Profile Feature as seen in Nature October 25th 2018
A conversation with PHIL WIRDZEK, president and executive director of I2SL

Ultra-low temperature freezers (ULT, -80°C) are one of the most energy-intensive pieces of equipment found in labs. They could be operated more efficiently by implementing simple cold-storage management best practices, yet few researchers invest the time to do so. To reduce the environmental impact of ULTs and other cold storage units, two non-profits — the International Institute for Sustainable Laboratories (I2SL®) and My Green Lab — joined forces to launch the first Laboratory Freezer Challenge in 2017. I2SL president and executive director, Phil Wirdzek, along with My Green Lab executive director, Allison Paradise, describes how the challenge continued to spur hundreds of new and international labs into action in 2018.

People often don’t think about energy consumption in labs. Is it a big deal? Absolutely. Typical research university lab buildings consume 40-60% of all energy on campus. Of that, ~25% is due to lab equipment. An average ULT freezer consumes as much energy as a single-family home (~20 kWh/day), and collectively cold storage units (e.g. ULTs, refrigerators, cold rooms) contribute substantially to a lab’s energy use. But there’s a lot that can be done to reduce the environmental impact of cold storage, including defrosting (~10% energy savings); changing the set point on ULTs to -70°C (~40% savings); purchasing energy-efficient models to replace older units (up to 70% savings); and throwing away superfluous samples to make space in existing units. Stirling Ultracold, our sponsor, brought to this industry a unique technology that significantly reduces the energy consumed by freezers in laboratories. That laid the groundwork for others to develop energy-saving models.

What was the inspiration behind the International Laboratory Freezer Challenge? The sustainable laboratory community has been keen to address energy consumption of cold storage, and a competition seemed like a great way to do that. When I2SL and My Green Lab launched the first North American Laboratory Freezer Challenge in 2017, that competition caused a significant level of interest from others outside North America. Thus, the organizations coordinated with sponsors to offer the International Laboratory Freezer Challenge in 2018.

What were the results of the International Laboratory Freezer Challenge? More than 170 labs from around the world participated this year, collectively saving an estimated 1.6 million kilowatt hours. This is the equivalent of ~1,200 metric tons of CO2, or the CO2 sequestered by more than 1,400 acres of forest.

Who were the winners? We awarded both organizations and individual labs for their work. The individual lab winners were the Janssen Immunology Biology Lab at La Jolla, California, Immunology Therapeutic Area, Janssen Research & Development LLC; the Inorganic and Radiation Analytical Toxicology Branch at the Centers for Disease Control and Prevention (CDC) in Georgia; the Brain Inflammation Group, Luckman Lab, and the SPB Group Labs managed by Elena Redondo at the University of Manchester (England); and the Eye and Vision Biorepository at Eversight in Ohio. The organizational winners were the University of Illinois Urbana Champaign, CDC, and the La Jolla, California campus of the Janssen Pharmaceutical Companies of Johnson & Johnson. Winners were determined based on the amount of energy saved and the number of points scored by taking simple actions such as properly maintaining freezers, adjusting storage temperatures, and retiring and replacing inefficient units.

Are there prizes? Yes, and this is one of them! People are very excited to have their pictures in Nature. Winners were recognized October 16, 2018, at the PSL Annual Conference awards in Raleigh, North Carolina. The competition and prizes were made possible due to the generosity of our sponsors: Stirling Ultracold, Eppendorf, and Thermo Fisher Scientific.

Where is the Freezer Challenge headed in the future? Both organizations, in conjunction with our sponsors, are hoping to offer the challenge in the future. Keep in touch with us at freezerchallenge.org. More information about our organizations can be found at i2sl.org and mygreennlab.org.
A conversation with ON LAB SUSTAINABILITY THINKING OUTSIDE THE ICEBOX seemed like a great way to cold storage, and a competition community has been keen to. The sustainable laboratory Challenge?

Laboratory Freezer behind the International What was the inspiration in laboratories. That laid the energy consumed by freezers that significantly reduces the industry a unique technology our sponsor, brought to this samples to make space in throwing away superfluous models to replace older units storage, including defrosting environmental impact of cold rooms) contribute as much energy as a single-average ULT freezer consumes due to lab equipment. An on campus. Of that, ~25% is consume 40-60% of all energy university lab buildings Absolutely. Typical research about energy consumption in People often don’t think do that. When I2SL and My Green Lab — joined forces to launch the first Laboratory Freezer Challenge in 2017. I 2SL president and executive director of I 2SL

PHIL WIRDZEK, president and executive director of I 2SL Organizational Vision Biorepository at Eversight (England); and the Eye and Prevention (CDC) in Georgia; the Centers for Disease Control Analytical Toxicology Branch at the Inorganic and Radiation Therapeutic Area, Janssen Jolla, California, Immunology Immunology Biology Lab at La winners were the Janssen work. The individual lab and individual labs for their winners were determined and My Green Lab — joined forces to launch the first Laboratory Freezer Challenge in 2017. I 2SL president and executive director of I 2SL Organizational Vision Biorepository at Eversight (England); and the Eye and Prevention (CDC) in Georgia; the Centers for Disease Control Analytical Toxicology Branch at the Inorganic and Radiation Therapeutic Area, Janssen Jolla, California, Immunology Immunology Biology Lab at La winners were the Janssen work. The individual lab and individual labs for their

Who were the winners?

The University of Illinois, Urbana-Champaign

Centers for Disease Control and Prevention

The La Jolla, California, campus of the Janssen Pharmaceutical Companies of Johnson & Johnson/Janssen Immunology Biology Lab

The Brain Inflammation Group, Luckman Lab, and the SPB Group Labs managed by Elena Redondo at the University of Manchester

The Inorganic and Radiation Analytical Toxicology Branch from the Centers for Disease Control and Prevention

The Eye and Vision Research Biorepository at Eversight

Platinum Sponsor

Gold Sponsor

WITH SPECIAL THANKS TO OUR SPONSORS

PRESENTED BY my green lab. I 2SL

AND THE 2018 WINNERS ARE...