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# CC NEWS



Clinical Center News

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## Pediatric Infectious Diseases Physician Selected for Clinical Teacher Award



Dr. Alexandra Freeman, a principal investigator and senior clinician in the Laboratory of Clinical Immunology and Microbiology at the National Institute of Allergy and Infectious Diseases, has won the 2026 Distinguished Clinical Teacher Award.

The award is given each year by NIH Clinical Fellows, who vote to select “an individual who embodies the highest ideals of mentorship, clinical excellence, teaching and research.”

Dr. Freeman is a pediatric infectious diseases physician, who focuses on the diagnosis and management of

primary immunodeficiencies, in particular the hyper IgE syndromes, including Job’s syndrome and DOCK8 deficiency.

NIH Clinical Fellows Committee Co-chair Dr. Abdullah Flaifel announced the award at the start of the NIH Clinical Grand Rounds Great Teachers: John Laws Decker Memorial Lecture Distinguished Clinical Teacher on June 11.

“Her pioneering work has shaped nearly every aspect of clinical assessment and management for these diseases,” Flaifel said, reading

excerpts from the nominations of NIH Clinical Fellows. “She’s also an exceptionally collaborative investigator working with colleagues across disciplines to deepen our understanding of disease mechanisms and open new avenues for treatment.”

“It’s a huge honor to get this award,” Dr. Freeman said. “So much of what we do is trying to encourage the next generation to go into medicine and sell our fields ... so that we have very, very good people to then hand our patients off to.”

Dr. Freeman will present the 2026 Great Teachers: John Laws Decker Memorial Lecture Distinguished Clinical Teacher during NIH Clinical Center Grand Rounds next June.

The lecture is named in honor of former NIH Clinical Center Director John Decker, M.D., who joined NIH in 1965 and served as director from 1983 to 1990. Known as an outstanding teacher, Dr. Decker strove to connect scientific communications around the world to accelerate important research.

—Sean Markey

## Pediatric Clinic Gets a Fresh New Look

The newly renovated entrance to the 1SE (H) Pediatric Clinic officially opened on June 16, offering a welcoming first impression for patients. Construction on the outpatient clinic began in January 2023 and is expected to be complete this fall. The redesigned entryway, reception, and waiting areas now feature a bright, imaginative and calming environment tailored to children and families of all ages.

“It’s nice and welcoming, very kid friendly and bright,” said patient Noah Gatica-Petree.



# How Scientists Discovered the Way “Bad Cholesterol” Binds to the LDL Receptor

Recently, scientists at the NIH Clinical Center announced a breakthrough discovery on the structure of LDL (bad) cholesterol and how it binds with the LDL receptor molecule. Their findings, published in the journal *Nature*, have profound implications for our understanding of how the body processes cholesterol, paving the way for new and more targeted treatments to the disease. “Now that we know how the LDL receptor binds to the LDL, we can potentially design new drugs to lower the cholesterol levels in our blood,” says study co-author Mart Reimund, a post-doctorate fellow at the National Heart, Lung, and Blood Institute (NHLBI).

High cholesterol can cause heart disease, one of the leading causes of death in the United States. “This is the number one killer of humans on the planet. It’s an incredibly common chronic disease and is a real problem for all Americans,” says Altaira D. Dearborn, a study co-author and staff scientist at the National Institute for Allergy and Infectious Diseases (NIAID).

Researchers have tried to understand the processes that cause high cholesterol since 1951, looking to improve public health. Substantial gains were made when advances in electron microscope technology in the 1980s literally changed the way that scientists could see how proteins functioned in our body. Cryo-electron microscopy in particular enabled researchers to determine the three-dimensional structure of biological molecules, especially proteins, by flash-freezing them in a thin layer of vitrified ice at extremely low temperatures. One shortcoming with that process is known as sample drift, a phenomenon that can obscure the image.

However, recent advances in imaging technologies have enabled scientists to take this process to a new level. This enabled NIH researchers to create a full 3D map of how LDL binds to its receptor for the very first time.



(L-R) Mart Reimund, Altaira D. Dearborn, Alan T. Remaley, & Joe Marcotrigiano holding a model of the Apolipoprotein B-100 molecule

“We have known for a long time that the binding of LDL to its receptor is a critical determinant of the level of LDL in the blood, a main driver of atherosclerosis (the buildup of fats, cholesterol and other substances on artery walls), but we didn’t know any molecular details of this process,” Alan T. Remaley, a study team member and senior investigator at NHLBI notes.

Key advances in cryo-electron microscopy is the ability to process a series of frames rather than a single snapshot, like a camera, to render cleaner images. This process generates a tremendous amount of information.

To understand the structure of LDL and how it bound to its receptor, the study team used special cloud computing to process the large data set used. Dearborn says this enabled the group to generate an image of something almost unfathomably small. The team also needed to design something artificial that binds to a specific spot as a type of registration, enabling them to orient and align the millions of LDL particles they imaged.

When healthy, our bodies use LDL receptors to remove “bad cholesterol” from our blood. This

prevents it from being deposited in coronary blood vessels, where it causes atherosclerosis. If the LDL particles are too small, LDL doesn’t bind to the receptor and will stay in circulation longer leading to more atherosclerosis.

The team’s findings better explain why this occurs and could potentially be harnessed to create new, or more targeted, ways to lower LDL. Current medications such as statins primarily work by blocking the synthesis of cholesterol in the liver, which results in a compensatory increase in LDL receptors which go on to remove LDL from the blood.

“The structure of LDL bound to its receptor will be useful for designing potential future therapies to help combat the disease,” says co-author Joe Marcotrigiano, senior investigator at NIAID.

“Finally knowing the structure of LDL is an important step in our long-term fight against heart disease and will undoubtedly lead to many future breakthroughs,” Remaley adds.

—Dan Silber



# Ceremony Celebrates Graduating Class of 2025 Residents and Fellows



GME graduation group photo

NIH staff, family and friends honored 82 physicians, surgeons and dentists who completed their training across 38 residencies and fellowships at the Clinical Center during the second annual Graduate Medical Education graduation ceremony on June 6 in Masur Auditorium.

In opening remarks, NIH Clinical Center Acting CEO Pius Aiyelawo said he was delighted to celebrate “our graduates.”

“Their dedication, resilience, commitment and contributions to biomedical research and patient care is truly, truly exceptional,” he said. “For that, we’re very appreciative.”

NIH Director Dr. Jay Bhattacharya also delivered remarks. In a prerecorded video, Bhattacharya said NIH was an ideal place to train and that the institution was committed to training the next generation of clinician scientist.

“We hope both [groups of] graduates today will continue to be ambassadors for the value of training at the NIH Clinical Center and the importance of the NIH mission: turning scientific discovery into health for all,” he said. “We want to sincerely thank you for your service to that mission and your incredible contributions to the health

of the global community.”

Dr. Theo Heller, a senior investigator in the Translational Hepatology Section of the Liver Diseases Branch of the National Institute of Diabetes and Digestive and Kidney Diseases, delivered the ceremony’s keynote speech. The esteemed researcher and educator reflected on the lessons learned from patients and the importance of living a life that contributes to others.

“We are so fortunate,” Heller said. “It’s built into our profession, it’s inherent in what we do every day—the opportunity to touch others in the most profound ways.” Offering parting words of wisdom, he urged graduates to do good. “Do it in your own way, but do good,” he said. “Do something that matters. Don’t get distracted by the negative. Don’t let anything stop you.”

Dr. Dilara Akbulut, a graduating resident of the Anatomic Pathology Program at the National Cancer Institutes, delivered the ceremony’s trainee address. Akbulut thanked her mentors. “Thank you all, professionally and personally. You are true role models and I hope to follow in your footsteps.”

Akbulut said her training experience

at NIH far exceeded her expectations. “I’ve never been in a workplace where everyone cares so deeply and gives 100 percent every day.”

The event marked the second year that graduates were honored in a single, campus-wide ceremony. The expanded celebration was an idea championed by Medical Education Executive Director Dr. Joyce Chung and others to foster a greater sense of community among trainees.

“The turnout was incredible,” Chung said, noting the standing-room-only crowd at Masur Auditorium during this year’s event. “Having the ceremony at the NIH CC allowed families and friends to tour campus ... and better appreciate the special nature of the Clinical Center,” she added.

Chung said Clinical Center Acting CEO Pius Aiyelawo deserves special thanks for sponsoring the event, as does the staff in the Office of Clinical Research Training and Medical Education for their support.

—Sean Markey

Watch the graduation on <https://videocast.nih.gov>

# A Special Day for Pediatric Patient Siblings

On a recent morning in Operating Room 10 at the NIH Clinical Center, a dozen kids in yellow t-shirts and green surgical scrubs were giving Doogie Howser, M.D., a run for his money.

Ellis Dunca, an 8-year-old former bone marrow transplant recipient, stood on a step stool to intubate a mannequin, deftly navigating its vocal cords under the watchful eye of pediatric anesthesiologist Dr. Muhammad Yousef.

"I love it!" cheered Dr. Yousef, with the outsize energy of a camp counselor. "You guys are getting it on the first try."

Other visitors took their turns manipulating the controls of a Da Vinci XI robotic surgical system, coached by surgical technologist Paul Gawlik. The budding surgeons maneuvered the device's spider-like mechanical arms to remove toy darts from a block of blue foam inside the abdomen of another mannequin.

The hands-on activities were part of Super Sibling and Super Star Day, an annual day-long event for the siblings of NIH Clinical Center pediatric patients organized by staff of the Children's Inn at NIH.

After their OR visit, the group visited the Clinical Center's Department of Laboratory Medicine, where they got to peer at microorganisms under microscopes, smear petri dishes with yogurt to culture bacteria and engage in other activities. Next up: a visit to learn about the brain and experience a mock MRI machine with NIMH, lunch at the Children's Inn, therapeutic games, music and a closing ceremony complete with a standing ovation.

Well into its second decade, Super Sibling and Super Star Day is the brainchild of Dr. Lori Wiener, a senior associate scientist in the Pediatric Oncology Branch of the Center for Cancer Research at the National Cancer Institute.

A social worker by training, Wiener is an expert in caring for the psychological and social needs of pediatric, adolescent and young adult patients with critical illness.



Dr. Mohammad Yousef of the Clinical Center Department of Perioperative Medicine leads a hands-on activity for Super Siblings Day in OR 10.

Wiener said the idea for Super Sibling Day sprang from the need she saw in the siblings of young Clinical Center patients.

"Their pain is often pretty invisible, and they have to sacrifice a lot for their brothers and sisters," Wiener said. "And so we wanted a day that was just all about them."

The goal is to make siblings "feel very special ... that people are noticing them," Wiener said. "Not because of medical illness, but because they are very special people on their own and they play a very important role in their family."

Siblings aren't the only participants made to feel special. Yousef, the pediatric anesthesiologist, or "Dr. Mo" as he is known to his patients, has volunteered for Super Sibling Day from the start. The event, he says, is "one of the best workdays I have here

my whole year."

This year marked the first time pediatric patients were also included. Eight-year-old Ellis received her bone marrow transplant at the Clinical Center two years ago. She and her mother Yataa Dunca, who originally hail from Vancouver, BC but now live in Georgia, were back on campus for a related follow-up.

Dunca beamed as her daughter used a video laryngoscope and talked with Dr. Mo. "She grew up in a hospital, and now she's learning. She's learning."

"NIH was the only hospital in the world who would take her," Dunca said, adding that her daughter was now thriving. "Because of NIH, I get to be with my angel on Earth."

—Sean Markey