Medimachine System

For Automated, Tissue Dissociation

Standardized and Efficient Sample Preparation to Obtain Viable Cell Suspension from Solid Tissue

FEATURES	BENEFITS
Automated tissue dissociation	Improves lab efficiency
Fast tissue preparation to improve lab productivity	Contributes to reduce laboratory costs
Standardization of tissue disaggregation	Improves accuracy
Improved reproducibility of cell suspensions	
Closed disposable disaggregation unit	Improves operator safety
Compact design easily fits in biohazard hood	
Can be used with or without enzymes for dissociation	Provides flexibility to the lab
Can be used for sterile and non-sterile applications	

PRODUCTS	CODES
Medimachine	79200
Medimax	79210
Medicons	79300 SN / S - 79400 SN / S
	79500 SN - 79500 S
Filcons	008-10N - 008-10S other codes available at www.ctsv.biz

Medimachine System

For Automated,
Tissue Dissociation

Standardization and Increased Efficiency in Sample Preparation

An increasing number of laboratories are performing flow cytometric analyses of solid tissues and tumors for antigen expression, ploidy, and proliferative index. The quality of the final result in the flow cytometric analysis of any tissue depends upon the quality of the prepared suspension. Various manual methods for dissociating tissue have been used alone or in combination and include:

• Chemical treatment • Manual disaggregation
• Enzymatic digestion • Enucleation techniques

These methods can be time consuming, and all have limitations with regard to operator safety and the quality of the final cell suspension. Tissue composition must be considered, since some tissues disaggregate more readily than others, and abnormal tissue might contain very delicate cells. Thus, differences in technicians' skills and technique can result in low cell viability and yield, as well as poor reproducibility.

Medimachine

The Medimachine system is a sample preparation system for the automated, mechanical disaggregation of solid animal or plant tissues for flow cytometric analysis, cell culture, or DNA amplification techniques. The Medimachine system makes tissue preparation safe and independent of operator technique, and facilitates standardizing the preparation of all tissue types. Times and protocols can even be standardized across labs.

The Medimachine system consists of three components:

• Medimachine
• Medicons
• Filcons

The compact Medimachine unit is the heart of the system. It works with the Medicons and operates at a constant speed of approximately 80 rpm.

Medicons

Medicons are disposable polyethylene chambers containing an immobile stainless steel screen with approximately 100 hexagonal holes. Around each hole are six microblades designed for efficient cutting of hard and soft tissues.

Filcons

After disaggregation of the tissue in the Medicons, the cell suspension is filtered using a Filcon disposable filter device.
Depending upon the chosen Filcon pore size, cells or cell aggregates pass through, while larger particles are trapped. There are two types of Filcons: a syringe-fitting form which can be used with either suction or compression, which works well for quantities over 5 mL, and a cup type that works well for small quantities.

Medimachine Workflow:
Flexibility for different tissue types

The following is an overview of the steps for using the Medimachine system for typical tissue disaggregation. The procedure should be adapted for your laboratory and each tissue type you receive.

A small piece of tissue (up to 10 mm3), free of fat and necrosis, is inserted into the Medicons together with ~1.0 mL of the desired suspension buffer (for example, PBS).

The Medicons is then inserted into the Medimachine and the machine is started. The machine can be run from 10 seconds to 4 minutes depending upon the tissue type and the cell suspension you want. As the tissue is disaggregated, the cells pass through the screen into the suspension liquid in the bottom of the Medicon (Figures 1 and 2).

Once the tissue is disaggregated, the Medicons is removed from the Medimachine. A needless syringe is then inserted in the syringe port to recover the cell suspension. The Medicons may be rinsed with suspension buffer to ensure maximum cell recovery (Figure 3).

Select the appropriate Filcons pore size for isolation of the desired cells (Figure 4).

Figure 1. *Insert the Medicons*

Figure 2. *Remove the Medicons*

Figure 3. *Aspirate the cell suspension*

Figure 4. *Filter the cell suspension with the Filcons*

TECHNICAL TIPS:

MEDICONS

• Never place the tissue into a dry Medicons.
• Do not overfill the Medicons with suspension buffer. This will cause the tissue to float and can result in inadequate disaggregation (dilution must be between 1 and 1,5 ml).
• If the amount of tissue is very small, the suspension buffer can be replaced with staining solution for maximum cell recovery.
• As the rotating element passes over the microblades, it tends to blunt the edges, reducing the cutting effciency.
• Do not reuse the Medicons for successive samples.
• Medicons are available (sterile or not sterile) in two mesh sizes:

35 μm	Recovery of cell sizes up to 160 μm
50 μm	Recovery of cell sizes up to 230 μm

FILCONS

• Before use, wet the Filcons filter membrane with cell suspension buffer to reduce the surface tension and facilitate the filtration process.
• Isolation of nuclei, cells, and cell clusters can be achieved by varying the Filcons pore size:

20 μm and 30 μm	Isolation of nuclei
50 μm and 70 μm	Isolation of cells
100 μm and 200 μm	Isolation of cells and cell clusters for cell culturing
500 μm	Isolation of tissue fragments obtained by enzymatic disaggregation
Various other size available at www.ctsv.biz	

Sede Operativa Via Marco Polo 28 - 10090 Bruino (TO) Italy
info@ctsv.it - Tel. +39 011 9049381 - Fax +39 011 9055288 - **www.ctsv.biz**

REG. N. 623
UNI EN ISO 9001:2015