



A Geno Technology, Inc. (USA) brand name

Cell Freezing System

Cat. No. BT1401

INTRODUCTION

The Cell Freezing System, in combination with a -80°C freezer or dry ice locker, will provide the freezing rate of -1 degree per minute that is ideal for cryo-preservation of most cultured cell lines. The Cell Freezing System is designed to provide the user with 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 freezer). As a result, freezing profiles are extremely consistent from one run to the next. Also, because of this low thermal mass, the instrument will not cause a rise in local freezer temperature and will protect nearby samples already stored in the freezer. Low thermal mass also means the instrument will rapidly return to room temperature commercially available cryogenic storage vials.

CELL FREEZING PERFORMANCE

The instrument will freeze 12 tubes each containing a maximum of 2ml of cell suspension at -1°C per minute when placed in a -80°C environment (mechanical freezer or dry ice locker).

OPERATION

- The 12 chambers and sample tubes should be dry to avoid the tubes sticking upon freezing.
- Make sure the core (metal ring) is at room temperature and seated in the bottom of the central cavity.
- Place sample vials containing a maximum of 2 ml of cell suspension in each well. The sample vials should not extend above the instrument's body.
- Check that the tubes slide in and out freely.
- Fully seat the lid on the instrument.
- Put the instrument upright into a -80°C freezer or dry ice locker. Ensure that there is at least 1 inch of free space clearance around the instrument.
- Freeze for 4 hours before transferring samples to storage.

TRANSFERRING FROZEN SAMPLES TO STORAGE

- Prepare an insulated pan or container with a 1 inch (2.5cm) layer of pulverized or pellet dry ice.
- Remove the instrument from the freezer and gently remove the lid using a twisting and rocking motion.
- Immediately invert the instrument over the dry ice to recover the frozen vials. Check the instrument vial chambers to ensure that all chambers are clear. If any vials are stuck, release the vials by tapping the inverted instrument on a flat surface or on the palm of your hand.

SPECIAL NOTES:

- Always use dry ice to transfer the cells to permanent storage to avoid temperature rise and cell damage. Cryovial contents can rise from -80°C to over -50°C in less a 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.

BRINGING THE INSTRUMENT BACK TO ROOM TEMPERATURE.

- The instrument is ready to freeze again as soon as the core (metal ring) is at room temperature.
- To rapidly bring the instrument back to room temperature, remove the center solid core ring by inverting and tapping on a surface. The instrument body and lid will return to room temperature in 10 to 15 minutes. Check that all chambers are dry. Dry the core (metal ring) before reinserting into the central chamber.

MAINTENANCE

The Cell Freezing System is constructed of closed cell crosslinked polyethylene foam and a solid thermoconductive core. The instrument is compatible with prolonged cryogenic temperature exposure. The foam may be cleaned with water and mild soap. Reinsert and dry thoroughly. The instrument is resistant to alcohol and 10% bleach solution. Do not autoclave. Maximum temperature exposure: 60°C. Avoid prolonged exposure to UV light sources.

TROUBLE SHOOTING

Issue	Solution
Vials do not freely fit in the chambers.	The instrument is designed to fit standard screw-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 removal.
Vials are stuck in instrument after freezing.	The most likely problem is moisture in the vial chambers or on the sample vial prior to freezing. Remove the core (metal ring) and invert the instrument and tap into your hand or into the <u>vial</u> receiving pan to dislodge samples.
The lid does not fully seat.	Ensure that sample tubes are below the chamber surface. The maximum height of the tube is 55mm.