CryoLogic Vitrification Method

Introduction

CryoLogic has developed a simple, convenient, and reliable process, the CryoLogic Vitrification Method (CVM), for vitrification of specimens. CVM is a safe, simple, and convenient procedure which offers a number of advantages over other vitrification methods.

CVM involves ultra-rapid cooling of specimens without their immersion in, or direct contact with, liquid nitrogen. This avoids any potential contamination by pathogenic micro-organisms that may be present in liquid nitrogen. CVM also avoids barriers to heat transfer caused by the nitrogen vapour, or by straws. Specimens can be conveniently handled, stored, and ultra-rapidly thawed. Minimal thawing medium is required and specimens can be easily located after thawing.

CVM Starter Kit™ Includes:

- CVM Vitrification Block with a handle and lid
- CVM Fibreplugs™ with Sleeves (non-sterile)
- A foam bath for holding liquid nitrogen
- A thawing Container
- Finnpipette® (0.3 to 3µL)
- Finntips® pipette tips (sterile)
- CVM Kit™ Manual

CVM Practitioners

- CVM Vitrification Block with a handle and lid
- CVM Fibreplugs™ with Sleeves (sterile)
- CVM CryoBath for holding liquid nitrogen
- CVCup for thawing
- Finnpipette® (0.3 to 3µL)
- Finntips® pipette tips (sterile)
- CVM Kit™ Manual

CVM Kit™ - Simple and Convenient

The CryoLogic Vitrification Method consists of a series of easily reproduced steps, using the CVM Kit™.

- Specimens are aspirated by a pipette and expelled into a droplet which is transferred to the hook at the end of a custom designed fibre called a Fibreplug™.

- The Fibreplug™ is then presented to the specially treated surface of a Block that has been chilled to liquid nitrogen temperatures.

- The droplet rapidly vitrifies into a glassy bead.

- The Fibreplugs™ are placed into their sleeves and sealed with the plug end of the Fibreplug™.

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THE LINDE GROUP

CryoLogic Vitrification Method CVM Kit™

Key Benefits

- Ultra-rapid cooling of specimens
- No liquid nitrogen exposure
- No vapour or straw barriers to heat transfer
- Visual confirmation of Vitrification
- Convenient handling of specimens
- Fast and easy setup and operation times
- Convenient storing of specimens
- Ultra-rapid thawing
- Minimal thawing medium required
- Specimens easy to locate after thawing

CVM Kit™ - Safe and Reliable

CVM is used with the specially designed CVM Kit™ to address concerns relating to other vitrification methods. CVM Kit™ parts can be sterilised.

Vitrification Block - Ultra-rapid Cooling

Vitrification is performed on the pre-chilled solid surface of a specially designed block which ensures ultra-rapid cooling of specimens. The block can be maintained free of contaminants and can be cleaned. The CVM performs vitrification without any direct contact between the specimens and liquid nitrogen, hence without risk of specimen contamination. Small, numbered wells in the block are designed to further reduce the risk of cross contamination, by keeping specimens separate.

FibrePlugs™ Simple and Convenient Handling

CVM Fibreplugs™ are designed to safely and conveniently handle specimens. There is no thermal barrier surrounding specimens as they are not frozen in straws but in a microdrop on one end of a fine fibre which has a very low thermal mass. The other end is a plug which is used to seal the sleeve. After vitrification, the specimens are stored on the Fibreplugs™ in these pre-cooled sleeves.

Ultra-Rapid Thawing - Quick and Easy

The CVM also provides for ultra-rapid thawing. When the Fibreplugs are removed from the sleeves the droplet can be thawed rapidly (without a straw barrier) in a small quantity of pre-warmed washing medium. The small quantity of medium required means that specimens are easier to locate than in larger thawing baths.

Vitrification Block Technology - Ultra-Rapid Cooling

Ultra-rapid cooling of specimens is achieved with the CVM Vitrification Block. The CVM Block is chilled to liquid nitrogen temperature, and its large thermal mass and high thermal conductivity ensures rapid and highly efficient heat exchange, unlike direct specimen contact with liquid nitrogen, where a vapour barrier is created which reduces the rate of heat transfer.

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