

INTRODUCTION OF FREEZING AND THAWING APPLICATION FOR MAMMALIAN CELLS (large volume)

FREEZING
AND
THAWING
APPLICATIONS

With the development of cell processing medicines and regenerative products, there is an increasing demand for the storage of the large volume frozen cells and their use after thawing, instead of the conventional cryovial size (1 to 2 mL). Thawing a large volume of frozen cells has the following issues:

Labor saving and Automation

Prevention of contamination

Uniformity and Reproducibility

Standardization of operation (global standard)

These issues can be overcome with CryoMACS Freezing Bags and ThawSTAR CB. However, there is another issue which is a decrease in cell viability when thawing a large volume of frozen cells. Therefore, with the cooperation of Dr. Shugo Toyama in School of Medicine at Keio University, we measured cell viability when using CryoMACS Freezing Bags and ThawSTAR CB.

Purpose of research

Cryopreserving a large volume of human iPS cells

Issue

When cryopreserving a large volume of human iPS cells, handling a large number of cryovials is necessary, and as a result, the freezing and thawing process takes a lot of time, and the viability decreases.

Resolving the issue

There is a possibility that using both of CryoMACS Freezing Bags and ThawSTAR CB solves the issue.



Researcher

full-time lecturer, School of Medicine, Keio University

Dr. Shugo Toyama

Main research

- ▶ Cell production using metabolic properties
- ▶ Regenerative medicine using human iPS cells

Experiment example

Cells used

iPS cells

Volume

20mL cell suspension (in 50mL freezing bag)

State

28 days cryopreserving

Frozen cell count

20×10^7 (1×10^7 cells/mL $\times$ 20mL)

post-thaw viability

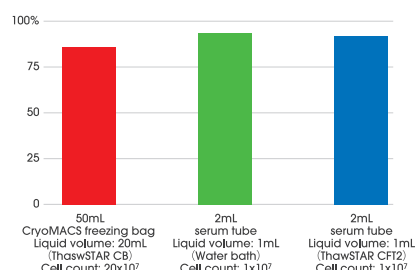
85%

Thawing time

About 8 minutes
(from the start of thawing to the cell collection)

Survival rate comparison with conventional method

Viability of iPS cells immediately after thawing (%)



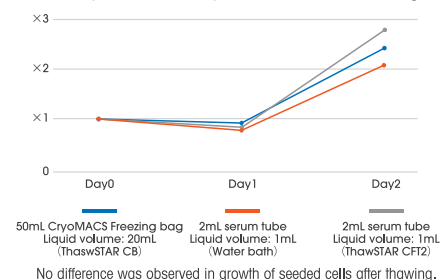
Time required for thawing (Time to cell seeding*)

- 2mL vial and water bath
2 min 30 sec (3 min 35 sec*)
- 2mL vial and ThawSTAR CFT2
3 min 14 sec (4 min 6 sec*)
- 50mL bag and ThawSTAR CB
3 min 51 sec (8 min 13 sec*)

The amount of liquid in the bag is large, so it takes time to process.

Comparison of cell proliferation after thawing

Comparison of cell proliferation after thawing



OPTIMAL FREEZING AND THAWING OF CELLS CAN BE ACHIEVED!

You can get them at Waken B Tech Co., Ltd.



Product introduction

ThawSTAR CB frozen cells thawing system (for freezing bags)

Biolife Solutions



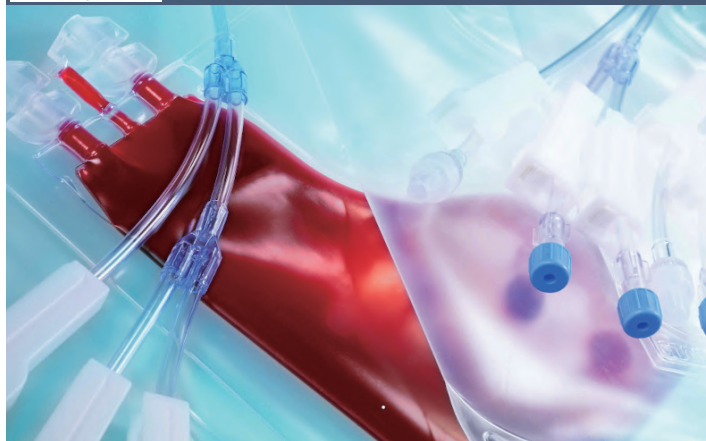
*ThawSTAR CB is not a medical device stipulated by the Pharmaceuticals and Medical Devices Law in Japan.

Features

- **Compatible with 50m L ~ 750 m L CryoMACS freezing bags**
(Capable of thawing multiple sizes with one unit)
- **Water -free**
(Reduced contamination risk)
- **Automatically thawed**
(No difference due to people's techniques)
- **Contributes to the reproducibility of the thawing state**
(Remaining ice prevents excess temperature rise)
- **Easy operation**
(Intuitive operation with touch screen)
- **Thawing temperature log can be collected**
(Temperature measurement at pre-configured points of the bag)



CryoMACS freezing bag Cryopreservation bag for hematopoietic cell



Features

- **Lineup from 50mL to 1,000mL**
- **Certified Medical device in Japan <Class II>**
(Optimal for medical purposes)
Medical device certification number: 223ACBZX00071000 Manufacturer: Milttenyi Biotech Co., Ltd.
- **Can be used for research , medicine and manufacturing**
(Suitable for scaling-up storage)
- **Multiple tube lines**
(Various connectors and multiple ports)
- **Worldwide availability**

* Prices, appearance, accessories, etc. are subject to change without notice for improvement. Prices do not include consumption tax.

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