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Azenta Cryo Products Overview

Erica Waller and David Freeman

March 7, 2023

The Team

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David Freeman

Channel Partner Manager for Cryo Freezers

Erica Waller

Product Manager for Automated Cryo Products

James Wallace

Product Manager for Cryo Freezers

Agenda

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CRYOPRESERVATION OVERVIEW

01

What is Cryopreservation?

Storage of material below -135 °C

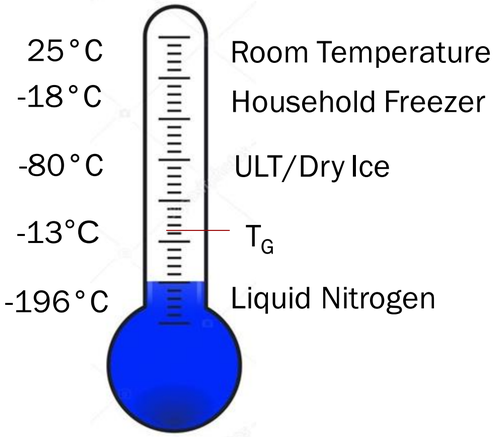
- T_g, -135 °C - glass transition temperature of polyol's water
- Colder than T_g, water ceases to move, enzymatic activity stops
- Warmer than T_g, some physiological activity continues

Essential for long-term storage of biological samples

- Used in research, therapy, diagnostics, drug development, etc.
- Preserves sample structure and physiology

Liquid Nitrogen (LN_2) refrigeration

- Vaporization (boiling) of LN_2 inside super insulated freezer provides stable -190 °C temp
- Reservoir of LN_2 provides 2-3 week hold times below T_g



Azenta Solutions for Cryogenic Workflows

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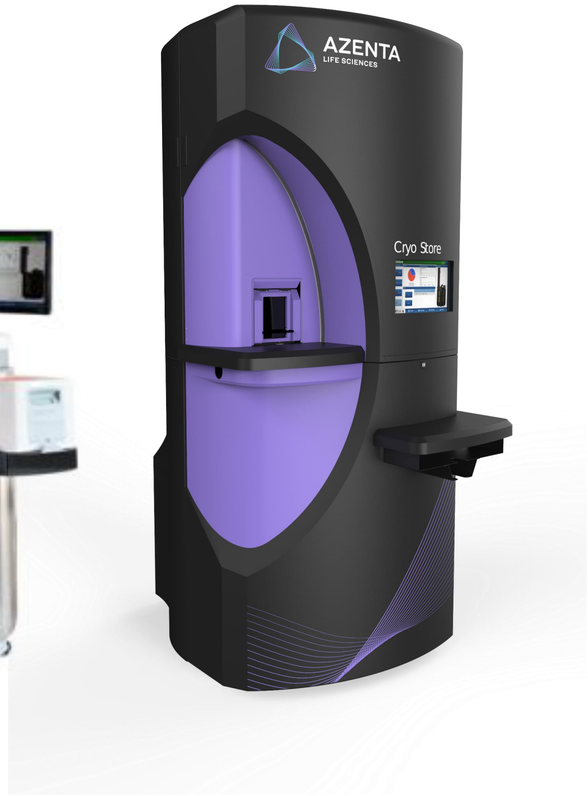
CRYO FREEZERS

AUTOMATED CRYO FREEZERS



CRYOPOD/FILLING STATION

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CRYO FREEZERS

02

Cryo Freezers

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Not all customers need automation right away

Less than 10% of the customer base is going to purchase automation

- Budgetary constraints
- Small volume collections
- Low interaction collections (archival)
- Nervous about taking the leap into automation

Solution: Azenta Cryo Freezers

Cryo Freezers

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Why Azenta?

Capacity

10-30% More Samples
Highest Storage Density
Lowest LN2 Usage Per Sample

Ergonomics

Cryo LED & Auto Fog Clear
Full Sample Visibility
Low Liftover Height | Workspace

Connected

Touchscreen with WiFi / LAN
Text & Email Alerts | Cloud Backup
Redundant Remote Monitoring

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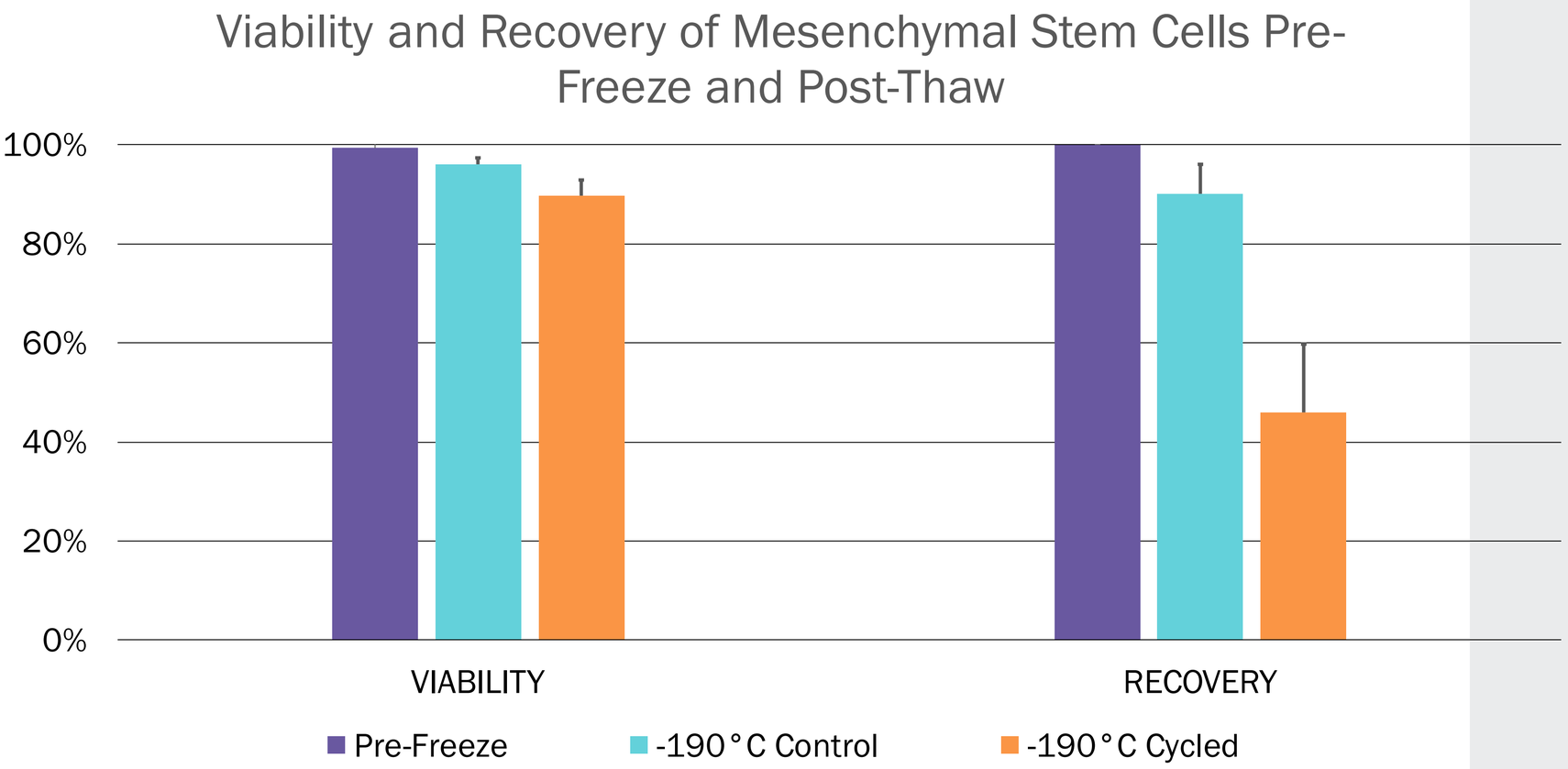
AUTOMATED CRYO FREEZERS

03

Transient Warming Reduces Cell Recovery

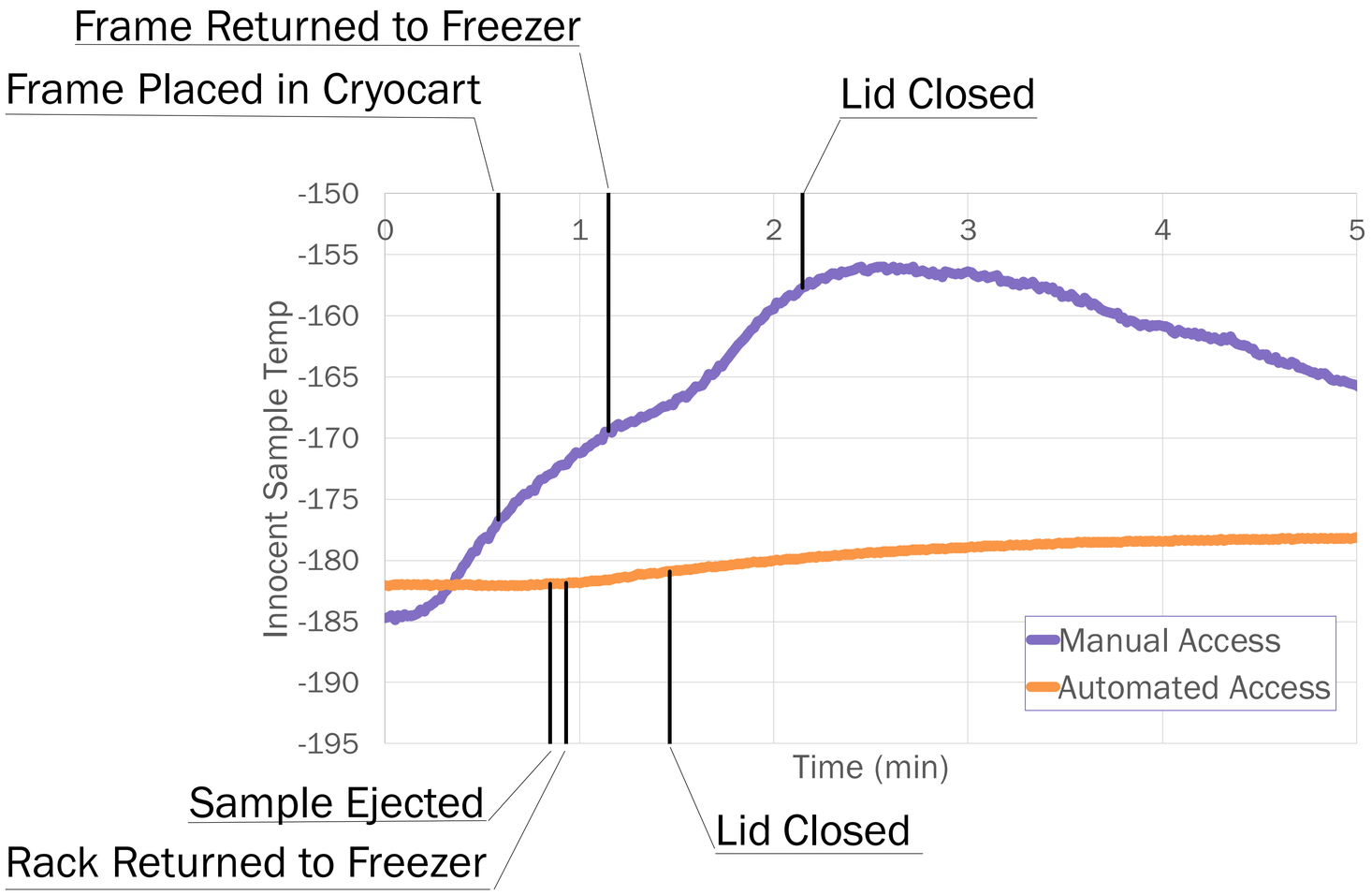


Storage conditions:

- 3 months at -190°C with no exposures to warming events (control)
- 3 months at -190°C with 20 exposures to -110°C (cycled)

LOWER VIABILITY AND RECOVERY OBSERVED FOR TEMPERATURE-CYCLED CELLS AS COMPARED TO CONTROL

Cryo Products: Automated Cryo Freezers Sample Integrity



THERMAL PROFILES OF INNOCENT SAMPLES: MANUAL RETRIEVAL VS AUTOMATED RETRIEVAL

- Manually retrieved samples exposed twice
  - Once when the frame is lifted out and put into a Cryo Cart
  - Again when the frame is carried from the cart back to the freezer

- Automated retrieval protects samples
  - Slower rate of warming
  - Only one exposure required (no interim Cryo Cart)

BioStore Cryo Storage System

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Ultimate sample protection with inventory control

Consistent -190°C temperatures from top to bottom using LN_2 vapor

Controlled transient warming

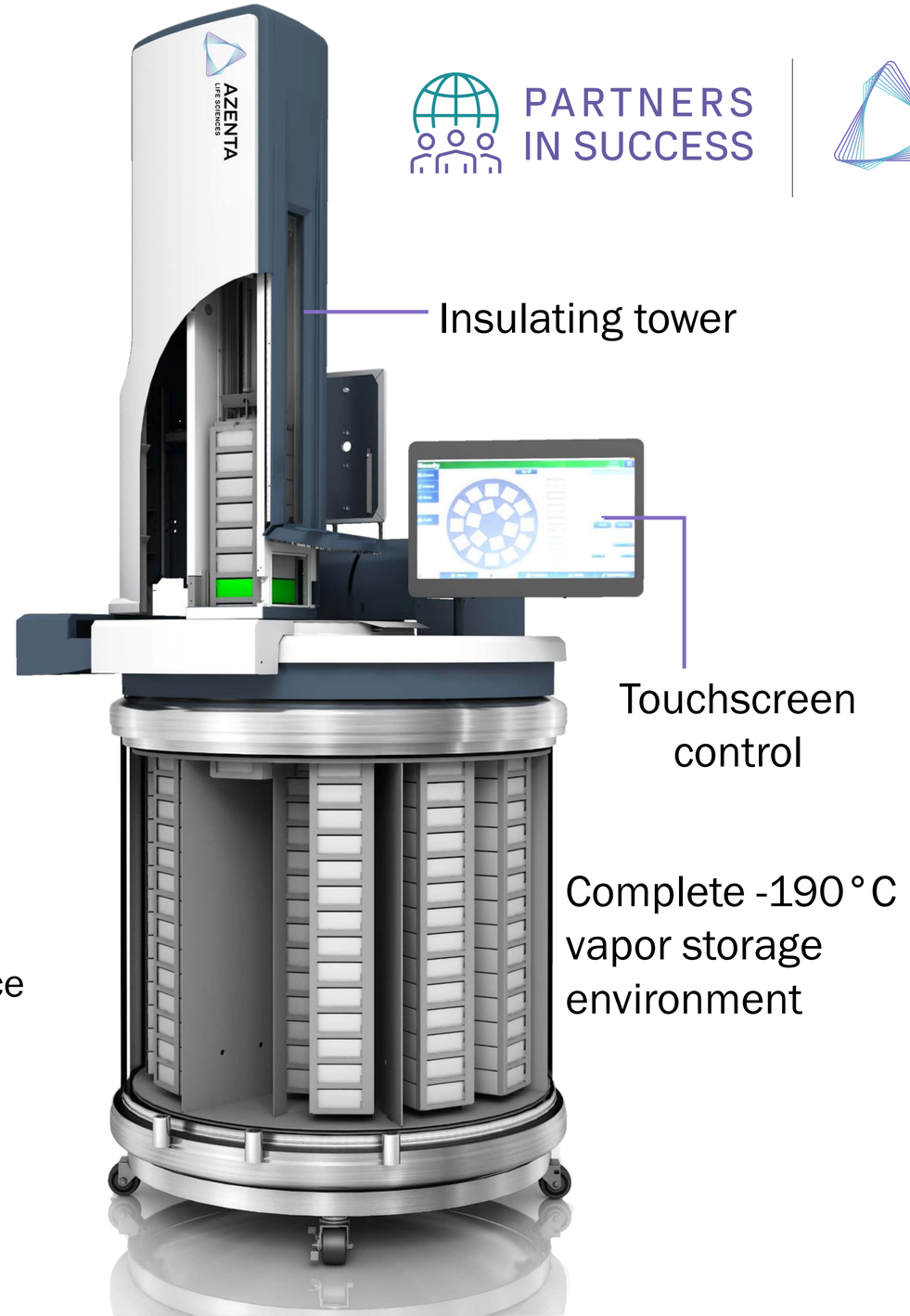
- Automation software predicts warming rates and acts to minimize exposure
- Insulating tower for temperature stability

Traceable data for regulatory compliance

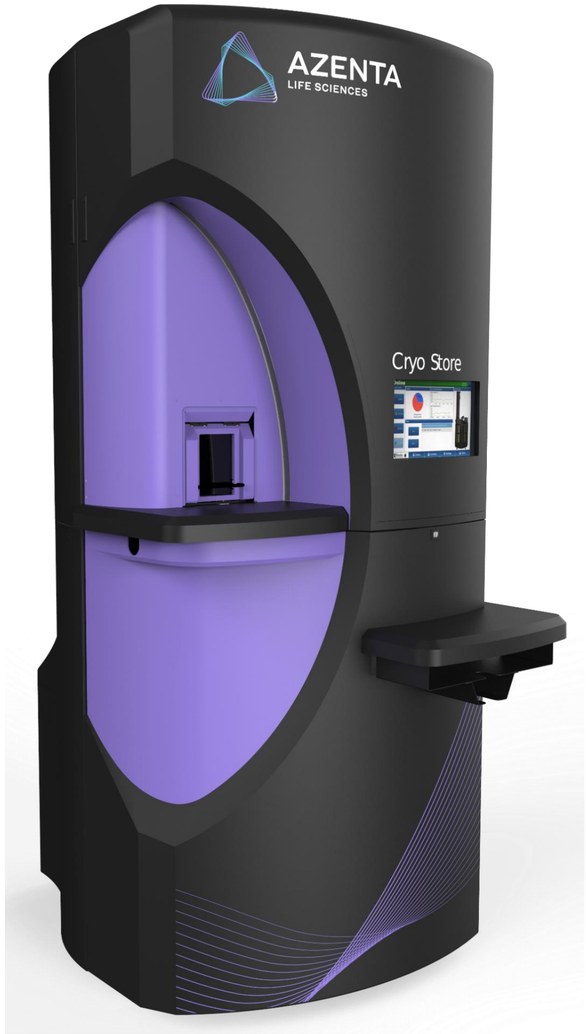
- Lifetime sample access and temperature data while stored in the system

Additional licensed features

- Detailed, printable reports for 21CFR Part 11 compliance
- Box level physical partitioning for additional security
- Text and email alerts
- API connectivity for integration with LIMS



Cryo Store Pico Automated Storage System



New Product Launch!

Under 8ft (2.44m) tall, with a 2mL vial capacity of 8,800, the Cryo Store Pico is made for small spaces with high value collections. The Pico can be installed in standard sized labs or clinics without the need for construction or changes to the doorways and ceilings.

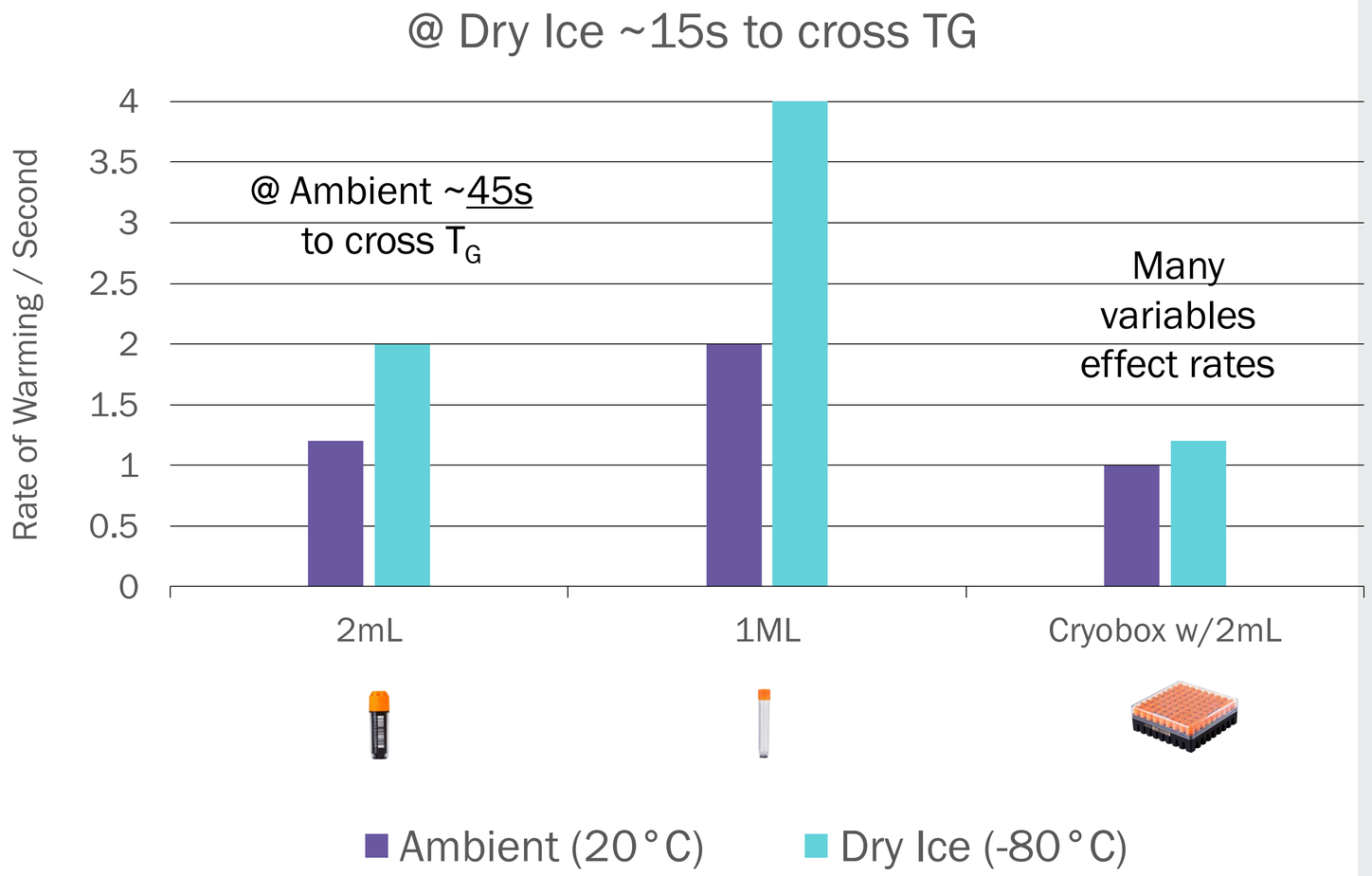
All the features and sample protection of the Biostore Cryo Storage Systems, designed for the lab or clinic

- Common software with existing B3C product family makes scaling up easy
- Proven automation with an Azenta made freezer for sample management you can trust
- Attractive and user-friendly industrial design

CRYOPOD/FILLING STATION

04

What About Transfer After Storage?



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Dry ice warms vials ~2x as fast as leaving in ambient

Solution: Always keep samples in a cryo environment!

Cryo Products: Cryopods and Filling Station

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Customers need a way to safely transport samples between storage and other locations

- Powered by LN_2 for portability, hold time, and sample integrity
- Built in logging and data retrieval for regulatory compliance
- Filling station eliminates operator contact with LN_2
- Filling station enables users to keep Cryopods fully charged and topped off, so the Cryopod is ready whenever it is needed

Solution: Azenta Cryopod and Filling Station

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Visit us at the tradeshow to learn more!