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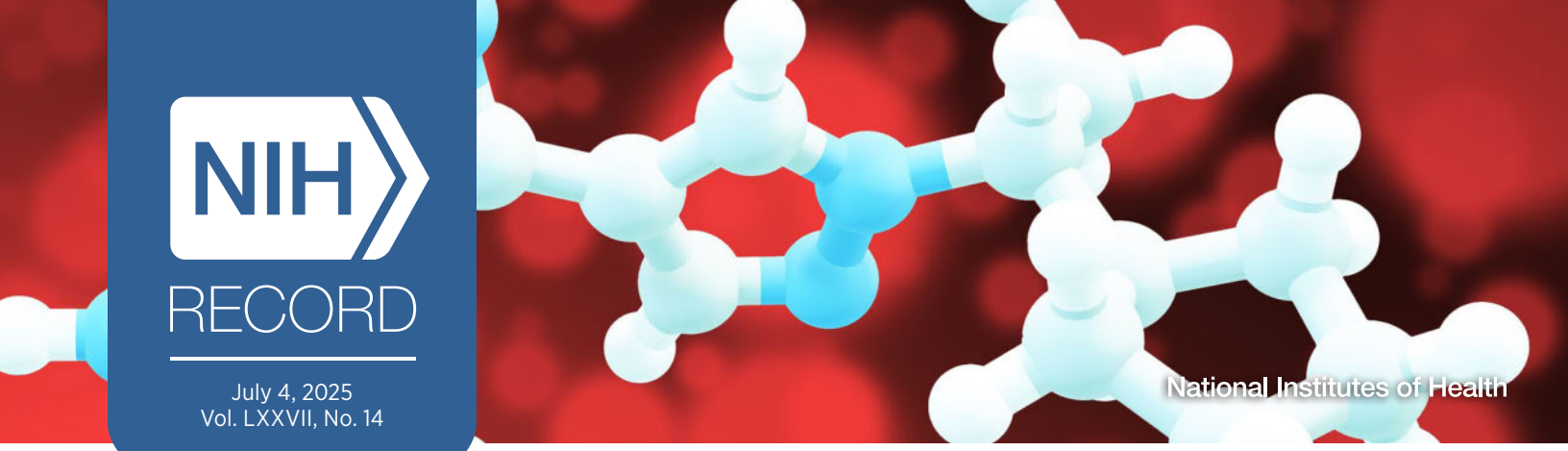


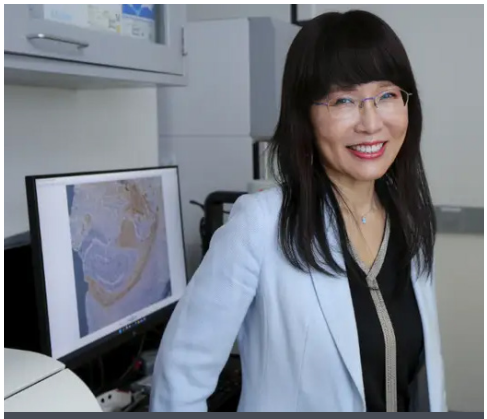
Repurposed Drug May Delay Menopause, Slow Ovarian Aging

BY AMBER SNYDER

What is the first organ in the human body to age? The ovary is the first and fastest organ to undergo aging.

Ovarian aging, which culminates in menopause—the point in a woman's life where her periods have stopped permanently and she can no longer become pregnant—has profound consequences not only for fertility, but also for overall health.

Dr. Yousin Suh, director of reproductive aging at Columbia University, discussed the biological mechanisms of ovarian aging at a recent NIH Wednesday Afternoon Lecture (WALS) in Lipsett Amphitheater. She is investigating how and why it occurs, and why it progresses so rapidly. Suh believes that understanding these processes may ultimately help delay ovarian aging and, in doing so, improve women's health and longevity.


Dr. Yousin Suh of Columbia University

"Aging is the single greatest risk factor for disease," she said, and menopause "accelerates biological aging."

Menopause 101

Women in the U.S. tend to reach menopause between 45 and 55 years old, but ovarian function begins to decline in the mid-30s. This occurs as the ovarian follicles—often called the "functional unit" of the ovary because they house immature eggs and develop one each menstrual cycle—are gradually depleted. When a woman reaches menopause, the ovarian follicles are nearly exhausted, heralding the end of fertility.

Another major aspect of menopause is a drop in circulating estrogen levels— a hormone made by ovarian follicles that helps regulate many systems in the body. That's why menopause can bring a wide range of

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Showing a 'special love' for Camp Fantastic, p. 8

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Clinical Center Honors Graduating Fellows

BY ERIC BOCK

NIH's Clinical Center (CC) held its second graduation ceremony in Masur Auditorium to mark the completion of training for clinical residents and fellows in accredited and nonaccredited graduate medical education (GME) programs.

The ceremony featured remarks from NIH Director Dr. Jay Bhattacharya, Acting CC CEO Pius Aiyelawo, senior investigator Dr. Theo Heller and graduating fellow Dr. Dilara Akbulut. This year, more than 80 graduates received fellowship certificates from their individual program directors.


Dr. Theo Heller

"Research-trained physicians are critical members of the workforce who will develop the next generation of cures," said Bhattacharya via video message. "We hope those graduating today will continue to be ambassadors for the value of training at the NIH Clinical Center and the importance of the NIH mission."

The CC sponsors a variety of training programs, each of which is filled with rich learning experiences. The programs help fellows realize their potential as a physician, physician-scientist, clinical investigator, or institutionally based academician.

During training, fellows work collaboratively with distinguished researchers, are mentored by world-renowned physicians, participate directly in cutting-edge investigational protocols, and rotate to some of the nation's finest academic medical centers within the

SEE **GRADS**, PAGE 5

A quintet from the National Symphony Orchestra recently performed for staff, patients and visitors in the Clinical Center atrium, as part of the NIH-Kennedy Center Sound Health initiative. Their lighthearted repertoire included selections from *St. Saens' Carnival of the Animals* and Maurice Ravel's *Mother Goose Suite.* **PHOTO: DANA TALESNIK**

Hollander To Discuss Health Omics Metadata Commons

July 11

Dr. Zsuzsanna Hollander

NIH's Office of Data Science Strategy hosts a seminar series to highlight exemplars of data sharing and reuse on the second Friday of each month. The next virtual seminar will take place on July 11 at noon.

Dr. Zsuzsanna Hollander, director, data science at Genome British Columbia in Vancouver, Canada, will present the Health Omics Metadata Commons, which serves as a free centralized hub for storing and disseminating metadata pertaining to human biological samples and omics research data.

The hub's primary objective is to foster the reuse of data, thereby expediting scientific breakthroughs and driving advancements in personalized medicine. By consolidating metadata from various biobanks and omics research projects, the commons facilitates seamless data discovery, promotes interoperability and encourages collaboration across diverse health research domains.

Hollander is a passionate leader driven to advance human health and wellness by maximizing the value derived from data through data management and data science. She has 20 years of experience in translational health research, data mining and management, and database development. Hollander co-authored more than 50 scientific papers and co-invented two patents in the genomics and molecular diagnostics fields.

The seminar is open to the public. Registration is required. To register, visit: http://bit.ly/3G8kBjR.

Individuals who need interpreting services and/or other reasonable accommodations to participate in this event should contact Allison Hurst at 301-670-4990. Requests should be made at least five days in advance of the event.

NIH Shuttle System Announces Changes

The NIH shuttle system on and around the Bethesda main campus announced service changes on June 23. These changes include shuttle/route modifications, National Cancer Institute (NCI) shuttle consolidation and ID checks.

The campus shuttle route now includes two options: Campus North and South. The Campus North shuttle begins at the Medical Center Metro station and heads toward Bldg. 1 and continues to loop around campus. The Campus South shuttle starts at the Medical Center Metro, heads toward Bldg. 45 and continues to loop around campus in the opposite direction of the Campus North shuttle.

NIH shuttles outside the Medical Center Metro **PHOTO: BILL BRANSON**

The Campus Limited shuttle is now the Metro/Bldg. 31A Express. This shuttle will operate between 7:00 a.m. – 9:55 a.m. and 3:30 p.m. – 7:15 p.m. The Bldg. 10 Express shuttle now operates between 6:00 a.m. and 7:00 p.m.

Additionally, the Rockledge, Fishers Lane and NCI-Shady Grove shuttles will no longer enter the main campus. Passengers will disembark at the Medical Center Metro station at South Drive and Rockville Pike and either enter the Gateway Center or walk through the pedestrian portals.

Passengers should be prepared to display NIH-issued identification or valid visitor credentials upon request. NIH staff with a valid NIH-issued identification should proceed through the pedestrian portal and continue to their destination on campus either by walking or using interior campus shuttles. Visitors must first go to the Gateway Visitor Center for security screening to obtain a visitor badge. After clearing security, visitors may proceed to their campus destination.

To view NIH shuttle schedules, visit: https://go.nih.gov/JcSZ3bX.

NIHFCU Offers Free Fraud Prevention and Security Education Tools

NARONGTH/SHUTTERSTOCK

As everyone knows all too well, financial scams are growing, and the fraudsters behind these schemes are becoming more sophisticated in their attempts to steal identities and perpetrate their crimes.

To help educate the public, the NIH Federal Credit Union (NIHFCU) has launched its Fraud & Security Hub, with an extensive range of tools to help keep you safe and vigilant. This free portal includes easy-to-read blog articles, videos, how-to guides and e-learning courses across virtually any fraud and scam-related topics of interest.

"With the ever-evolving threat of financial fraud, we are pleased to make this important resource available to not just our members, but also to help further educate the entire NIH workforce," said Steve Levin, NIHFCU's vice president of marketing & brand strategy. "The fraud hub provides tips on digital safety, data protection, scam awareness, emerging trends, and more to help protect your personal and business interests. We invite everyone to check it out."

See: nihfcu.org/FraudHub. The NIHFCU also offers complimentary webinars to support financial wellness. For more information, see: nihfcu.org/Learn.

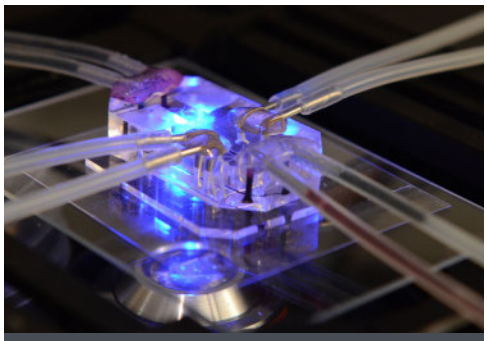
NIH to Prioritize Human-Based Research Technologies

NIH is adopting a new initiative to expand innovative, human-based science while reducing animal use in research. Developing and using cutting-edge alternative non-animal research models aligns with the U.S. Food and Drug Administration's (FDA) recent initiative to reduce testing in animals.

While traditional animal models continue to be vital to advancing scientific knowledge, using emerging technologies can expand the toolbox for researchers to answer previously difficult or unanswerable biomedical research questions.

Some animal models do not translate well to human diseases, limiting researchers' abilities to develop effective interventions. New and emerging technologies have begun to allow researchers to study health and disease using human information, making them an alternative avenue to yield replicable, translatable and efficient results either alone or in combination with animal models. These technologies include:

- Organoids, tissue chips and other in vitro systems that allow scientists to model human disease and capture human variability and patient-specific characteristics



This lung-on-a-chip serves as an accurate model of human lungs to test for drug safety and efficacy. **PHOTO: WYSS INSTITUTE FOR BIOLOGICALLY INSPIRED ENGINEERING, HARVARD**

- Computational models which simulate complex biological human systems, disease pathways and drug interactions
- Real-world data that allow scientists to study health outcomes in humans at community and population levels

To integrate innovative human-based science, NIH intends to establish the Office of Research Innovation, Validation and Application (ORIVA) within NIH's Office of the Director. The new office will coordinate NIH-wide efforts to develop, validate and scale the use of non-animal approaches across the agency's biomedical research portfolio and serve as a hub for interagency coordination and regulatory translation for public health protection.

ORIVA will expand funding and training in non-animal approaches and awareness of their value in translational success. New funding opportunities will include evaluation criteria that assess methods based on their suitability for the research question, context of use, translatability and human relevance. Infrastructure for non-animal approaches will also be expanded to make these methods more accessible to researchers.

In addition, grant review staff will participate in mitigation training to address any possible bias toward animal studies and integrate experts on alternative methods into study sections. NIH will also publish annual reports on research spending to measure progress. R

NIH Supports Innovation in Women's Midlife Health

Women in midlife face unique health challenges that have historically been under-researched, from menopause to increased risk of chronic disease. Supporting targeted studies in this area can help close the research gap and improve care options.

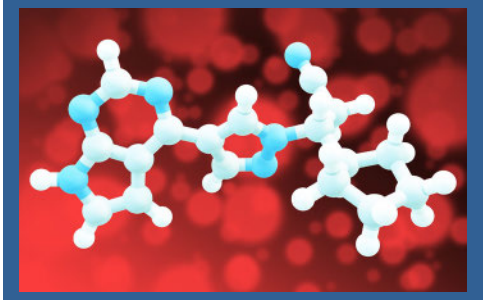
To incentivize interdisciplinary research collaborations, NIH's Office of Research on Women's Health is supporting one-year, proof-of-concept pilot awards on women's midlife health.

Applications were received from principal investigator teams representing 14 NIH Institute and Center (IC) intramural programs, with initial awards made to four teams at eight ICs.

The awarded proposals will:

- characterize the impacts of menopause stage, sex hormones and sex chromosomes on brain aging and disease
- study the impact of menopause and hormone therapy on the fecal microbiome in the Sister Study
- promote discovery of environmental factors that contribute to menopausal hot flashes
- explore immune-adipose dysfunction in the menopause transition

For more information about these proposals, see: http://bit.ly/3T1SNRa.



ON THE COVER: *3D rendering of the drug ruxolitinib. The drug is approved to treat certain autoimmune diseases and cancers.*

IMAGE: NIAID

The NIH Record

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NIH National Institutes of Health
Turning Discovery Into Health

Ovarian

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symptoms. Women who undergo menopause later tend to live longer than those who experience early menopause. Interestingly, brothers of women who enter menopause later also tend to live longer, suggesting that shared genetic factors may influence both reproductive and overall aging.

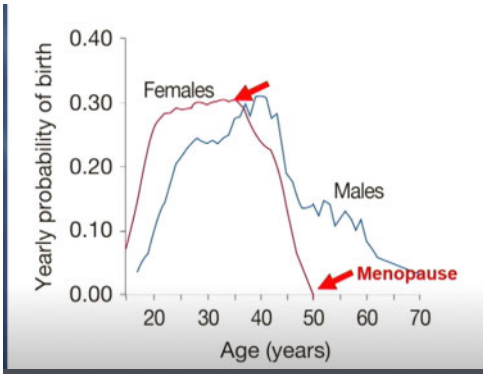
Suh believes the source of these variations lies in genetics. "Aging is not simple wear and tear, but governed and controlled by underlying biology," she explained.

Learning from genetics

As a geroscientist, a researcher who studies how aging drives disease, Suh believes that delaying ovarian aging could help women live longer, healthier lives—a concept known as geroprotection.

To better understand why menopause timing varies so widely—from the mid-30s to the late 50s—Suh's lab turned to human genetics. Drawing on published genome-wide association study (GWAS) data from hundreds of thousands of women, her team focused on identifying genetic variants that may play a causal role in determining the pace of ovarian aging.

While previous GWAS had uncovered hundreds of associated loci (the specific location of a gene on a chromosome), the majority lie in non-coding regions, making it difficult to pinpoint their biological impact. To bridge this gap, Suh's team created a single-nucleus multiomics atlas of the human ovary, combining gene expression and chromatin accessibility data from young and reproductively old donors (in their 20s and early 50s, respectively).



Reproductive aging in women begins in the mid-30s with a dramatic decline in ovarian function and stops with the onset of menopause. Male reproductive aging has a much more gradual decline.

By integrating this atlas with GWAS findings, they identified more than 100 likely causal regulatory variants and their target genes. One variant associated with later menopause, rs3741605, reduces expression of the HELB gene—an inhibitor of an accurate DNA repair pathway known as homologous recombination—suggesting a mechanism by which genetic differences might delay ovarian aging.

Importantly, the influence of the HELB variant extends beyond the ovary. "Ovarian aging-associated variants may potentially have impacts across all human tissue types," Suh explained. This includes men, reinforcing the idea that reproductive aging genetics are not confined to the ovary alone. Within the ovary, these variants exert broad influence.

"Menopause timing-related variants have a global impact on gene regulatory networks across the different cell types of the ovary," Suh noted. "This integrative approach allowed us to connect genetic risk factors for menopause timing with molecular changes in ovarian cells. It helps explain the enormous variation we see across women and may ultimately point to targets for preserving reproductive health."

Hallmarks of aging

When Suh's team analyzed gene expression in ovarian cells from young and older women, they identified more than 3,000 genes whose activity changed with age. What stood out was the remarkable coordination of these changes: nearly all ovarian cell types showed age-related shifts in the same direction and magnitude—an unusually unified pattern not typically seen in other human tissues during aging.

"This coordinated cellular change is a striking feature of ovarian aging," Suh said.

Further analysis revealed that these age-sensitive genes are enriched for several well-known biological pathways collectively known as the "hallmarks of aging"—processes such as genomic instability, impaired mitochondria function, and altered nutrient sensing. These hallmarks have been widely studied as potential targets for gerotherapeutics, drugs that aim to delay or reverse biological aging and extend healthspan in preclinical models.

Among the pathways Suh's team identified, mTOR signaling stood out for its consistent activation across multiple ovarian cell types. The mTOR pathway helps cells regulate growth and energy use, and its dysregulation is a known driver of aging.

"mTOR is activated across multiple ovarian cell types and represents a unique mechanism in reproductive aging," she said.

Previous research has shown that rapamycin, a drug that inhibits mTOR, is one of the most effective geroprotectors in animal models. Suh's findings suggest that the human ovary itself may be a direct target for rapamycin's geroprotective effects.

VIBRANT Study

Encouraged by these discoveries and preclinical data, Suh launched a first-in-human clinical trial. In this pilot study called VIBRANT—Validating Benefits of Rapamycin for Reproductive Aging Treatment—50 healthy reproductive-age women were enrolled. Half received rapamycin weekly for three months. All participants were then monitored for nine months.

"We received over 200 emails from women eager to enroll when the study went live," Suh recalled.

This first VIBRANT trial served as a proof-of-concept: it aimed to test the safety and feasibility of short-term rapamycin use and its potential effects on ovarian function. The drug was well tolerated, with no significant adverse events, and some participants reported unexpected benefits like improved memory and overall well-being.

One possible mechanism is that rapamycin reduces the number of follicles activated each month—effectively preserving the ovarian reserve and potentially delaying reproductive aging. Building on this foundation, the next phase—VIBRANT II—will expand to a multi-center trial enrolling about 200 women.

Big Picture

Studying ovarian aging could offer broader lessons for the field of aging biology. "The ovary ages earlier and faster than any other organ," she said. "The process is so organized it looks like it's prompted by a signal." This makes the ovary a compelling model for aging studies—compact, time-compressed, and genetically tractable.

Suh concluded, "What we learn from female-based aging research could benefit everyone—including men."

Grads

CONTINUED FROM PAGE 1

metropolitan Washington, D.C., region for additional clinical experiences.

Keynote speaker Dr. Theo Heller called the ceremony a "punctuation point," where graduates have an opportunity to stop and think about what has been and what will be.

"It's especially important to pause and reflect on perspectives if we want to be successful and get where we want to be," said Heller, an NIH senior investigator who researches liver disease.

Many of the patients Heller sees are at their most vulnerable. Often, they tell him the importance of contributing to something beyond themselves. Physicians and doctors have an advantage over everyone else. Caring is built into the profession.

"The opportunity to help others in the most profound way is inherent in what we do," he said.

Heller challenged graduates to make a difference every day: "Do something that matters. Don't get distracted by negativity. Don't let anything stop you."

One of the CC's unique strengths is how doctors from different fields intersect with each other. "We collaborate across disciplines, combining knowledge and skills to unravel mysteries and bring hope to patients in ways no single specialty could achieve alone," said Akbulut, a resident in the NIH's National Cancer Institute's Anatomic Pathology Program.

At l, ceremony emcee Dr. Paneez Khoury; at r, Dr. Dilara Akbulut

Early in her time at NIH, she saw her colleagues' dedication firsthand. Late one afternoon, she noticed something on a slide and asked a colleague for their opinion. "It was almost 5 p.m. and I wasn't expecting much," she said. Everyone in the department, including the head, gathered. They discussed the question, consulted medical textbooks and found an answer.

Akbulut acknowledged the support she and her graduating class received from friends and family, mentors, colleagues and patients during their time at the CC.

"As we graduate today, we carry with us a shared purpose to advance science, to heal and to serve wherever we go," she said. "Our commitment to these ideals will shape the future of medicine."

Emcee and chair of the GME committee Dr. Paneez Khoury closed the ceremony with final remarks.

"The impact of your training will echo far beyond this campus," Khoury concluded. "We, here, are encouraged that you will be the ones to advocate for and mentor the next generation of scientists."

The graduating class of fellows poses outside the Clinical Center. **PHOTOS: CHIA-CHI CHARLIE CHANG**

NIH Mourns the Passing of Geneticist Sly

Dr. William Sly

Dr. William S. Sly, an internationally known physician and scientist, and professor emeritus of biochemistry and molecular biology at St. Louis University School of Medicine, died on May 31. He was 92.

Sly was perhaps best known for his work on the rare genetic disease that now bears his name, Sly syndrome, also called mucopolysaccharidosis type VII (MPS-VII). Sly syndrome can cause bone defects, developmental delays and intellectual disability, and premature death. His research team described the first patient with the disease, and later he helped develop an FDA-approved treatment.

After earning his undergraduate and medical degrees from SLU, Sly trained in internal medicine at Washington University in St. Louis. From 1959 – 1963, Sly conducted research at the then-named National Heart Institute, working under Dr. Roy Vagelos and Dr. Earl Stadtman, who were pioneers in enzymology and biochemistry, and Dr. Marshall Nirenberg.

Throughout his career, Sly investigated causes and possible treatments for MPS diseases, which cause people to have physical and intellectual impairments and behavioral problems that worsen with age. Sly's research into the disease paved the way for an effective enzyme therapy treatment that dramatically changes the progression of some common MPS disorders.

Sly also gained attention for his work in a forensic case involving a "murder mystery." While watching an episode of television's "Unsolved Mysteries" involving a woman charged with poisoning her son, Sly noted that the type of urine test used to convict her could not rule out an inherited metabolic disorder with similar symptoms to poisoning. On a hunch, Sly and his colleague, the late Dr. James Shoemaker, independently conducted more tests, and the results pointed conclusively to a genetic disease. Sly presented this new evidence to the prosecution and, largely thanks to the analysis, the charges were dismissed.

Sly was a member of the National Academy of Sciences and won numerous awards during his lengthy career. He authored more than 350 peer-reviewed journal articles and co-authored "The Molecular and Metabolic Bases of Inherited Disease."

Sly is survived by his wife of 64 years, Peggy Sly, seven children, 26 grandchildren and seven great-grandchildren.

In lieu of flowers, the family requests that contributions be made in Bill's name to:

- The William S. Sly MD Centennial Chair in Biochemistry at the St. Louis University School of Medicine (Donations should specify the William. S. Sly chair fund).
- National MPS Society, an organization that provides education, research funding, advocacy and direct support to patients and families living with mucopolysaccharidosis

NIH'ers Among National Academy of Sciences Electees

The National Academy of Sciences recently announced the election of 120 members and 30 international members in recognition of their distinguished and continuing achievements in original research.

Those elected bring the total number of active members to 2,662 and the total number of international members to 556. International members are non-voting members of the Academy, with citizenship outside the United States.

NAS electees, clockwise from top l: Dr. David Lawrence Sacks, Dr. José Marcos Ribeiro, Dr. Rafael Daniel Camerini-Otero and Dr. Ruth Nussinov

The new electees at NIH are:

Dr. Rafael Daniel Camerini-Otero, chief, Genetics and Biochemistry Branch, National Institute of Diabetes and Digestive and Kidney Diseases. His lab studies the fundamental mechanisms behind genetic recombination, the process by which genetic information is melded to produce new traits in an offspring. The goal of his research is to eventually devise new strategies to manipulate complex genomes in the laboratory environment and, in the future, in living organisms.

Dr. Ruth Nussinov, senior investigator, Cancer Innovation Laboratory, Frederick National Laboratory for Cancer Research, National Cancer Institute. She pioneered the foundational concept that all dynamic proteins have many different shapes, even if only one has been observed experimentally. The shapes are transient, and proteins' ability to transition between them allows them to fulfill their function in cells, overturning the dogma that one or two shapes are the sole protein forms in a cell. Nussinov's discoveries help unravel a wide range of biological processes, such as molecular recognition, mechanisms of cancer, and drug actions.

Dr. José Marcos Ribeiro, chief, vector biology section, National Institutes of Allergy and Infectious Diseases. Research in Ribeiro's lab explores the diverse set of molecules found in the salivary glands of blood-feeding insects and ticks, with the ultimate aim of uncovering new targets for vaccination against diseases transmitted by these organisms.

Dr. David Lawrence Sacks, senior staff fellow, laboratory of parasitic diseases, National Institute of Allergy and Infectious Diseases. Sacks' work focuses on the Leishmania parasites that cause the infectious disease known as leishmaniasis, including learning how they interact with the sand flies that transmit the disease and the immune systems of their mammalian hosts.

NIH Scientists Pioneer Promising Treatment for Intractable Cancer Pain

A new cancer pain therapy in testing is derived from the cactus-like Euphorbia resinifera plant.

PHOTO: RAEANN DAVIES/SHUTTERSTOCK

NIH scientists report that a first-in-human clinical trial of a new therapy based on the plant-derived molecule resiniferatoxin (RTX) shows it is a safe and effective agent for pain control in patients with intractable cancer pain. Researchers tested a single injection of small quantities of RTX into the lumbar cerebral spinal fluid of advanced-stage cancer patients and found it significantly reduced their reported worst pain intensity and opioid usage.

The trial enrolled participants with terminal end-stage cancer who were among the 15% of cancer patients unable to find pain relief from standard-of-care pain interventions, including a vast quantity of opiates.

One injection of RTX provided durable relief; patients' need for opioids declined sharply and their quality of life improved. They no longer needed to spend significant periods sedated with opioids and, after treatment, were able to re-engage with family, friends and communities.

The researchers believe RTX also has potential to treat many other pain conditions.

RTX is not addictive and doesn't cause a high. It prevents pain signals from reaching the brain by inactivating a sub-group of nerve fibers which transmit heat and pain signals from damaged tissue. RTX activates the TRPV1 ion channel, which allows an overload of calcium to flood into the nerve fiber and block its ability to transmit pain signals.

Unlike other approaches that use heat, cold, chemicals or surgery to non-selectively interrupt nerves to stop pain, RTX targets the specific sensory pathways of tissue damage, pain and heat. Other sensory pathways remain intact.

RTX is derived from the Euphorbia resinifera plant. Euphorbia extract has been known for 2,000 years to contain an "irritant" substance, which NIH scientists identified how to use for patients through basic research on living cells observed through a microscope. Adding RTX to TRPV1-containing cells under a microscope caused a visible calcium overload.

The next steps include additional, larger clinical trials to move RTX toward eventual approval by the FDA and clinical availability.

Scientists Design Gene Delivery Systems for Neural Cells

NIH-funded research teams have created a versatile set of gene delivery systems that can reach different neural cell types in the human brain and spinal cord with exceptional accuracy. These delivery systems are a significant step toward precise gene therapy that could safely control errant brain activity. Current therapies for brain disorders mostly target symptoms.

The new delivery systems carry genetic material into the brain and spinal cord for targeted use by specific cell types. This platform could transform how scientists study neural circuits. It provides researchers with gene delivery systems for various species used in research, without the need for genetically modified animals. Examples include illuminating fine structures of brain cells with fluorescent proteins and activating or silencing circuits that control behavior and cognition.

The new delivery tools, which use a small, stripped-down adeno-associated virus (AAV) to deliver DNA to target cells, can be applied across many species and experimental systems. The delivery systems have been tested in intact living systems, an important step for introducing new tools for widespread use. The newly published toolkit includes:

- Dozens of delivery systems that selectively target key brain cell types, including brain blood vessel cells and hard-to-reach neurons in the spinal cord that control body movement and are damaged in several neurological diseases, such as amyotrophic lateral sclerosis (ALS) and spinal muscular atrophy
- AI-powered computer programs that can identify genetic enhancers in specific brain cell types, using data from many different species

This collection of research tools will significantly accelerate understanding of the human brain. The toolkit enables access to specific brain cell types in the prefrontal cortex, an area that's critical for decision-making and uniquely human traits. With other tools in the collection, scientists can better study individual cells and communication pathways known to be affected in several neurological diseases.

AAV-based treatments are already approved for some conditions. The new collection of gene delivery resources lays the groundwork for more precise treatments that target only affected cells in the brain, spinal cord or brain blood vessels.

Millions of U.S. Kids Live with Parents with Substance Use Disorders

In 2023, more than 46 million adults in the U.S. had a substance use disorder (SUD) in the previous year. In addition to serious or even life-threatening health risks for the substance users, SUDs can also affect entire families.

PHOTO: RG STOCK STUDIO / SHUTTERSTOCK

Children whose parents or caregivers have substance use problems are more likely to have negative experiences early in life. They're also more apt to start using drugs or alcohol at younger ages themselves. And they have greater incidence of SUDs and other mental health conditions.

A University of Michigan research team wanted to know how many U.S. children were exposed to substance use and addiction at home. The team used data from the 2023 National Survey on Drug Use and Health. This survey collects nationwide data on drug use, SUDs and mental health issues each year. Findings appeared in JAMA Pediatrics.

Based on the survey and population data, the researchers estimated that nearly 19 million children under age 18 lived with one or more parents with an SUD in 2023. That's a quarter of all U.S. children. More than 7.5 million lived with a parent with a moderate to severe SUD. Nearly 3.5 million had a parent with multiple SUDs. And more than 6 million children had at least one parent with a co-existing SUD and mental illness (defined as major depressive disorder or serious psychological distress).

Alcohol use disorder was the most prevalent parental SUD among surveyed households, affecting more than 12 million children. More than 6 million kids had a parent with cannabis use disorder, while more than 2 million had a parent with a disorder related to prescription drugs. About 1 million had a parent with a SUD related to illicit drugs other than cannabis.

Family-based interventions to address SUDs have the potential to improve the health of millions of U.S. children and their families. —**Kendall Morgan**, adapted from *NIH Research Matters*

ABOVE: NIH'ers arrive to check out the food and vendor offerings. BELOW: Reps from the Special Love Foundation are surrounded by NIH'ers showing their spirit.

ABOVE: (from l) The R&W's Robert Proctor, Sherrell Freeman, Wendell Freeman and Wanda Spence with NIH Police Chief Cleveland Spruill (third from r), Deputy Chief Leslie M. Campbell (r) and R&W President David Browne standing between them. RIGHT: Staff from the NIH Blood Bank discuss the ongoing critical need for donations.

SPECIAL LOVE

NIH'ers Dish Up Support for Camp Fantastic

PHOTOS: MARLEEN VAN DEN NESTE

On a sunny day in June, hundreds of NIH'ers stopped by the Bldg. 10 south lawn for the annual Camp Fantastic BBQ to help raise money for a worthy cause. The event, which featured food trucks, games, a mini vendor fair and the weekly community market, supports Camp Fantastic— the week-long summer getaway in Virginia for children with cancer.

A percentage of food and BBQ t-shirt sales went to support the camp's foundation, Special Love. Some also contributed via donation buckets. The BBQ raised more than $3,000 for the summer camp, which is run in conjunction with NIH's National Cancer Institute's Pediatric Oncology Branch.

This year, Camp Fantastic runs from August 3 – 9. To learn more and/or contribute, see: https://specialove.org/.

Above, Dr. Rebecca Gottesman (l), chief of the Stroke Branch at NIH, joins her dad, former NIH Deputy Director for Intramural Research Dr. Michael Gottesman (c), who's sporting his new camp t-shirt.