

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.

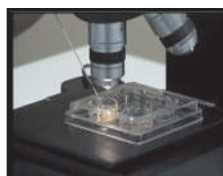
CVM involves ultra-rapid cooling of specimens without their immersion in, or direct contact with, liquid nitrogen. This avoids any potential contamination by pathogenic microorganisms that may be present in liquid nitrogen. CVM also avoids barriers to heat transfer caused by the nitrogen vapour, or by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

CVM1 Kit™ - Simple and Convenient

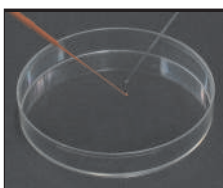
The CryoLogic Vitrification Method consists of a convenient and easily reproduced series of steps, using the CVM1 Kit™.

CVM1 Kit™ Includes:

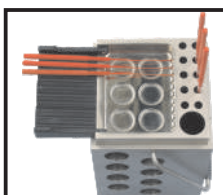
- Vitrification Block with a handle, lid and flip-out tray
- 10 packets CVM1 Fibreplugs™ with Containers, each containing 10 Fibreplugs™ inserted into 90mm Sealed Containers
- Foam Bath for holding liquid nitrogen
- A Thawing Container
- Positive Displacement Pipette
- Pipette Instructions
- Gasket Replacement Kit
- 10 Disposable Pipette Tips
- CD containing a Tutorial Video
- CVM1 Kit™ Manual



- Specimens in vitrification medium are aspirated by a positive displacement pipette.



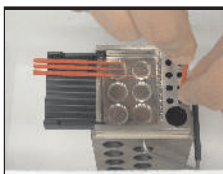
- Specimens are expelled into a droplet which is transferred to the hook at the end of a custom designed fibre called a Fibreplug™.



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



- The droplet is presented to the surface of the block where it rapidly vitrifies into a glassy bead.



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



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CVM1 Kit™

CVM1 Kit™ - Safe and Reliable

CVM is used with the specially designed CVM1 Kit™ to address concerns relating to other vitrification methods. CVM1 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 ultrarapid cooling of specimens. The block can be maintained free of contaminants and is easily sterilised. The CVM performs vitrification without any direct contact between the specimens and liquid nitrogen, hence without risk of specimen contamination. Small 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 straw container. After vitrification, the specimens are stored on the Fibreplugs™ in these pre-cooled straw containers.

Ultra-Rapid Thawing - Quick and Easy

The CVM also provides for ultra-rapid thawing. The specimens can quickly be taken from storage, removed from straws and, without a straw barrier, thawed rapidly 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.

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
- Sterilisable parts
- Convenient storing of specimens
- Ultra-rapid thawing
- Minimal thawing medium required
- Specimens easy to locate after thawing

Vitrification Block Technology - Ultra-Rapid Cooling

The CVM provides ultra-rapid cooling of specimens. The vitrification 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.

