

MONET

Membrane Filtration Optimised Novel
Extracorporeal Treatment

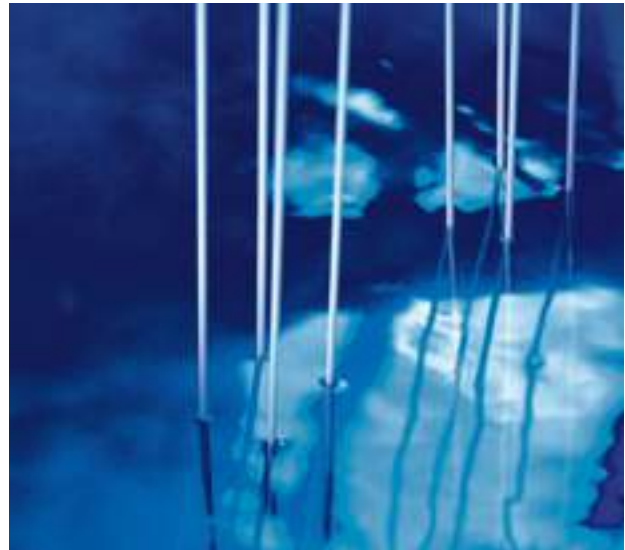


**FRESENIUS
MEDICAL CARE**

Fresenius Polysulfone®

The manufacturing of fibres and membranes is a core competence of Fresenius Medical Care. The development of Fresenius Polysulfone® in the mid-1980s was a milestone in membrane technology. Since then Fresenius has continuously enhanced its technological competitive edge and developed further groundbreaking innovations for the treatment of its patients:

- 1986 AV filter for acute dialysis (AV 600)
- 1992 HPS filter (F6 HPS)
- 2000 FX-class (FX 60)
- 2001 100 million Fresenius Polysulfone® dialysers
- 2003 AlbuFlow albumin filter
- 2004 PlasmaFlux PSu
- 2007 PlasmaFlux P2 dry



Polysulfone
Fresenius Polysulfone®

To strengthen and further develop this competence Fresenius Medical Care has developed MONET, the Membrane Filtration Optimised Novel Extracorporeal Treatment.

MONET is further proof to Fresenius Medical Care's commitment in the area of LDL apheresis and completes its LDL apheresis portfolio. With DALI® and MONET we offer you a therapy pair for the optimal treatment of your LDL patients in line with modern LDL apheresis therapy requirements.

The MONET filter contains a Fresenius Polysulfone® membrane which has been enhanced for lipoprotein filtration. This membrane has the same excellent biocompatibilities as our other Fresenius filters and it is the result of our continuous product improvement procedure and customer feedback from across Europe.

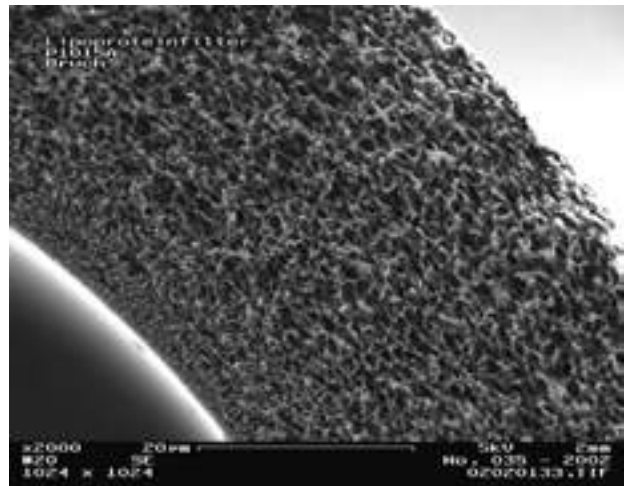


Figure 1: Scanning electron microscope picture of the MONET membrane

LDL apheresis with MONET



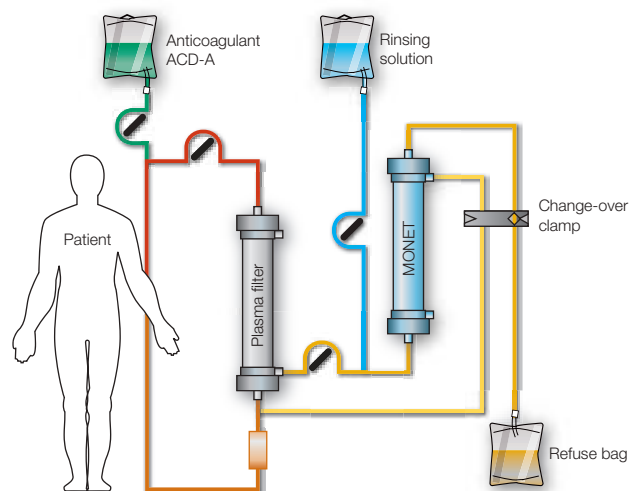
Lipoprotein filtration has been known in LDL apheresis for many years. There are various synonyms: Lipid filtration (LF), double membrane filtration (DMF), double filtration plasmapheresis (DFPP). The central component is the secondary filter, the MONET.

During the Lipoprotein filtration veno-venous access is used, generally using a vein in the patients arm. The procedure has 2 steps; First the blood is passed through the plasma filter (plasmaFlux P2 dry) where the plasma is separated from the blood. The separated plasma is then led through a second filter, the MONET filter, in which the atherogenic proteins (LDL, VLDL, Lp[a]) are retained. After passing through the MONET filter, the now purified plasma is mixed with the blood at the outlet of the plasma filter and returned to the patient.

In order to prevent an accumulation of the retained proteins and hence an increase in the transmembrane pressure (TMP) the MONET filter is rinsed with saline during the treatment.

When the TMP pressure rises, the plasma pump is stopped and the saline pump is started initiating the rinsing. The saline is flushed through the MONET filter into the wastebag after opening the “change over clamp”. Once the rinse is complete, treatment continues.

Figure 2: Extracorporeal circuit



- Anticoagulation can be carried out with both citrate or heparin.
- The extracorporeal circuit is controlled by the *Ant* device.

MONET Properties

The Fresenius Medical Care cascade filter MONET is a lipoprotein filter with a surface of 2.0 m².

The MONET filter has a high (90%) permeability for molecules < 100 kD and a low (10%) permeability for molecules > 1000 kD. This means that the MONET filter is well suited for separating predominantly large proteins/lipids from the plasma leaving only predominantly smaller proteins (i. e. Albumin).

Figure 3: Sieve coefficients of selected plasma proteins (with 3 L of processed plasma; internal studies by Fresenius Medical Care)

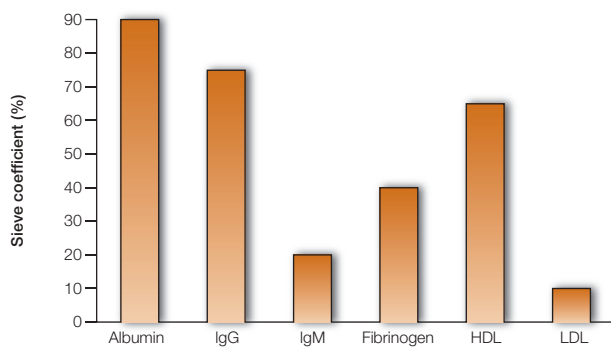
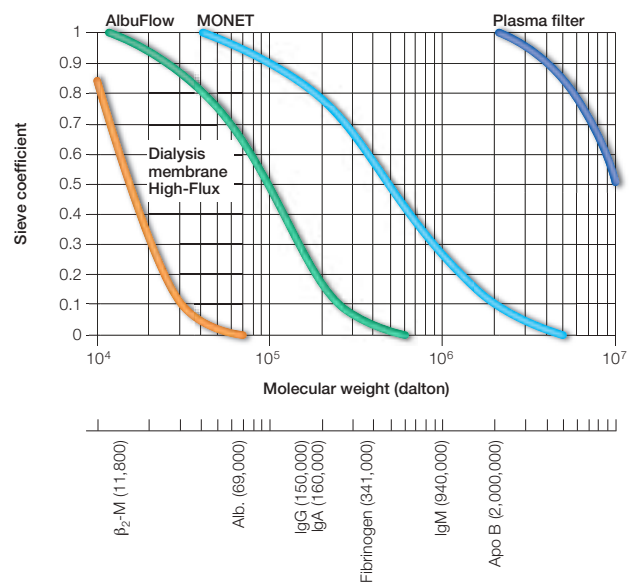


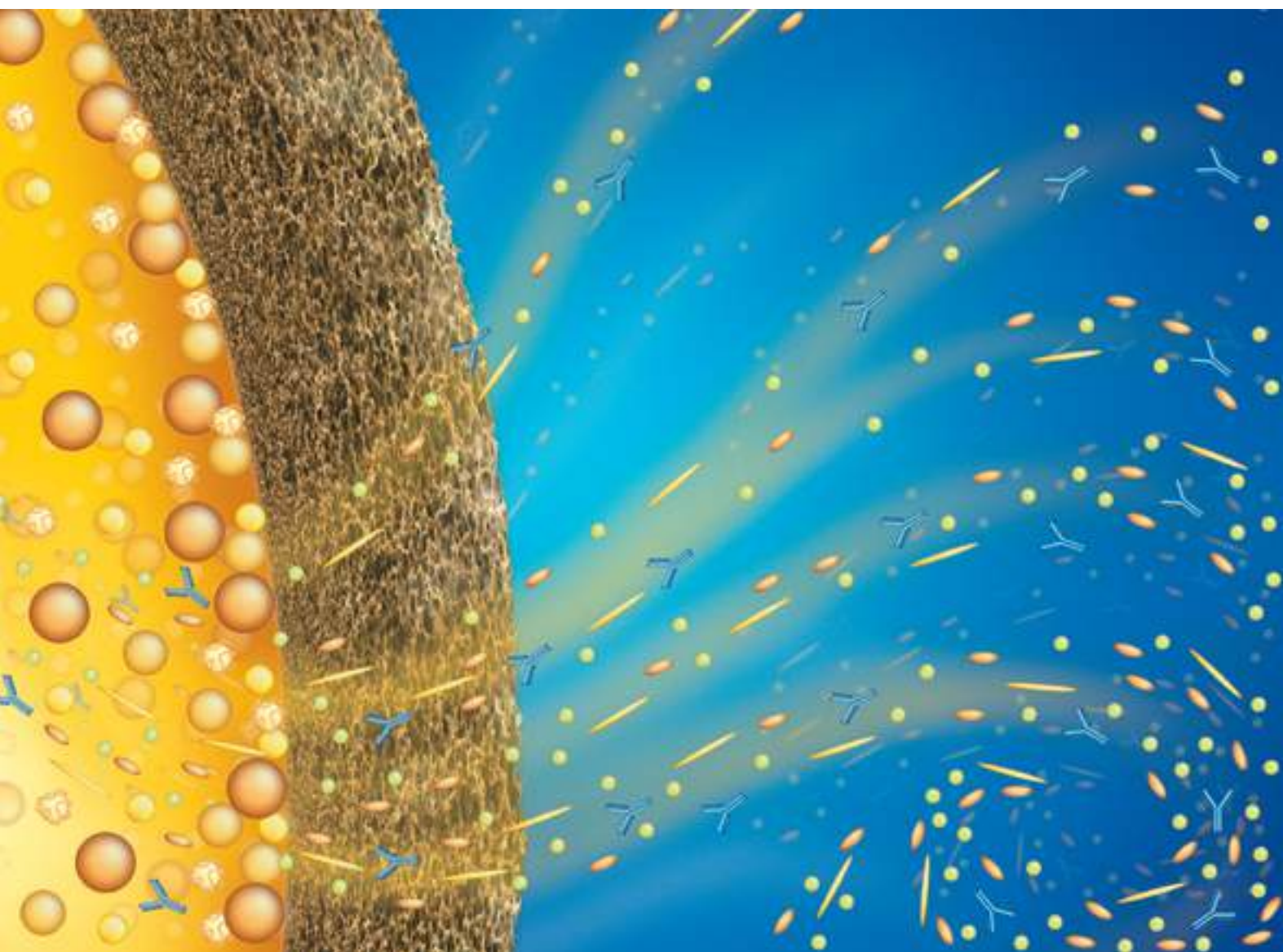
Figure 4: Sieve coefficients of selected membranes (with 3 L of processed plasma; internal studies by Fresenius Medical Care)



Performance/Technical data

MONET	
Membrane material	Fresenius Polysulfone®
Inner diameter of capillaries	185 µm
Wall thickness	35 µm
Sterilisation method	INLINE steam
Max. TMP	300 mmHg
V (filling volume) plasma/filtrate	116 mL/340 mL
A (effective surface)	2.0 m ²
Article No.	5004821

Figure 5: Technical data MONET





FRESENIUS MEDICAL CARE

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