



**FRESENIUS
KABI**

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Lovo

Automated Cell Processing System

The easy-to-use, flexible, filtered way to wash and volume-reduce white blood cells.



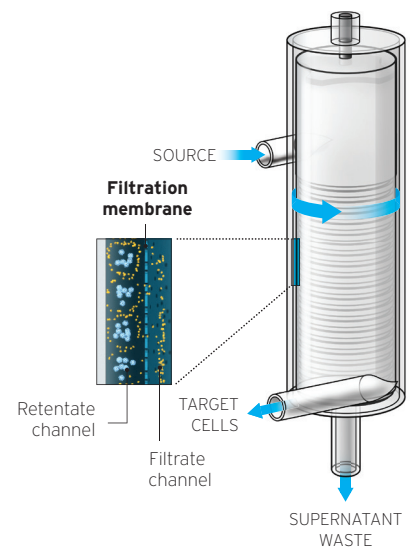
For laboratory use only



Choose filtered to further your goals.

Whether you're focused on early stage trials or ramping up to full commercialization[†], Lovo's spinning membrane filtration technology enables fast, precise, and flexible procedures that help increase your lab's overall operational efficiency and processing consistency without compromising product quality. You can rely on Lovo and the Fresenius Kabi team to work with you to address your lab's biggest challenges in developing cutting-edge cell therapy manufacturing solutions.

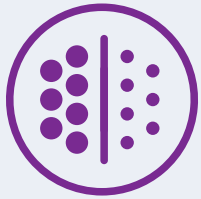
Proprietary spinning membrane filtration technology



Lovo supports your unique selection prep, thaw wash, or harvest wash processes.

Selection prep

Remove platelets from your source product with precision while suspending your cells in a preferred selection buffer at your target product volume and/or cell concentration.



Harvest wash

Volume-reduce expanded products in preparation for final formulation while virtually eliminating cytokines, other debris, and particulates in seconds.³



Thaw wash

Wash cryopreserved products and resuspend white cells in your preferred buffer or culture media.²



Increase operational efficiency

Cells continually flow in and out of Lovo's spinning membrane module, minimizing overall processing time. Lovo handles source volumes from 1 mL to 22 L and processes 200 mL in approximately 7 minutes.¹

Increase product consistency and quality

Capture precisely the cells you need, optimizing recovery while maintaining viability – even for fragile cells. The membrane's 4 µm pores enable 92% TNC recovery and ~99% supernatant removal.¹

Increase the specificity of production protocols

Lovo's software has been designed to support your unique processes and technologies. Up to 10 protocols can be saved on the device and each wash cycle may be customized even further.

Lovo Software 3.0

Greater simplicity

- All-in-one immunomagnetic selection prep protocol
- Easy access to weigh scale calibration and log file
- Wash buffer volume tracking and alerts

More flexibility

- Multiple Source container processing
- Expanded range of cell component concentration entry values
- Configurable middle cycle washout percentages and final rinse volumes
- Administrator ability to pre-fill and lock operator entry fields and options

Fully connected

- Secure wired or wireless data transfer directly from the Lovo
- Uneditable, downloadable or printable procedure records
- Filterable procedure records
- Exportable from DXT to Excel® or LIMS

Lovo Automated Cell Processing System

Instrument features

Cell types

Fresh, cryo-preserved, and culture-expanded white blood cells, including, but not limited to, leukapheresis CD34+ cells, CAR T-cells, TILs, NK cells, and MSCs

Volume range

Source	1 mL - 22 L
Output*	50 mL - 5 L

Wash-out range

Up to 99.99999%*

System components

- 75 lb, 24" x 34" x 18" benchtop instrument
- Single-use processing kit with spinning membrane module

* Depending on cell type, cell concentration and source volume.

References

1. In a 200 mL source product. Presented at the 19th Annual International Society for Cell Therapies Meeting, April 2013. Data collected using prototype instrument. Wegener C, Heber C, Min K (2013). Novel Cell Washing Device Using Spinning Membrane Filtration. Cytotherapy. 15(4) S27. Abstract 86.
2. B. Calmels, et al. Post-thaw DMSO depletion using a cGMP-compliant spinning-membrane separation device. EMBT 2015, P007.
3. Presented by Ian Gaudet, PhD. Senior Engineer, PCT. IBC Commercialization of Cell, Gene, and Immunotherapies, San Diego, CA. 2014.

‡ The LOVO Cell Processing system is for laboratory use only. Unless the user has obtained advance clearance or approval from the appropriate regulatory agency, cells processed on this system are not intended for diagnostic purposes, direct transfusion, or for use in the production of therapeutic products or vaccines for clinical use. For applications requiring regulatory clearance or approval, users may request the required LOVO technical documentation from Fresenius Kabi to support their submissions.

See operator's manual for additional product information.

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