poised to continue making groundbreaking discoveries that improve people's lives." R

Bhattacharya (c) and Rep. Bice (5th from r) are joined by leaders from across the OU Health campus at the Stephenson Cancer Center in Oklahoma City.

ON THE COVER: *The Clinical Center at dawn*

IMAGE: MARLEEN VAN DEN NESTE

The NIH Record

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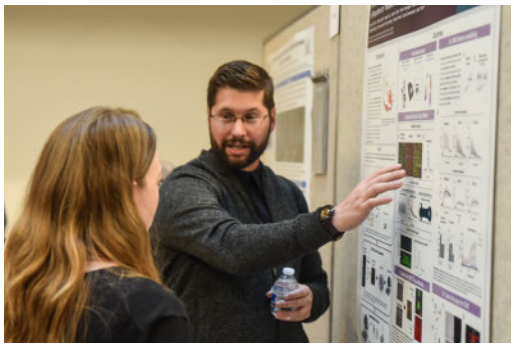

Senses

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enough, it was diminished. Further medical tests revealed a frontal temporal lobe dementia diagnosis.

"The more we research smell and taste and integrate them into clinical care, the greater healing becomes possible for more and more people," said Joseph. "We can build a future where sensory science is not an afterthought, but a foundational piece of how we understand health."

That extra pinch of salt was an early warning sign. Loss of smell is a common symptom in many patients with other neurodegenerative diseases, such as Alzheimer's and Parkinson's, and may occur several years before motor and cognitive symptoms develop.

"Smell and taste are among our most ancient senses," Joseph said. Smell works when airborne molecules enter the nose and activate olfactory receptors in the olfactory epithelium, sending signals to areas of the brain involved in emotion, memory and survival.

"That's why a single whiff can instantly transport us to a childhood memory or shift our mood without warning," Joseph said. "These senses aren't just about smelling of fragrance or detecting flavor. They are fundamental to how the brain tracks the world. When we overlook them, we risk missing important information."

At NIH, Joseph leads a lab that studies how diseases affect taste and smell and how these senses are connected to metabolism, addiction, brain health and overall quality of life. She conducts her research at the NIH Clinical Center, where she said, "curiosity and collaboration are not just virtues, but imperatives."

Colleagues gather at scientific poster sessions during the Research Fest.

PHOTOS: MALIK LONON

Before 2020, many doctors dismissed the loss of smell and taste in their patients, she said. It was often viewed as a curiosity or lifestyle concern. Clinicians also lacked the tools to screen, diagnose and track smell and taste loss.

During the early days of the Covid-19 pandemic, people reported losing their sense of smell. Researchers discovered that losing taste and smell is an early symptom of infection. It turned out that an estimated 60% of patients experienced smell loss in early phases. In addition, loss of the senses of smell and taste are among more than 200 different symptoms reported by people with long Covid. "What started with patients telling us 'I can't smell my coffee' became an actionable clinical clue," she said.

Joseph and her colleagues were able to learn more about the loss of smell due to support from NIH's Intramural Research Program. They had been conducting basic research on smell and taste years before the pandemic began.

Joseph also studies how alcohol addiction alters smell and taste. Her lab has found that heavy drinkers have a weaker sense of smell. "That loss wasn't trivial," she said. "It was tied to declines in their health, mood and social lives."

In a follow-up study, Joseph discovered people who drank heavily sensed differently. They were less able to taste bitter compounds and more tuned to sweet smells. Additionally, they were less likely to notice danger cues, such as the smell of natural gas. Alcohol rewires the brain, she said, "toward reward and away from risk."

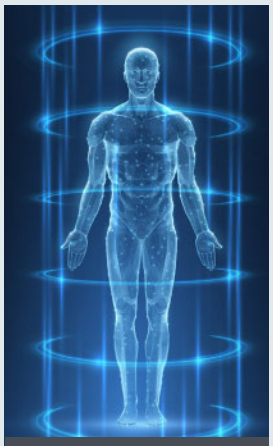
Joseph dreams of a future where doctors and other healthcare professionals measure smell and taste along with a patient's other vital signs. By tracking how these senses change over time, doctors can recognize conditions early.

Joseph did not ignore her mother-in-law's change in cooking, altered taste and diminished sense of smell. Because of that, she got an early diagnosis. This extra time gave her the opportunity to prepare and plan for her mother-in-law's care.

"I'm working to write down my mother-in-law's pozole recipe," she said. "I get to stand side by side with her in the kitchen, knowing this time is precious. This gift of early detection is only possible because of research."

NIH Launches Project on Whole-Person Health

NIH has launched a landmark effort to advance research on whole-person health and create an integrated knowledge network of healthy physiological function.



COREDESIGN/SHUTTERSTOCK

"Biomedical research is largely organized around the study of specific organs and diseases," said Dr. Helene Langevin, director of NIH's National Center for Complementary and Integrative Health, which leads the NIH-wide program.

Whole-person health involves looking at the whole person—not just separate organs or body systems—and considering multiple factors that promote health. For example, a multicomponent lifestyle intervention including healthy diet, physical activity and stress management may improve multiple and interconnected aspects of health including cardiovascular (e.g. blood pressure), metabolic (e.g. glucose metabolism) and musculoskeletal function (e.g. muscle strength).

The five-year research initiative will proceed in several stages, drawing from existing scientific knowledge to develop a complete, working model of healthy human physiology. It will build on the NIH Human Reference Atlas (https://humanatlas.io/) and the Human BioMolecular Atlas Program (HuBMAP) (https://commonfund.nih.gov/HuBMAP) to connect the complex anatomy and function of the body's different organs and systems into a single "map."

Future stages of the project will link common clinical measures such as blood pressure, blood glucose and cholesterol to major physiological functions. This initiative will also populate the framework with existing human data and ultimately build and test an interactive model of whole-person health.

"By organizing healthy physiological function into a whole-body knowledge network, researchers will be able to explore scientific questions about health in a new way," said Langevin. "With our ability to acquire new scientific data at an increasingly dizzying speed, the importance of integrating and connecting new data to what we already know is greater than ever. The Whole Person Reference Physiome will lay a foundation for understanding the factors that drive declines in health and mechanistic pathways to health restoration."

NCATS

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and researchers who are helping realize a future of more treatments for all people more quickly.

The staffers represented the offices of Sen. John Boozman (R-AR); Sen. Shelley Moore Capito (R-WV); Sen. Mike Rounds (R-SD) and Rep. Diana DeGette (D-CO).

During a roundtable with NCATS leaders, congressional staff learned about NCATS efforts to apply translational science approaches to address diseases with unmet needs, particularly rare diseases. These efforts include gene therapies, New Approach Methodologies (NAMS), and artificial intelligence/machine learning (AI/ML) tools in the areas of electronic health records, drug repurposing and biomedical literature.

Staffers display their personalized micro-plates produced by NCATS' automation equipment: (from l) Rutter, Charles Bonney (NCATS), Kathleen Bochow (Sen. Boozman), Dana Richter (Sen. Capito), Brittany Brignac (Sen. Rounds), Rees Blaylock (HHS) and David Steury (Rep. DeGette)

"At NCATS, we build platforms," said NCATS Director Dr. Joni Rutter. "A gene therapy for one rare disease can inform many, and AI applied to health data can unlock insights across conditions. That's the essence of the translational science mission."

The group visited several labs led by NCATS researchers. At the 3D bioprinting lab, Dr. Marc Ferrer, NCATS acting director of the Early Translation Branch, and colleagues demonstrated tissue-engineering techniques including 3D-bioprinted cardiac tissues.

Dr. Joni Rutter and Dr. Matt Hall lead staffers in a pipetting competition.

NCATS Scientific Director Dr. Matt Hall showed the group high-throughput screening robots, which can rapidly test thousands of compounds–including FDA-approved drugs for potential new uses—with world-class speed and data quality. Staffers then saw an automated tissue culture system, capable of culturing up to 90 cell lines at once (compared to just a few in a typical lab). This automation drives reproducibility, scalability and efficiency—hallmarks of NCATS' translational science platform.

Efficient translational science also requires innovative management of research resources like chemical libraries. Staffers saw the compound management lab where the NCATS pharmaceutical collection is stored, along with more than a million molecules and natural product fractions. Among the 350,000 compounds at NCATS, the pharmaceutical collection is a comprehensive, publicly accessible collection of nearly 3,000 small molecular entities that have been approved for clinical use by U.S., European Union, Japanese, Australian and Canadian authorities for high-throughput screening. This collection provides a valuable resource for validating new models of disease and speeding drug repurposing. The NCATS compound management group supports researchers via compound storage, registration, and shipping drug candidates to collaborators across the country.

Congressional staff ended their visit with a firsthand demonstration of the power of NCATS' automation labs. They took on the role of a researcher manually pipetting, or distributing, liquids in measured volumes into a plate for a research experiment, racing against an NCATS automatic pipetter setting up 3 plates at the same time.

"It really brings home the power of NCATS' approach to have the experience of the conventional, manual pipetting process, which is prone to human error," said Hall. "We can highlight the automatic, standardized pipetting robot and what that means for the speed and reproducibility of our science. Our lab investments and operations are unique, which is why our intramural program is collaborative." The robot, not surprisingly, won the race, and produced an image of the Capitol building.

From automation to AI, NCATS shows how building shared platforms can accelerate discoveries across diseases, fulfilling NIH's mission to turn science into better health for all.

This lab tour was organized by the NCATS Alliance, which supports a new generation of innovative methods and technologies that will catalyze the development of new diagnostics and therapies to detect and treat a wide range of human disease. NCATS works across all diseases and all NIH ICs to support and accelerate therapeutic breakthroughs. R

Tour group (from l): Blaylock, Jordan Cox (HHS), Dr. Annica Wayman (NCATS), Steury, Bochow, Brignac, Richter, Hall, Rutter, Kevin Brennan (NCATS Alliance) and Dr. Mike Kurilla (NCATS)

Bertozzi

CONTINUED FROM PAGE 1

entirely new kind of chemistry. She dubbed it "bioorthogonal"— chemistry between reagents that neither interact nor interfere with a biological setting.

Now an established field, bioorthogonal chemistry allows organic synthesis ordinarily performed in a lab to be performed in biological environments without affecting biomolecules or interfering in biological processes.

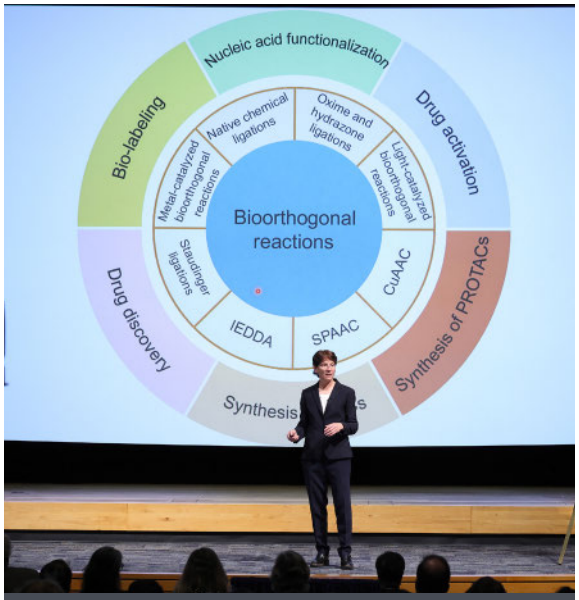
How could this be applied to Bertozzi's immunology research?

"Could we image sugars on the surface of cells and use that to differentiate healthy and cancerous cells?" Bertozzi wondered.

More specifically, she envisioned tagging a specific molecule within the glycocalyx called sialic acid, which grows in a healthy pattern in healthy cells and overgrows in cancerous cells.

She theorized, "If we could [illuminate] sialic acid, could that differentiate tumor tissue from healthy tissue?" However, the technology to image sugars did not exist in the 90s.

This is where Bertozzi's bioorthogonal chemistry came into play. If she could embed a chemical handle into the sugar and ensure the chemical reached the sialic acid, then maybe she could conduct additional chemistry and get the molecule to fluoresce.



"What started as a solution to a specific problem to image cell surface sugars took off and found all kind of interesting applications," Bertozzi said.

In 2000, she devised a reaction that could be done on cells called a Staudinger ligation (an adaptation of another reaction called a Staudinger reduction). Bertozzi tested this reaction in a mouse model, injecting a precursor of sialic acid decorated with an azide group. After a few hours, the azido-sugar would be metabolized and incorporated into cell surface glycans. Finally, Bertozzi could use a Staudinger ligation to attach a phosphine probe, which became the flag on the cell surface.

This process was too slow, though. Another adaptation of an existing reaction, click chemistry, was the key to speeding it up. The original click chemistry uses a copper catalyst, which is toxic to living things. So Bertozzi developed a "copper-free" click chemistry to enable her to "click" a probe molecule onto the azido-sugar.

She demonstrated the success of this method in zebrafish embryos, labelling the developing organ systems with different colors and then imaging them. She likened it to "Turning on a new spotlight and shining it in a new place on a new thing."

Bioorthogonal chemistry has continued to enable new discoveries, one of which disrupted a long-held standard of glycobiology knowledge. Textbooks generally agree that the cell surface contains two types of glyco-molecules—glycolipids and glycoproteins—but Dr. Ryan Flynn, a former member of Bertozzi's lab, discovered that RNA is also glycosylated and presented on the cell surface.

"This is the kind of basic science tool that can allow you to open a window to a new type of molecule," she said.

This basic science tool has also made possible exciting clinical translations. Bioorthogonal and click chemistry are now being used to make antibody-drug conjugates, vaccines, cell therapies and more.

Chimeric antigen receptor chemistry (CAR) T cell therapy, a new type of cancer immunotherapy, is one such example. A patient's T cells are obtained from a blood sample and then genetically engineered in the lab to produce CARs, which enable the T cells to recognize and bind to specific cancer cell antigens. Technicians multiply the CAR T cells in the lab

Bertozzi (l) receives lecture award from NIH Director Dr. Jay Bhattacharya

and then the cells are infused back into the patient, where they bind to the cancer cells and kill them.

This treatment does not work for everyone, however, and because it requires specialized facilities, most patients don't have access. Bertozzi described the work of a biotech company formed by one of her former PhD students, Acepodia, that is generating "off the shelf" T cells from healthy donors and modifying them using bioorthogonal chemistry to target cancer cells.

In another cancer treatment application, Bertozzi described the work of biotech company Shasqi Pharmaceuticals, which is delivering chemotherapy treatments directly to cancer cells using bioorthogonal chemistry within the human body. This type of chemistry, called "click-to-release," is a cousin of click chemistry.

"As one compound clicks on, another releases," Bertozzi said, which makes it ideal for a prodrug—a pharmacologically inactive compound that is metabolized and activated inside the body. Shasqi has tested this method in a clinical trial with the chemotherapy drug doxorubicin. This drug causes unpleasant side effects with normal use because it can interact with healthy cells as well as cancer cells. When it is only activated in the tumor microenvironment with the click-to-release method, patients may experience fewer side effects.

Looking back to the basic science origins of bioorthogonal chemistry, she acknowledged its "many interesting applications that will hopefully translate into therapeutics."

"We can't predict the future, but I think bioorthogonal chemistry will be part of it," she concluded.

Watch the archived lecture at https://videocast.nih.gov/watch=55040.

CCR's Ambs Retires

Dr. Stefan Ambs, a molecular epidemiologist with the NIH National Cancer Institute's (NCI) Center for Cancer Research, retired earlier this year after almost 25 year at NCI. His expertise is in prostate and breast cancer with a focus on cancer health disparities and risk factors that alter the tumor microenvironment.

A pioneer in his field, Ambs combined translational research and data science approaches to identify exposures that promote tumor development and contribute to the excessive burden of cancer in the African American community.

Stefan with his wife Anita in the mountains of Sichuan, China on a recent birding trip

Ambs earned a master's degree in biochemistry from the University of Tübingen, Germany. After completing his Ph.D. at the University of Würzburg, Germany, he trained as a postdoctoral fellow in NCI's Laboratory of Human Carcinogenesis for several years.

Ambs continued his research at a biotechnology company in California and at the Aventis Genomics Center in Cambridge, Mass. In 2001, he returned to NCI as a tenure-track investigator, earning a Master of Public Health degree in epidemiology from the Johns Hopkins Bloomberg School of Public Health shortly after. He then became a senior investigator in 2010.

Ambs' research program thrives on the rare ability to combine epidemiology and data science research. His description of how inflammation may underlie the excessive burden of prostate cancer in men of African ancestry is a concept that has greatly impacted the prostate cancer field.

His lab's research efforts involve analyzing tumor, blood and urine biospecimens from men who represent different population groups, including African American and European American men from the U.S., and Ghanaian and Nigerian men within Africa. His discovery that aspirin may limit lethal prostate cancer metastasis in African American men could offer an opportunity for improved prevention focusing on inflammation and inflammation-induced alteration in the tumor microenvironment.

More recently, Ambs and his team showed how aggressive breast and prostate cancers in African Americans have distinct molecular features. Other investigations by his group linked neighborhood environment and chronic stress signaling to increased systemic inflammation and tumor immunity suppression in cancer patients. Lastly, his laboratory's breast cancer studies sought to define how co-morbidities, ancestral genetic factors and stress signaling may impact breast cancer biology.

"I have had the privilege of working alongside Stefan since 1992 as a colleague, collaborator and friend," said Dr. Xin Wei Wang, an NCI senior investigator. "His expertise in cancer epidemiology has been instrumental in shaping the design of my liver cancer studies. Stefan is both scientifically critical and constructively engaged, always bringing thoughtful insight with a big smile to every discussion. His presence has been a rare and valued combination of rigor, generosity and wonderful friendship."

In retirement, Ambs said he's looking forward to adventurous traveling around the world. He also remains a special volunteer in the Laboratory of Human Carcinogenesis.

NIH Remembers Shurin

Dr. Susan Shurin

Dr. Susan B. Shurin, an extraordinary leader and cherished member of NIH's National Heart, Lung and Blood (NHLBI) community, passed away on August 31st at her home in San Diego at the age of 80.

Shurin joined NHLBI in 2006 as deputy director and later served as acting director from 2009 to 2012. During her time at NHLBI, she was instrumental in advancing research and public health initiatives. Her leadership was marked by the development of critical policies for genomic data sharing and the promotion of global health initiatives, with a particular focus on non-communicable diseases.

After retiring from NHLBI in 2014, Shurin continued her invaluable work as a senior adviser at NIH's National Cancer Institute's Center for Global Health. Her efforts focused on enhancing biomedical research capacities in low- and middle-income countries, with an emphasis on cancer prevention and treatment, reflecting her commitment to improving health outcomes for underserved populations.

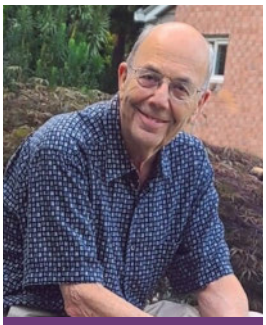
Before joining NHLBI, Shurin was a professor of pediatrics and oncology and Case Western Reserve University in Cleveland; director of pediatric hematology-oncology at Rainbow Babies and Children's Hospital; director of pediatric oncology at Case Comprehensive Cancer Center and vice president and secretary of the corporation at CWRU. In 1994, she performed the first successful umbilical cord blood transplant for childhood leukemia, using cord blood from the patient's baby sister.

Her contributions to pediatric hematology-oncology have been profound, significantly impacting treatments for conditions like thalassemia and sickle cell disease. Shurin's dedication to science and passion for mentoring emerging medical professionals have left an enduring legacy.

Her family recalls that she often spoke fondly of the week each year when students from Tougaloo College in Mississippi, who were involved with the Jackson Heart Study, would visit NIH. She referred to it as "one of my absolute favorite weeks at NIH, spending time with those students."

Shurin's mentorship and advocacy for optimal health for all communities continue to inspire.

NCI Mourns Passing of Bustin



Dr. Michael Bustin

NIH Scientist Emeritus Dr. Michael Bustin passed away on Aug. 24. He was a pioneering scientist and a much respected and well-liked member of NIH's community.

Bustin was a senior investigator at NIH's National Cancer Institute. He studied the role of chromosomal proteins in chromatin function, epigenetic regulation, development and disease.

"Michael was my colleague for over 40 years. While we worked in different fields, his critical thinking and suggestions positively influenced my research and that of all PIs who worked with him," said Dr. Frank Gonzalez, a senior investigator in NCI's Cancer Innovation Laboratory. "I miss him dearly."

Born in Bucharest, Romania in 1937, Bustin emigrated after World War II and served in the Israeli armed forces before embarking on an extraordinary scientific career. He earned his B.Sc. in chemistry from the University of Denver and his Ph.D. in biochemistry from the University of California, Berkeley, followed by postdoctoral training at Rockefeller University and the Weizmann Institute of Science.

Bustin first joined NCI in 1975 and became a senior investigator in the Laboratory of Molecular Carcinogenesis and then the Laboratory of Metabolism, where he led influential studies for decades before retiring in 2022.

He also held academic appointments, including serving at Georgetown University and later as a visiting professor at Tel Aviv University. During his career, he published more than 275 papers and mentored numerous scientists who went on to make important contributions of their own.

Bustin will be remembered for his scientific rigor, generosity as a mentor and unwavering passion for discovery. He leaves behind a remarkable legacy in molecular biology and the chromatin field.

EDUCATING ALL AGES

Viswanathan Shares Neuroscience Knowledge in Children's Book

BY AMBER SNYDER

How do lemurs navigate at night?

If your child asks this question, you might find yourself turning to *Baby Senses: A Sensory Neuroscience Primer for All Ages*, a children's neuroscience book written and illustrated by Dr. Jayalakshmi Viswanathan.

Dr. Jayalakshmi Viswanathan

As it turns out, lemurs use their well-developed sense of smell to map their environment to help them get around in the dark. Viswanathan, a scientific research program specialist in NIH's National Institute on Aging, featured the iconic primates as well as several other animals and insects in her book.

She was inspired to write *Baby Senses* while volunteering with a DC-based youth literacy organization. A child she was tutoring was interested in neuroscience, but Viswanathan couldn't find any books suitable for young readers. *Baby Senses* was her solution.

Viswanathan's interest in science communication was rooted in her childhood. Growing up in India, she found it challenging at times to learn about science. She often couldn't find resources appropriate for her level of understanding. When it came time to write *Baby Senses*, she knew she wanted the book to be educational for both children and adults, so she included a helpful glossary of scientific terms for parents and teachers.

Viswanathan shares *Baby Senses* with a young audience.

Viswanathan also created all of the art for *Baby Senses*. "I considered hiring an illustrator, but I wanted to make sure the visuals were scientifically accurate," she said. She calls her art form "neuro-art," utilizing techniques ranging from watercolor painting to dance, to portray the intricacies of neuroscience.

She started another artistic venture in 2024: a neuroscience podcast titled "Know Brainer."

"It was inspired by a lot of philosophical conversations I had during graduate school," she explained. The feedback following the release of *Baby Senses* in 2023 then spurred her to take the leap. She wrapped up season one in 2025 and is planning for a second season, with the potential for more beyond that.

"I thought I would only do it for a year or two, but I've had so much fun talking to people," said Viswanathan. "I can't think of a single episode where I didn't have fun or learn something new."

Viswanathan feels like she's just getting started in the realm of children's books, too. She is in the planning stages for another picture book.

"I just want to get kids excited about science," she said. Through each of her art forms, she seeks to make her research relatable to the public and build trust in the scientific method.