

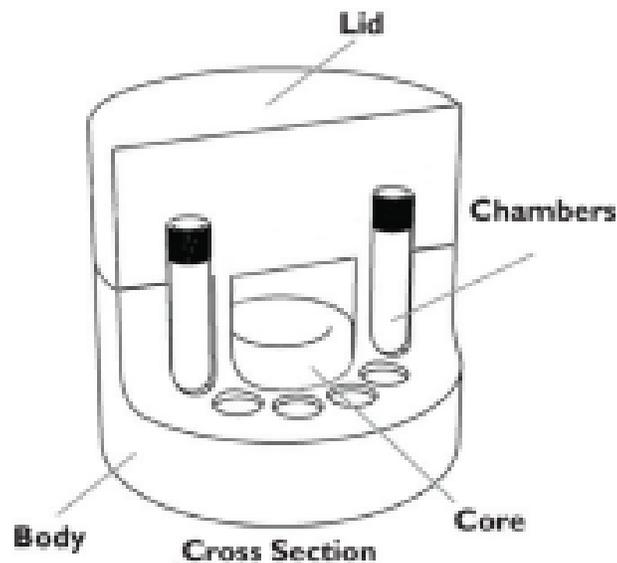
CoolCell[®] LX

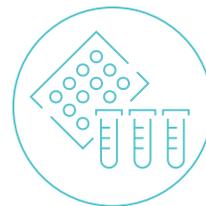
Instructions for Use

Introduction

CoolCell LX, in combination with a -80°C freezer or dry ice locker, will provide the freezing rate of -1°C per minute that is ideal for cryo-preservation of most cultured cell lines. CoolCell LX design uses a combination of insulation foam, radial symmetry, and a heat transfer core to regulate heat loss rather than using a large thermal mass (alcohol-based freezing container). As a result, freezing profiles are extremely consistent from one run to the next. Also, because of this low thermal mass, CoolCell LX will not cause a rise in local freezer temperature and will protect nearby samples already stored in the freezer. Low thermal mass also means CoolCell LX will rapidly return to room temperature for another freezing cycle (see Recycling CoolCell LX to Room Temperature on page 2).

Figure 1: Controlled-rate Cell Freezing Container for 1ml or 2ml Cryovials





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Quick Start

- The 12 chambers and 5ml cryovials should be dry to avoid vial sticking upon freezing.
- Make sure the core (black ring) is at room temperature and seated in the bottom of the central cavity.
- Place sample vials containing 1 ml of cell suspension in each well. Each well should contain a filled vial. If freezing batch is fewer than 12 vials, fill each empty well with a BioCision CoolCell Filler Vial (2ml, part number BCS-3105) or other vial that contains equivalent volume of freezing media.

Note: Cell suspensions can be inserted into a room temperature CoolCell and successfully preserved. For optimal results, CoolCell should be at the same temperature as your cell suspensions.

- Check that the tubes slide in and out freely.
- Fully seat the lid on CoolCell LX container.
- Place the CoolCell LX upright into a -80°C freezer or dry ice locker. Ensure that there is at least one inch of free space clearance around the CoolCell LX module.
- Freeze for four hours before transferring samples to archive storage.

Transfer Frozen Samples to Archive Storage

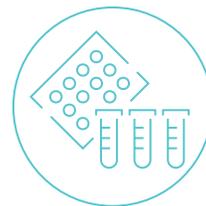
- Prepare an insulated pan or container with a one inch (2.5cm) layer of pulverized or pellet dry ice.
- Remove CoolCell LX container from the freezer and gently remove the lid using a twisting and rocking motion.
- Vial tops will be exposed once lid is removed and vials should be quickly extracted and placed onto the dry ice.

Special Notes

- Always use dry ice to transfer frozen vials containing cells to permanent storage to avoid temperature rise and cell damage. Vial contents can rise from -80°C to over -50°C in less than one minute if exposed to room temperature air.
- It is strongly recommended that all frozen cell cultures be checked for viability before the stock culture is terminated.

Recycling CoolCell LX to Room Temperature

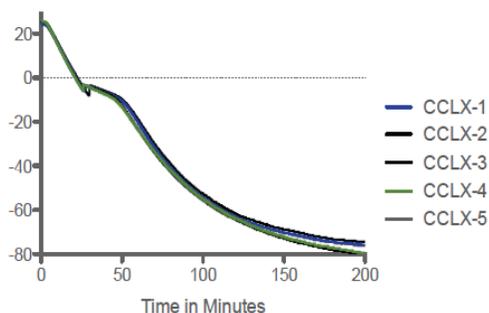
CoolCell LX is ready to freeze again as soon as the foam body and core (black ring) are at room temperature. To rapidly recycle CoolCell LX to room temperature, remove the center solid core ring. CoolCell LX body and lid will return to room temperature in 10 to 15 minutes. Check that all chambers are dry. Dry the core ring before re-inserting into the central chamber.



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Figure 2: CoolCell[®] LX Thermal Profile



CoolCell LX Freezing Performance

A temperature probe was placed into a 2ml cryovial containing 1ml of cryopreservative and the tube was inserted into a CoolCell LX sitting at room temperature. CoolCell LX was then placed directly into a -80°C freezer and the temperature rate and profile were observed over a 3 hour period. This experiment was repeated 5 consecutive times and temperature profiles were recorded.

Conclusion: CoolCell LX showed identical cooling profiles and phase transition over five consecutive freeze cycles.

Troubleshooting

Problem	Solution
Vials do not freely fit in the chambers	CoolCell LX is designed to fit standard screw-top 1ml and 2ml cryovials up to 13mm in diameter and up to 55mm in height. Check that flag style labels, if used, will not bind and hinder insertion or removal.
Vials are stuck in CoolCell 5ml LX after freezing	It is likely moisture was in the vial chambers or on the sample vial prior to freezing. Remove the core (black ring) and tap the CoolCell LX to dislodge vials.
The lid does not fully seat	Ensure that sample vials are properly seated. The maximum height of the vial is 55mm.

Care and Cleaning

The CoolCell LX container is constructed of closed cell crosslinked polyethylene foam and a solid thermoconductive core. The CoolCell LX container is compatible with prolonged cryogenic temperature exposure. The foam may be cleaned by water and mild soap. Rinse and dry thoroughly. CoolCell LX is resistant to alcohols and 10% bleach solutions. Do not autoclave. Maximum temperature exposure: 60°C. Avoid prolonged exposure to UV light sources.