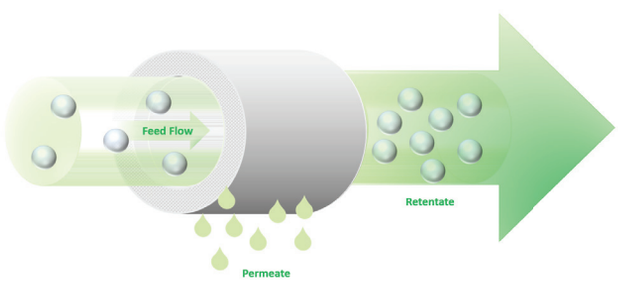
HansaBioMed Life Sciences

Pioneering the Extracellular Vesicle field

TFF-Easy: Tangential flow filter for EV concentration

Efficient concentration of diluted fluids for EV purification

Tangential flow filtration (TFF) is a rapid and efficient method, usually used for separation and purification of biomolecules. TFF can be also used to concentrate and desalt sample solutions, and is emerging as a new technique for easiling isolating EVs, if coupled with SEC.



Our TFF-Easy is a filter cartridge containing hollow fibers made of polysulfone suitable for the concentration and the removal of small proteins and molecules from diluted matrices (cell conditioned media, urine, etc..), prior to the EV purification.

TFF-Easy can be used manually with syringes of different size, for concentrating small volumes of fluids, or can be connected to a mechanical pump for concentration of large volumes.

Learn more about TFF-EASY in our video guide

Characteristics

- Hollow fiber filter pores: 5 nm
- Suitable for concentration of small and large fluid volumes
- Sterile

Applications

- Concentration of diluted fluids prior EV isolation
- High efficiency of EV isolation when coupled with SEC
- Dialysis and desalting of EV preparations

Advantages

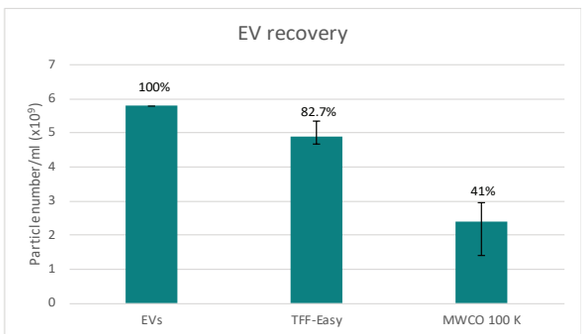
- Easy washable
- Reusable multiple times
- Suitable for manual and mechanical use

Save time, save EVs

TFF-Easy and its application in Extracellular Vesicle research

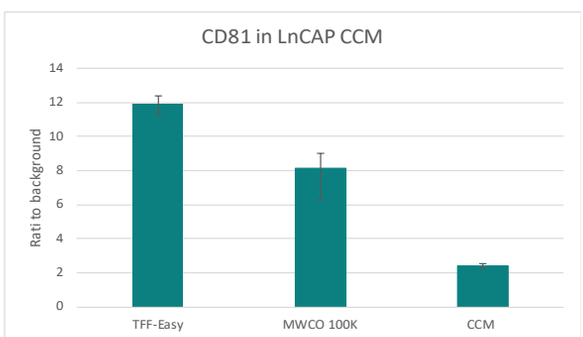
Minimal loss of EVs and time-saving procedure

30 ug of purified EVs have been diluted in 50 ml of PBS 1x and then concentrated up to 2 ml by TFF-Easy and MWCO concentrators 100 K (Millipore). The particle concentration in the final volme has been detected by NTA (Zetaview, Particle Metrix), and compared to 30 ug of EVs diluted in 2 ml of PBS 1X. TFF-Easy allowed a recovery of approximately the 83% of the particles in solution.



Concentration of cell conditioned media for EV marker analysis

Concentration of cell conditioned media (CCM) is a fundamental step for analyzing and phenotyping EVs without performing vesicles purification. In the example on the right we verified the expression of CD81 and CD63 in CCM from LnCAP cells. CCM has been concentrated with TFF-Easy or MWCO concentrator 100K (Millipore).



EV dialysis and desalting of EV preparation

TFF-Easy allows to easily dialyze EV preparation. In the process described we performed the EV dialysis from buffer 1 (PBS1x) to buffer 2 (NaCl 100 mM).
The TFF-Easy allows the complete removal of buffer 1, without affecting the EV concentration.

Dialysis progress	Conductivity (μS/cm)	Particle concentration (particle number/ml)
EVs in buffer 1 (PBS 1X) 5 ml	15000	$5.8x10^{11}$
1- Removal of buffer 1 by TFF	15000	
2- Injection of buffer 2 in TFF cartridge		
3- Removal of buffer 2 and buffer 1 residues	4100	
4- Injection of buffer 2		
5- Removal of buffer 2	624	
6- Injection of buffer 2		
7- Concentration of buffer 2 up to 5 ml	621	$4.9x10^{11}$

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