

Under Development

Specification and appearance are subject to change without notice

Application
note
Vol.1

CELLNETTA MZM1 SERIES

Fractionation of cells and microcarrier beads

Background

In cell-based experiments and cell processing, various operations are used to remove foreign bodies from cell suspensions. These operations include preprocessing for cell analysis using a cell sorter and the fractionation of cells and beads after microcarrier cell culture.

Here, we will introduce the method used at Murata Manufacturing to remove beads from HL-60 cell suspensions.

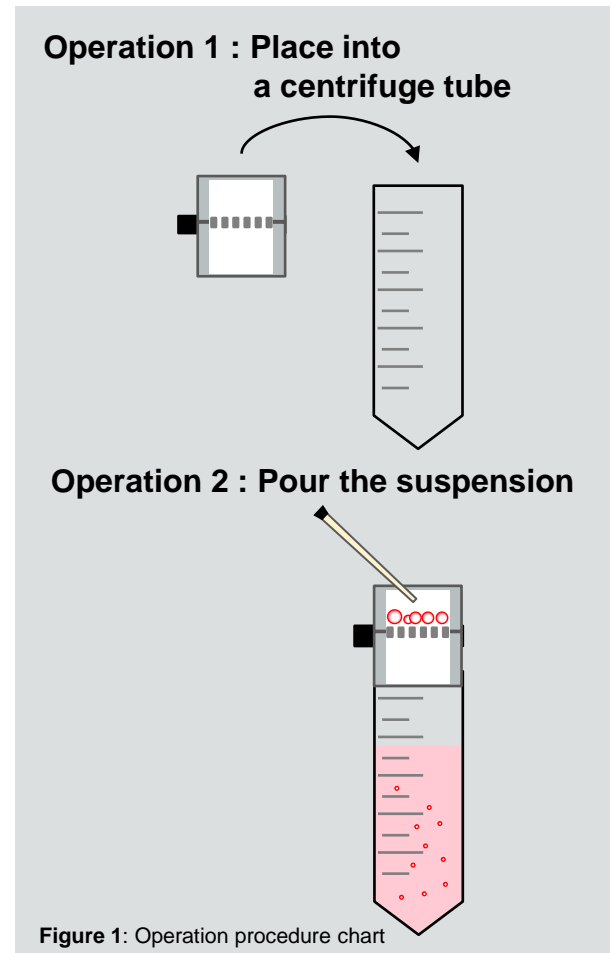
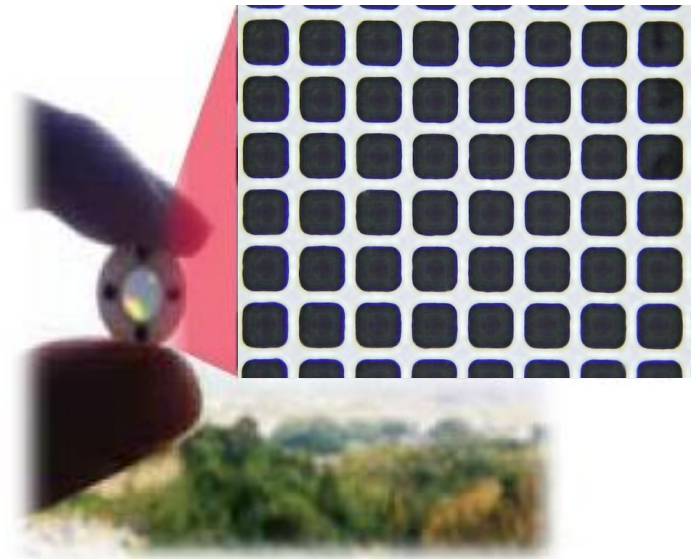
Implementation method

- (1) Prepare a suspension of HL-60 cells and beads.*1
- (2) Place 40- μ m mesh CELLNETTA into a centrifuge tube (Figure 1, Operation 1).
- (3) Apply hydrophilic treatment to the CELLNETTA. *2
- (4) Pour the suspension through CELLNETTA (Figure 1, Operation 2).

*1 Conditions for suspension preparation

Cell	Type	HL-60
	Size	14 μ m
	Cell count	5.64×10^7 cells
	Cell concentration	1.41×10^6 cells/ml
Bead	Type	Cytodex 3 (Cytiva)
	Size	120-180 μ m
	Particle count	7200 beads
Solvent	Type	RPMI medium
	Volume	40 mL

*2 For more information, please refer to the "Hydrophilic Treatment Manual" in the CELLNETTA User Guide.



Results

An image of the suspension after processing using CELLNETTA is shown in Figure 2. After processing using CELLNETTA, the beads in the cell suspension are trapped in CELLNETTA (Figure 2-A). Then, by filtering the suspension through the CELLNETTA, only the cells are fractionated (Figure 2-B). In addition, results of cell measurement of the suspension passed through CELLNETTA showed that HL-60 cells passed through with high efficiency (95%) (Table 1).

These results indicate that using CELLNETTA can fractionate beads from cell suspensions.

This simple bead removal method using CELLNETTA is expected to be useful for the fractionation process of cells and beads after bead culture.

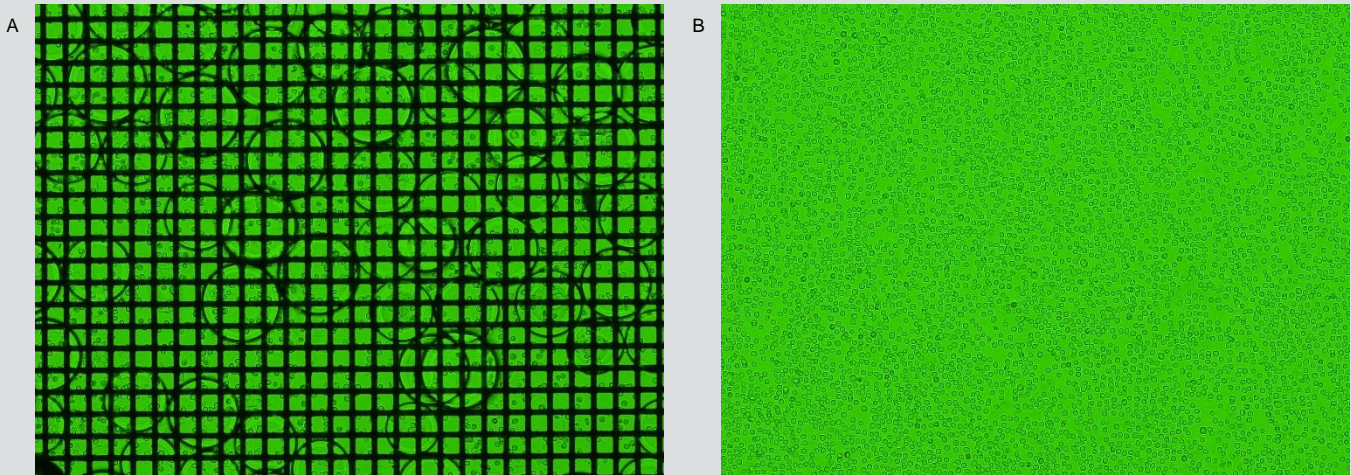


Figure 2: (A) Beads trapped on the CELLNETTA mesh
Mesh size: 40 μm

(B) Suspension after processing using CELLNETTA

		Input solution	Suspension after processing using CELLNETTA
Cell	Cell count	5.64×10^7 cells	5.35×10^7 cells
	Cell concentration	1.41×10^6 cells/ml	1.35×10^6 cells/ml
Bead	Particle count	7200 beads	None observed
Solvent	Volume	40 mL	39.5 mL

Table 1: Measurements and observation results of the suspension before and after processing using CELLNETTA

Product used in this application note

Pore size	Gamma Irradiation	Product number (P/N)
40 μm	Gamma Irradiated	MZM1B040B50G
	Non-Gamma Irradiated	MZM1B040B50N

Notes

- This product is not a medical device.
- This product is a sample for evaluation purpose.
- Please do not ship out your completed product with the sample.
- We shall not be liable for any claims on the sample in case it is shipped out to the market.

