2021 NIH Freezer Challenge Results

The 2021 NIH Freezer Challenge ran from January 1 through May 1 of 2021. The Challenge called for NIH labs to complete one or more voluntary initiatives that would help them improve their freezer management. Completing and continuing these initiatives will improve freezer reliability and reduce energy consumption, a win-win situation for researchers and the environment. A few examples of the initiatives labs could choose to complete are retiring unnecessary freezers, conducting a freezer defrost, and sharing freezer space with other researchers.

The complete results from the 2021 NIH Freezer Challenge can be viewed in the table below. A few of the highlights include replacing 67 freezers and refrigerators, discarding over 30,000 samples and retiring 28 freezers and refrigerators. The 2021 Freezer Challenge initiatives will combine to save an estimated 376,970 kWh per year. This reduction in electricity consumption will create an estimated savings of $32,497 per year and corresponds to a decrease of 267 metric tons of greenhouse gas emissions (CO_2 equivalent). Last year, the 2020 NIH Freezer Challenge produced an estimated reduction in electricity consumption of 134,681 kWh per year. The increase in savings from the 2020 Challenge to the 2021 Challenge is a 180% increase. The 2021 savings are nearly triple the savings from 2020! Retiring and properly disposing old freezers is also a great way to prevent the accidental release of the ozone-depleting coolants used in these older models.

2021 Freezer Challenge Initiatives	
Challenge Initiatives	**Total**
Conduct a complete freezer defrost	60 freezers and refrigerators
Replace old freezers/refrigerators	67 freezers and refrigerators
Discard Samples that are no longer needed	30,096 samples
Retire unnecessary freezers (-80°C)	7 freezers
Retire unnecessary freezers (-20°C to -40°C)	13 freezers
Retire unnecessary refrigerators (4°C)	8 refrigerators
Maintain an electronic sample inventory	137 freezers/refrigerators
Share freezer space with other researchers	45 freezers/refrigerators
Change the ULT freezer temperature to (-70°C)	17 freezers

The 2021 Freezer Challenge consisted of participants from 10 NIH labs, which are listed below. NIEHS was the IC with the most participants with 3 labs. NIEHS also had an IC-wide freezer replacement project that was one of the largest contributers to the 2021 Freezer Challenge. This initiaitve replaced 32 ULT (-80˚C) freezers and 9 lab-grade (-20˚C to -40˚C) freezers and retired 3 ULT freezers. To read more about this project, please visit the June 2021 issue of the NIH Green Zone Newsletter.

2021 NIH Freezer Challenge Participants			
IC	**LAB**	**PI**	**Freezer Challenge POC**
NCI	Laboratory of Cell Biology	Michael M. Gottesman, M.D.	Barbara Murphy, M.S., M.T.
NCI	Molecular Oncology and Gene Transfer Section	Dennis Hickstein, M.D.	Thomas Bauer, Ph.D.
NEI	Laboratory of Immunology, Molecular immunology Section	Charles Egwuagu, Ph.D.	Cheng-Rong Yu, Ph.D., M.D.
NHLBI	Laboratory of Myeloid Malignancies	Christopher Hourigan, M.D., D.Phil.	Chidera Nosiri

NIAID	Viral Epidemiology and Immunity Unit	Leah Katzelnick, Ph.D., MPH	Ana Coello Escoto
NIDDK	Genetics and Metabolism Section of LDB	Caroline C. Philpott, M.D.	Minoo Shakoury-Elizeh
NIEHS	In Vivo Neurobiology	Guohong Cui, M.D., Ph.D.	Amy Papaneri, M.S.
NIEHS	Comparative Medicine Branch, Quality Assurance Lab	David Kurtz, D.V.M, Ph.D.	Tanya Whiteside
NIEHS	Reproductive Medicine Group, RDBL	Carmen Williams, M.D., Ph.D.	Elizabeth Padilla-Banks
NINDS	Translational Neuroradiology Section	Daniel S. Reich, M.D., Ph.D.	Amanda Lee

The NIH Freezer Challenge has demonstrated great growth over the past couple years. There are thousands of labs at the NIH, so there is still a large opportunity to improve freezer reliability and reduce energy consumption from cold storage at the NIH. Please consider joining the Challenge in future years to support sustainability and freezer management at the NIH. Information on the freezer challenge can be found at the NIH Freezer Challenge Site. More information on each of the initiatives can be found in the NIH Freezer Challenge Guide. Even if you don't have time to sign up for future challenges, you can still adopt any of these initiatives to improve your freezer reliaiblity and reduce your energy consumption!