TFF-MV-Large

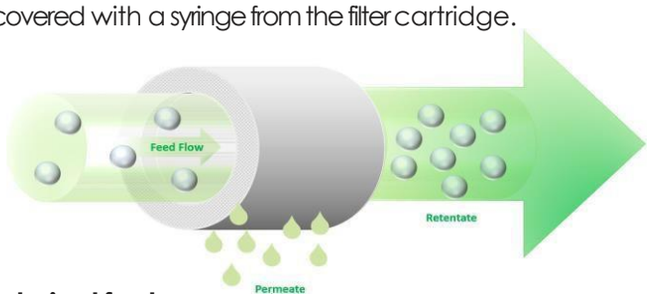
Tangential flow filter for separation of medium/large EVs (>150 nm)
Product Code: HBM-TFF-MV-L

Pioneering the EV Field

About TFF-MV

TFF-MV is a filter cartridge containing polysulfone hollow fibers (200nm pores), which allows the separation of medium/large EVs from small EVs and other solutes in different fluids (cell conditioned media, urine, plasma, serum etc.).

Small EVs, proteins and other soluble molecules pass through the hollow fiber pores (permeate), whereas medium/large EVs are concentrated in the retentate. Large EVs can be easily recovered with a syringe from the filter cartridge.



Technical features

Technical features	Description
Hollow fiber material	Polyethersulfone
Pore size (nm)	200 +/- 10
Cut off (kDa)	1000 +/- 50
Filtering surface (m2)	1.0
Internal fiber diameter (µm)	300 +/- 10
External fiber diameter (µm)	470 +/- 20
Cartridge internal diameter (mm)	85
Maximum transmembrane pressure (mmHg)	100
Maximum flow rate (ml/min) Conditioned media Urine viscous fluids (plasma, serum)	 400 ml/min 400 ml/min 390 ml/min
Sterilization method	e-beams sterilization

Preparation of the fluid before EV separation

- Sample precleaning.

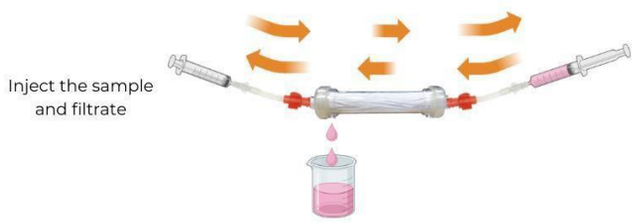
Fluid	Recommended
Plasma	10 min at 300 g (save super) 20 min at 1200 g (save super)
Serum	10 min at 300 g (save super) 20 min at 1200 g (save super)
Urine	10 min at 300 g (save super).
Cell media*	10 min at 300 g (save super) 20 min at 1200 g (save super).

- Start the filtration process setting the pump with the flow rates indicated in the technical feature table.

Tangential flow filtration and EV separation, manual use

Concentration can be done manually by the help of luer lock adaptors (HBM-TFF-L-adaptors).

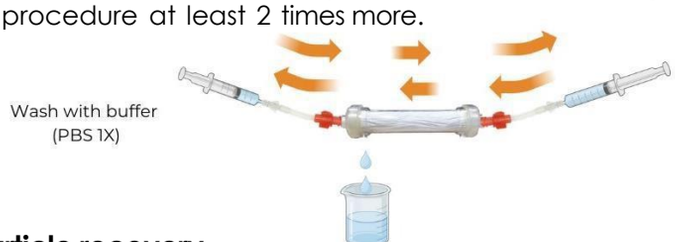
- Connect the adaptor to the both sides of the TFF-MV-L. Start the filtration process pushing the fluids into the filter from the syringe on the right to the syringe on the left. Continue the filtration by processing the sample upwards and downwards between syringes until all the fluid is eliminated from the filter.



Particle larger than 150 nm are retained inside the filter fibers.

Particle washing

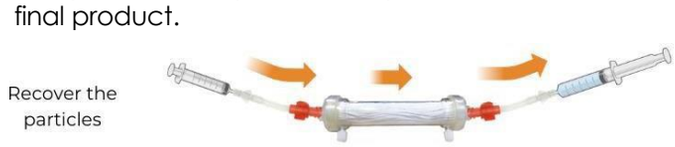
- To remove completely the contaminants from the nanopartilces retained into the filter, repeat the same procedure injecting in the syringe 1 PBS 1x buffer (~50mL each; other buffers or solutions can be used as well). Repeat the washing procedure at least 2 times more.



Particle recovery

After washing, the large particles can be recovered in a small volume of buffer.

a. Close the outlets of the filter during the recovery step. Aspirate the sample from the filter, detach the syringe from the nozzle, collect recovered particles into a clean tube.
b. To increase the yield, you can take 10-15 mL clean 1XPBS and inject inside the filter. You can go forward and backward to clean EVs on the membrane with syringes. Then repeat the aspiration as you did in step a.
c. You can repeat step b one more time to increase the yield. Then you end up with 40-45 mL of final product.



Washing procedure

Once the concentration process is ended the filter cartridge has to be washed with a NaOH solution 0.5 N, in order to remove contaminants and particles from the hollow fibers. A final wash with aboundant MilliQ water must be performed for removing the chemical traces.

If the cartridge is used for processing complex fluids (serum, plasma) it is recommended to use a NaOH solution 1 N.

If the cartridge is used for processing fluids derived from plants and after the washing steps the fibers look colored, a solution of NaClO (0.05%) can be used.

After the washing step containing chemicals (NaOH or NaClO) a final wash with aboundant MilliQ water must be performed for removing the chemicaltraces.

The filter can be stored at room temperature, dried.

Filter re-sterilization

The filter can be re-sterilized by Beta or Gamma irradiation. Not suitable for sterilization in autoclave.