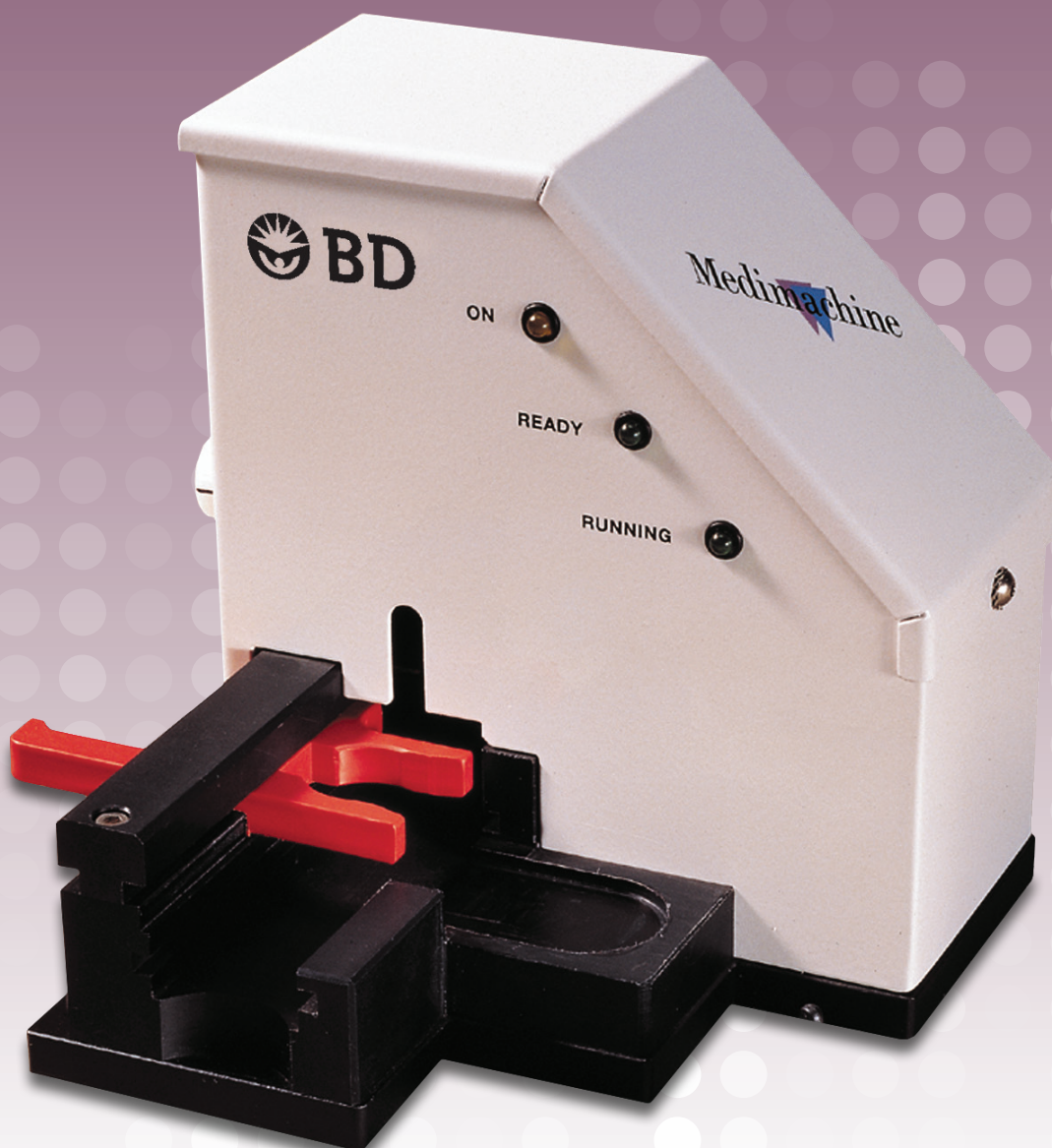




BD™ Medimachine System

For Automated, Mechanical Disaggregation



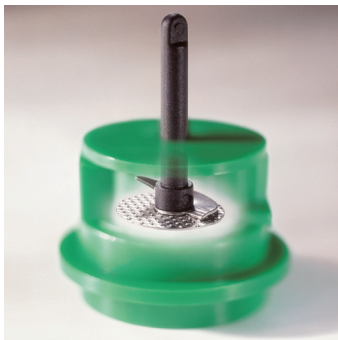
Standardized and Efficient
Sample Preparation

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.



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.

BD Medimachine

The BD™ 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 BD 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 BD Medimachine system consists of three components:

- BD Medimachine
- Medicons
- Filcons

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



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.

Features	Benefits
Automated tissue disaggregation	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 disaggregation	Provides flexibility to the lab
Can be used for sterile and non-sterile applications	

BD Medimachine Workflow:

Flexibility for different tissue types

The following is an overview of the steps for using the BD 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 Medicon together with ~1.0 mL of the desired suspension buffer (for example, PBS).

The Medicon is then inserted into the BD 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 Medicon is removed from the BD Medimachine. A syringe is then inserted in the syringe port to recover the cell suspension. The Medicon may be rinsed with suspension buffer to ensure maximum cell recovery (Figure 3).

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

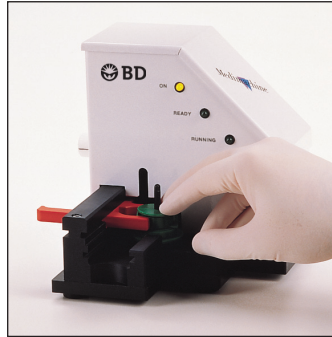


Figure 1. Insert the Medicon



Figure 2. Remove the Medicon



Figure 3. Aspirate the cell suspension



Figure 4. Filter the cell suspension with the Filcon

Technical Tips

Medicons

- Never place the tissue into a dry Medicon.
- Do not overfill the Medicon with suspension buffer. This will cause the tissue to float and can result in inadequate disaggregation.
- 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 efficiency.
- Do not reuse the Medicons for successive samples.
- Medicons are available 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 Filcon 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 Filcon 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

BD Biosciences Regional Offices

Australia

Toll Free 1800.656.100
Tel 61.2.8875.7000
Fax 61.2.8875.7200
bdbiosciences.com/anz

Canada

Tel 866.979.9408
Fax 888.229.9918
bdbiosciences.com/ca

China

Tel 86.21.3210.4610
Fax 86.21.5292.5191
bdbiosciences.com/cn

Europe

Tel 32.2.400.98.95
Fax 32.2.401.70.94
bdbiosciences.com/eu

India

Tel 91.124.2383566
Fax 91.124.2383224/25/26
bdbiosciences.com/in

Japan

Nippon Becton Dickinson
Toll Free 0120.8555.90
Fax 81.24.593.3281
bd.com/jp

Latin America/Caribbean

Toll Free 0800.771.71.57
Tel 55.11.5185.9688
bdbiosciences.com/br

New Zealand

Toll Free 0800.572.468
Tel 64.9.574.2468
Fax 64.9.574.2469
bdbiosciences.com/anz

Singapore

Tel 65.6690.8691
Fax 65.6860.1593
bdbiosciences.com/sg

United States

US Orders 855.236.2772
Technical Service 877.232.8995
Fax 800.325.9637
bdbiosciences.com

Office locations are available on our websites.

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