

Portable Freezer for Sustainable Lab Management: Update Report

Project Goals

The Portable Freezer for Sustainable Lab Management project is aimed at encouraging research laboratories to adopt more sustainable practices, starting with defrosting their Ultra-Low Temperature (ULT) freezers. The core objective is to improve energy efficiency, as defrosting prevents or eliminates ice buildup that impairs the freezer's cooling mechanism. Success in this project will also serve as a foundation for encouraging other high-impact sustainable lab practices, such as increasing ULT freezer temperatures from -80°C to -70°C .

Implementation Status (Work in Progress)

We have established a clear path forward for implementation, beginning with a pilot program in the Gordon Center for Integrative Science (GCIS). We have secured all necessary internal approvals, including speaking with the ORS and SAFELab team. A major milestone was gaining buy-in from Bentley Wall, the building manager of GCIS, who has committed to supporting the project. Specifically, Bentley found a space to store the portable freezer and provided valuable advice regarding the freezer selection and logistics for moving it within the building.

In preparation for the defrosting process, we consulted with Tasha Cammidge, the greenlabs coordinator at CalTech, who provided essential input on necessary auxiliary materials. Based on her recommendations, we developed a materials list, including chisels, a rubber mallet, cold temperature gloves, and bins to catch melting ice water, and have placed a purchase order for these items.

The project currently remains a work in progress in two key areas: the refurbished ULT freezer purchase and the booking system. The search for a suitable refurbished ULT freezer is challenging due to limited available options, and the unit we had targeted was recently purchased. We are currently engaging with supplier representatives to discuss alternative options. Concurrently, we are developing the necessary booking system that will manage lab access to the portable freezer.

Outcomes and Next Steps

While the project is still in the implementation phase, the collaborative engagement from GCIS, ORS, and SAFELab indicates strong institutional support. The immediate next steps are focused on resolving the refurbished ULT freezer procurement and finalizing the booking system to launch the pilot program successfully.