



Checklist for Freezing Cell Cultures



Gently harvest cultures

It's important to ensure that cells are healthy prior to cryopreservation. Avoiding harsh methods to dissociate cells helps to give them their best chance at survival upon cryopreservation and subsequent thawing.



Check cultures for contamination, especially mycoplasma

You want to make sure that each stock stored in your cryobank is free of contamination. Having the confidence that your cryopreserved cells will not introduce contamination into your lab will save you headaches later.



Check culture identity by karyotyping or isoenzyme analysis

Mistakes happen. Proper labeling and working with one cell type at a time can help to prevent cases of mistaken cell culture identity. However, confirming culture identity when making cryostocks helps to guarantee that everything in your cryobank is properly labeled.



Use tested cryoprotective agents

Cryoprotective agents are necessary to help protect or minimize damage to your cells during freezing, but not all cell types react well to all agents. Use methods that have been established for your cell type or test different options first to determine what is best for your cells.



Only use vials tested for cryogenic conditions

Not all materials are suitable for the low temperatures of cryogenic storage. Be sure to use vials that are designed to withstand temperatures below -130°C.



Ensure labels are permanent and complete

Use labels and inks that can withstand cryogenic storage and be sure to include key information such as the cell type, passage number, and the date frozen. Keep an updated record of your inventory including the location of the vials.



Control the cooling rate

It's recommended to use a cooling rate of -1°C to -3°C per minute for most animal cell cultures. This is slow enough to let the cells dehydrate, but fast enough to prevent dehydration damage. Use a controlled-rate freezer or use a -80°C freezer with a container that can control the cooling rate such as a Corning CoolRack® or a CoolCell® designed to control the cooling rate.



Store cultures below -130°C

To truly stop biological time, cells must be stored at temperatures below -130°C. Most people do this using liquid nitrogen, storing cells in the vapor phase above the liquid at temperatures between -140°C and -180°C.



Monitor liquid nitrogen levels frequently

To sustain the proper temperatures in a liquid nitrogen freezer, it is essential to maintain liquid nitrogen levels. Monitor levels regularly and, if possible, use an audible alarm to warn you if levels start to drop.



Keep good records

Some day you, your lab mate, or even a future researcher will need to use your cryostocks. Help everyone by clearly labeling the location and relevant information anytime you add cells to your cryobank.

Want more tips to keep your samples cool and your lab chill?

Visit www.corning.com/lifesciences to access webinars, papers, product information, and other related resources.

Your cells are precious. You have enough variables to manage without having to worry about whether you're maintaining proper temperature at every stage of the cell culture process. You can rely on Corning's comprehensive product portfolio to keep your samples cool and your lab chill.



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