

- Medical research scholars arrive for 2017-2018 program
- Nurses week honors 600 nurses

Application cycle for 2017 Bench-to-Bedside program now available

Researchers on the campus of NIH, in collaboration with investigators from across the country, can now begin the application process for the 2017-2018 NIH Clinical Center's Bench-To-Bedside awards. Letters of intent are due June 30 and applications are due August 31. View more application details: <https://go.usa.gov/xNEZz>.

The awards fund research teams seeking to translate basic scientific findings into therapeutic interventions for patients or take clinical observations to the lab and then back to patients. They provide up to \$150,000 a year for two years. These are viewed as "seed" awards to initiate long term partnerships between basic and clinical researchers.

Recently, the awards saw an additional \$2.5 million in funding per year through the new NIH Office of Clinical Research. With the increased funding in 2016, the number of funded Bench-to-Bedside awards increased to 17 projects.

Projects, which are funded by various NIH offices and institutes, have represented several research categories: AIDS, rare diseases, behavioral and social sciences, minority health and health disparities, women's health, rare diseases drug development, pharmacogenomics and general.

The 2016 projects encompass a range of research areas such as:

- Intervention to correct mitochondrial function in Cockayne Syndrome
- Defining skin immunity at the bite site of key insect vectors in humans
- Peptidomic diagnosis and monitoring of mycobacterial infection in HIV/AIDS

AWARD page 2

Department of Transfusion Medicine staff save the life of a patient with rare blood disease

Clinical Center collaborates with partners in Germany to obtain blood

In December 2016, within 24 hours of its departure from a blood donation center in Germany, two units of rare blood arrived at the NIH Clinical Center's Department of Transfusion Medicine.

The unique delivery, containing thawed blood, arrived by international carrier to treat a 59-year-old patient from Canada with a devastating rare blood disease called severe aplastic anemia. Dr. Willy Flegel, chief of the Laboratory Services Section and Dr. Jamal Carter, a clinical fellow with the Department of Transfusion Medicine, received the package and had to act quickly.

In a healthy human, bone marrow produces three types of blood cells needed by the body: red blood cells (to carry oxygen), white blood cells (to fight infection) and platelets (to control bleeding). Severe aplastic anemia can occur when a patients' bone marrow doesn't make enough new blood cells. The most



Drs. Jamal Carter (left), Willy Flegel (center) and James Szymanski (right), all with the Department of Transfusion Medicine, receive a package of rare blood from Germany, for a patient with severe aplastic anemia.

common supportive treatment for severe aplastic anemia is blood transfusion, which is what this patient needed. A search for blood which matches that of the patient is routinely performed at the NIH Blood Bank, and then compatible blood is transfused.

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NIH Clinical Center safety and quality tracking system renamed STARS

In April, the Clinical Center implemented a patient safety event new reporting system, called the Safety Tracking and Reporting System, or STARS, that replaces the Occurrence Reporting System (ORS).

NIH Clinical Center staff are encouraged to use the new patient safety event reporting system to alert the leadership of the NIH Clinical Center about a variety of safety and quality concerns - including errors, near misses (an event that does not reach a patient but could have caused harm if it had), service quality concerns such as delays and unsafe environmental conditions, as well as instances of exceptional customer



service by colleagues.

The STARS has enhanced features to accommodate the Clinical Center's path to high reliability. It has an improved interface to enable reporting that can more easily result in permanent solutions. At the same time, it informs leadership

to organizational shortcomings that compromise patient safety. The login remains the same as the old system.

Patients, families and visitors will have access to STARS in the future - in the meantime, they can share safety and quality concerns via the Patient Safety Hotline by calling 1-866-444-8811.

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- Study of combination HIV-specific antibodies in infected individuals
- Prostate cancer screening enabled by low-cost ultrasound

Projects funded by the program unite researchers from different NIH centers and institutes and allows these intramural researchers to collaborate with extramural researchers. View the complete list of 2016 projects: <https://go.usa.gov/xNRhd>

Statistics:

- Since 1999, when the program began, 253 projects have been awarded nearly \$60 million, funding the research of about 900 investigators.
- Today over 95% of awards involve extramural partners, including international collaborators.

Scientific Advancements:

Projects funded by Bench-to-Bedside have led to numerous advances in understanding, diagnosing and treating diseases.

- An award to Dr. Ira Pastan in the National Cancer Institute in 1999 on epithelial cancers led to strategies for therapeutic immune radiotherapy by delivering radioactivity directed specifically to tumors.
- A 2007 award to Dr. Alexandra Freeman, in the National Institute of Allergy and Infectious Diseases, on the role of STAT 3 in cardiovascular disease resulted in treatment strategies using Angiotensin II receptor antagonists (AT1) in Hyper-IgE Syndrome (HIES) patients with aneurysms.
- In 2010 and 2011 two awards to Dr. Forbes Porter in NICHD laid the groundwork for a Phase I clinical trial to evaluate the safety and effectiveness of cyclodextrin as therapy for Niemann-Pick disease type C1. Preliminary findings from those studies lead to current studies evaluating Vorinostat for treatment of this disease.

NASA astronaut, biologist Kate Rubins speaks to staff, meets with pediatric patient



Dr. Kate Rubins, NASA astronaut-scientist (far right), visited the NIH April 25 for a series of events regarding her 115-days aboard the International Space Station last year. Rubins, the first person to sequence DNA in space, participated in an NIH-Twitter chat for DNA Day. She gave a short talk in Masur Auditorium, toured laboratories and visited pediatric patient Kelsey Connell and her family. View the lecture: <http://bit.ly/2qlvxsq> (HHS Only): <https://go.usa.gov/xNPEH>

Take Your Child to Work Day nourishes young scientific minds across NIH campus



On April 27, more than 3,900 students signed up to participate in the NIH Take Your Child to Work Day. Allison Hermans (left), point-of-care team leader in the Chemistry Department of Laboratory Medicine, shows the children how to perform a chemistry test for calcium which could be seen if the liquid changes from clear to purple. She also explained the importance of calcium in building strong bones.

Read more online! Scan the barcode or visit www.cc.nih.gov/about/news/newsletter.html



- Iconic NIH photographer, Bill Branson, retires
- Clinical Center patient speaks at Pulmonary Hypertension Association symposium
- Photos of award-winning cellist performance in the atrium

Use a downloaded app on a smartphone or tablet to scan the Quick Response (QR) barcode. You will be directed to the CC News online.

Clinical Center News

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However, in addition to severe aplastic anemia, the patient also had an extremely rare antibody in her blood. Antibodies are proteins that help recognize foreign substances, like bacteria or viruses, and help get rid of them. But, this patient had an antibody that attacked a specific red cell antigen that appears in 99 percent of people's blood.

"The patient's antibody is exceedingly rare. The antibody that her blood has makes it incredibly difficult to find compatible blood," said Carter. "If you transfuse blood that the antibody recognizes [one with the antigen], it will destroy it, and the patient could experience a potentially fatal reaction."

The Canadian facility at which the patient was being treated did not have a match for this rare blood type, so they treated her with blood that had the antigen. The patients' response was poor and she experienced multiple serious adverse reactions to the transfusions. Due to the complicated nature of her care, she was referred to the NIH Clinical Center.

Of severe aplastic anemia, Flegel said, "Patients with this disease depend on the transfusion of blood products for extended periods of time. If there was no blood product to transfuse, then they could die before the definitive treatment takes effect."

Upon her arrival, an evaluation of the NIH blood supply determined blood within NIH was not a suitable match for this patient. Carter and Marina Bueno, a technical specialist in the Immunohematology Reference Laboratory, contacted outside blood donation organizations about the potential of a match for the patient's rare blood type.

Two compatible units were obtained through the American Rare Donor Program but once that supply was delivered to the patient, the Department of Transfusion Medicine needed more. They had to broaden the search.

Reaching out to international blood bank organizations, Flegel was excited to learn that DRK-Blutspendedienst Ulm had units of this rare blood type available. But, getting the blood transferred from Germany to the United States and then transfused to the patient within the time limit set by regulators was challenging.

After conferring with James "Wade" Atkins, supervisor of Quality Assurance and Regulatory Affairs in the Department of Transfusion Medicine, the NIH team worked on the logistical travel plan alongside the U.S. Food and Drug Administration and Customs and Border Control. Blood services in the U.S. and Germany were coordinated by

Traci Paige, acting laboratory supervisor, to make the trans-Atlantic blood delivery happen.

In the end, through collaboration and hard work by all involved parties, two units of blood

made it to the NIH Clinical Center and were transfused to the patient without any adverse reactions.

Reflecting on the experience, Flegel noted, "This trans-Atlantic collaboration worked out very well, and the many institutions and authorities contributed to ensure the patient's care and safety."

The transfusions supported the patient while she received more definitive treatment for her severe aplastic anemia. The patient's clinical status soon improved dramatically, and she has since stopped requiring regular transfusions.



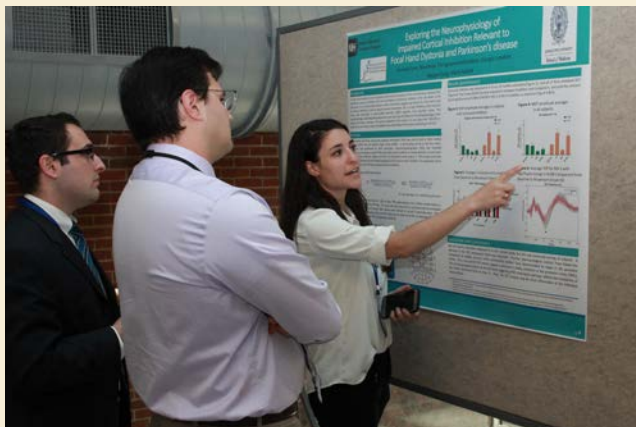
Previously frozen blood, ready to be transfused into a patient at the NIH Clinical Center.

Medical research scholars wrap up studies; 42 new medical, dental and veterinary students arrive for 2017-2018 program

Assessing how vitamin D impacts babies' health; using genetic modification to enhance the body's natural immune cells to prevent disease; and finding ways to predict which cancers need treatment versus those that can be followed safely with observation. These were just a few of the topics tackled by this year's Medical Research Scholars Program (MRSP) graduating class.

The NIH MRSP is a yearlong enrichment program which provides mentored training to creative, research-oriented students at the NIH campus in Bethesda, Md. Mentors are NIH investigators with established research programs.

One of the largest classes in the program's history wrapped up its year of studies during the annual two-day scien-



On May 8, Hannah Conn, far right, participates in the MRSP poster presentation. Conn, a 2016-2017 MRSP scholar, is from Georgetown University School of Medicine.

tific presentation event. In mid-May, 52 MRSP participants presented oral and poster presentations in the NIH Clinical Center showcasing their research.

The departing scholars included 50

medical and two dental students from 35 different educational institutions. They spent the past year at the NIH engaged in mentored clinical, translational or basic research.

This summer, the NIH will welcome forty-two new talented and diverse students as a part of the incoming class of MRSP participants. The students represent 34 U.S.-accredited universities. The MRSP received a record number of applications for the 2017-2018 class and selected 39 medical, two dental and one veterinary students. Six of the 42 participants have previous NIH research experience.

The MRSP is co-sponsored by the NIH and other private partners via grants and other contributions to the Foundation for the NIH. View more details: <https://clinicalcenter.nih.gov/training/mrsp/>

Upcoming Events

View lectures online: <http://videocast.nih.gov>

Clinical Center Grand Rounds Lecture: Reassessing the Management of Sepsis and Septic Shock; Surviving Sepsis: by draining the swamps?

June 28, 2017, Noon – 1:00 p.m.

Lipsett Amphitheater

Presented by Anthony F. Suffredini, MD, CC and Robert S. Munford, MD, NIAID.

NIH Safety, Health & Wellness Day

June 28, 2017

Building 10 South Lawn

Participate in fitness and outdoor activities, safety and health demonstrations, exhibit its from institutes and other government agencies, food trucks and the Farmer's Market. Details: <https://go.usa.gov/xXnfe>

Clinical Center Grand Rounds Lecture: Contemporary Issues in Graduate Medical Education: Physician Wellbeing: Challenges and Opportunities

July 12, 2017, Noon – 1:00 p.m.

Lipsett Amphitheater

Presented by Carol A. Bernstein, MD, New York University School of Medicine.

Clinical Center Grand Rounds Lecture: Contemporary Issues in Graduate Medical Education: Academic Research Skills for Physician Scientists: From the Outer Banks to the Singapore Straits

July 19, 2017, Noon – 1:00 p.m.

Lipsett Amphitheater

Presented by Keith M. Sullivan, MD, Duke University Medical Center.

Clinical Center Grand Rounds Lecture: Contemporary Issues in Graduate Medical Education: Clinical Competency Committees: What Information Do They Need?

July 26, 2017, Noon – 1:00 p.m.

Lipsett Amphitheater

Presented by Karen Hauer, MD, University of California, San Francisco.

Nurses Week honors 600 nurses serving the CC



Dr. Elizabeth Ballard (left at podium), a staff scientist with the National Institute of Mental Health, along with Dr. Leorey Saligan (right), a tenure-track investigator and registered nurse with the National Institute of Nursing Research, presented the NIH Clinical Center Grand Rounds May 10 as a part of Nurses Week. Ballard and Saligan spoke on innovations and applications in fatigue and suicide risk. Nurses Week, which took place May 6 to 12, highlights the important work done by nurses to promote patient care and wellness. The Clinical Center has one of the largest concentration of nurses with a special focus on clinical research.

Happy Medical Laboratory Professionals Week!



Members of the Department of Laboratory Medicine celebrate Medical Laboratory Professionals Week with Clinical Center CEO, Dr. James Gilman (left center), in late April. The Department of Laboratory Medicine, run by Dr. Thomas Fleisher (right center), employs 170 people through out five services (Chemistry, Hematology, Immunology, Microbiology and Phlebotomy).

Participants needed for studies on inflammation, blood disease and Parkinson's disease

National Institute of Allergy and Infectious Disease is seeking healthy adult volunteers, 18-64 years old. Researchers want to better understand the effects of glucocorticoids on the body. These medications are commonly used to treat conditions that cause inflammation on the skin and in the body like lupus, asthma, and eczema. This research may help us to find better treatments for people with conditions that

cause inflammation. Participants will receive one intravenous dose of a glucocorticoid, and a glucocorticoid cream will be applied to a small area of the skin. Blood and skin samples will be collected. Two outpatient visits at the NIH Clinical Center are required. Compensation is provided. <https://go.usa.gov/xN8Nv> (Study #16-I-0126)

National Heart, Lung, and Blood Institute is seeking healthy volunteers with African ancestry,

18-50 years of age, to participate in a study researching the role of our genes in blood vessel regulation and blood diseases. Participants will provide a saliva sample in person or through the mail. Compensation may be provided. <http://go.usa.gov/xr5sH> (Study #16-H-0065)

National Institute of Neurological Disorders and Stroke researchers are seeking volunteers who have had Parkinson's disease for less than five years

to participate in a study testing whether N-acetylcysteine (NAC) has a particular effect on brain chemistry. Researchers are evaluating whether NAC can protect the nerve cells in the brain that control brain movement. Compensation is provided. <https://go.usa.gov/xN8NG> (Study #17-N-0076)

For more information, call the Office of Patient Recruitment at 1-866-444-2214 (TTY 1-866-411-1010).