



# North American Laboratory Freezer Challenge

## **Welcome to the Freezer Challenge Score Sheet!**

It's time to share all of the great work you've done over the past few months to implement cold storage management best practices in your lab. Any data you enter in this score sheet will count toward your institution's overall score in the competition, and will be used to score your lab against all other participants.

Please note that you may access this score sheet as many times as you like before May 1st, but your responses will only be saved if you click the 'next' button at the bottom of the page.

We hope this was a valuable learning experience. At the end of the competition we will share with your lab the approximate amount of energy you saved as a result of participating in the Freezer Challenge.

Good luck!



# North American Laboratory Freezer Challenge

## Team Information

Please enter your lab's contact information below.

Your Name

PI Name

Organization

Department

City/State

Email Address

Our organization is best characterized as a(n):

- Academic Institution
- Biotech/Pharmaceutical Company
- Government Organization
- Hospital/Clinical/Other Organization



# North American Laboratory Freezer Challenge

## Good Management Practices: 1 point for each action taken per refrigeration unit

Identify the number of refrigeration units by category that you defrosted and from which you removed the dust from the intake or coils.

UULT freezers (anything colder than  $-96^{\circ}\text{C}$ )

ULT freezers (between  $-40^{\circ}\text{C}$  and  $-96^{\circ}\text{C}$ )

$-30^{\circ}\text{C}$  and/or  $-40^{\circ}\text{C}$  freezers

$-20^{\circ}\text{C}$  freezers and/or  $4^{\circ}\text{C}$  refrigerators

Identify the number of samples or other items that you have cleaned out from your refrigeration units.

UULT freezers (anything colder than  $-96^{\circ}\text{C}$ )

ULT freezers (between  $-40^{\circ}\text{C}$  and  $-96^{\circ}\text{C}$ )

$-30^{\circ}\text{C}$  and/or  $-40^{\circ}\text{C}$  freezers

$-20^{\circ}\text{C}$  freezers and/or  $4^{\circ}\text{C}$  refrigerators

Identify the number of refrigeration units for which you have created new sample inventories or updated existing inventories.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Identify the number of refrigeration units for which you have a searchable electronic inventory in place, e.g. customized software, Excel file.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Identify the number of refrigeration units that were emptied or retired by consolidating contents with another unit.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Identify the number of full boxes that have been converted to [high density format](#).

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators



# North American Laboratory Freezer Challenge

## Temperature Tuning: 1 point for each action taken per refrigeration unit

Identify the number of ULT freezers whose [set points have been adjusted](#) from  $-80^{\circ}\text{C}$  to  $-70^{\circ}\text{C}$  or higher.

ULT freezers

Identify the quantity of samples or other items that you moved from a colder storage temperature to a warmer storage temperature. For example, from  $-80^{\circ}\text{C}$  to  $-20^{\circ}\text{C}$ .

UULT freezers (anything colder than  $-96^{\circ}\text{C}$ )

ULT freezers (between  $-40^{\circ}\text{C}$  and  $-96^{\circ}\text{C}$ )

$-30^{\circ}\text{C}$  and/or  $-40^{\circ}\text{C}$  freezers

$-20^{\circ}\text{C}$  freezers and/or  $4^{\circ}\text{C}$  refrigerators



## North American Laboratory Freezer Challenge

### **Retirements and Upgrades: 1 point for each action taken per refrigeration unit**

Identify the number of refrigeration units that you retired as a result of them being empty or no longer needed.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

If you have upgraded to a more energy-efficient cold storage unit, please indicate the energy consumption differential between the old unit and the new unit, in kWh/day. If you have upgraded more than one unit per category please indicate the total kWh/day savings in the box below.

If you do not know the energy consumption difference please indicate the freezer models or upload the specification sheets below.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Please upload supporting documentation here.

Choose File

No file chosen





# North American Laboratory Freezer Challenge

## Sharing and Room Temperature Sample Storage: 1 point for each action taken per refrigeration unit

Identify the number of research groups that share cold storage space with your lab in each of the categories below.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Identify the number of refrigeration units that contain barcoded inventory.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Please indicate the number of times you have tried room temperature sample storage ([RTSS](#)) per well plate or set of 25 tubes.

Well Plate

Set of 25 Tubes

Please indicate the number of reagents or kits you use that include room temperature sample storage.

Reagents

Kits

If you have adopted room temperature sample storage, please enter the number of well plates, sets of 25 tubes, and/or 2" boxes that are currently being stored at room temperature that had previously been stored in each of the refrigeration categories below.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators



# North American Laboratory Freezer Challenge

## Refrigeration Inventory: 1 point per question answered

Please indicate the number of upright units that your lab owns or shares in each of the categories.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Please indicate the number of chest units that your lab owns or shares in each of the categories.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Please indicate the average temperature of the upright units that your lab owns or shares in each of the categories. All responses will be assumed to be in °C.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Please indicate the average temperature of the chest units that your lab owns or shares in each of the categories. All responses will be assumed to be in °C.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators

Please indicate the number of upright units that your lab owns or shares in each of the categories that reside in the given locations.

	Freezer Farm	Laboratory	Dedicated Equipment Room	Hallway/Corridor
UULT freezers (anything colder than -96°C)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
ULT freezers (between -40°C and -96°C)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-30°C and/or -40°C freezers	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-20°C freezers and/or 4°C refrigerators	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Please indicate the number of chest units that your lab owns or shares in each of the categories that reside in the given locations.

	Freezer Farm	Laboratory	Dedicated Equipment Room	Hallway/Corridor
UULT freezers (anything colder than -96°C)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
ULT freezers (between -40°C and -96°C)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-30°C and/or -40°C freezers	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-20°C freezers and/or 4°C refrigerators	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Please indicate the average temperature of the air intake at or near the compressor for your upright refrigeration units. All responses will be assumed to be in °C.

UULT freezers (anything colder than -96°C)

ULT freezers (between -40°C and -96°C)

-30°C and/or -40°C freezers

-20°C freezers and/or 4°C refrigerators



# North American Laboratory Freezer Challenge

## Sample Organization: 1 point per question answered

How are your samples broadly organized in each of the refrigeration categories below? Please indicate '1' for the most common, and '5' for the least common, method of organization.

	Research Objective	Available Space	Sample Type	Sample Origin	Dedicated Space for each Researcher
UULT freezer (below -96°C)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
ULT freezer (-40°C to -96°C)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-40°C and/or -30°C freezer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-20°C freezer and/or 4°C refrigerator	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Other (please specify)



# North American Laboratory Freezer Challenge

## Sample Inventory: 1 point per question answered

How are your samples inventoried in each of the refrigeration categories below? Please indicate '1' for the most common, and '6' for the least common, method of organization.

	Decided by each User	Handwritten Label, no Centralized Inventory	Clipboard Inventory or Posting On/Near the Door	Excel Workbooks on a Shared Drive	Searchable Sample Software	Barcoded Labels
UULT freezer (below -96°C)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
ULT freezer (-40°C to -96°C)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-40°C and/or -30°C freezer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-20°C freezer and/or 4°C refrigerator	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Other (please specify)





# North American Laboratory Freezer Challenge

## Room Temperature Sample Storage: 1 point

Has your lab tried room temperature sample storage (RTSS)? Please check all that apply.

- We have used RTSS on at least one 96-well plate or set of 25 tubes of DNA and or RNA
- We have used RTSS for shipping at least one package, avoiding the need for dry ice
- We have used room temperature PCR reagents
- We had not heard of RTSS prior to the Freezer Challenge
- RTSS is not applicable to our work

Other (please specify)



## North American Laboratory Freezer Challenge

**Data Gathering on Sample Storage: 1 point per question  
answered**

For each category below, please indicate the temperature(s) at which your lab stores these types of samples.

DNA

cDNA

RNA

Proteins (including enzymes)

Lysates

Physiological Fluids

Competent Cells

Plant Tissues

Swabs

Bacteria

Yeast/Fungi

Viruses

Aqueous/Buffer Suspensions

Glycerol Suspensions

Dried Tissues/Extracts

Reagents and Extraction Kits

Other (Please Specify)

Other (Please Specify)

For each category below, please indicate how long (years) you have been storing samples at the temperatures above.

DNA

cDNA

RNA

Proteins (including enzymes)

Lysates

Physiological Fluids

Competent Cells

Plant Tissues

Swabs

Bacteria

Yeast/Fungi

Viruses

Aqueous/Buffer Suspensions

Glycerol Suspensions

Dried Tissues/Extracts

Reagents and Extraction Kits

Other (Please Specify)

Other (Please Specify)



# North American Laboratory Freezer Challenge

## Additional Information

Please describe any additional actions your lab has taken to improve sample management and reduce the impact of cold storage.

Additional information that you would like to share can also be uploaded here.

Choose File

No file chosen