

# **REXEED**

**Achieving a new level of comprehensive  
dialyzer performance**

# The Features of REXEED

The **new Membrane REXBRANE** and **new JACKET** enable the best and comprehensive Performance by Uniform Dialysate Flow Distribution with Patient friendly Features

The logo for the ASAHI REXEED SERIES is centered in a dark blue square. It features a circular emblem with a green and blue gradient, resembling a globe or a stylized sun. The text "ASAHI REXEED SERIES" is written in a light blue, sans-serif font across the center of the emblem. A thin white horizontal line is positioned below the text.

ASAHI REXEED SERIES



# REXEED Concept

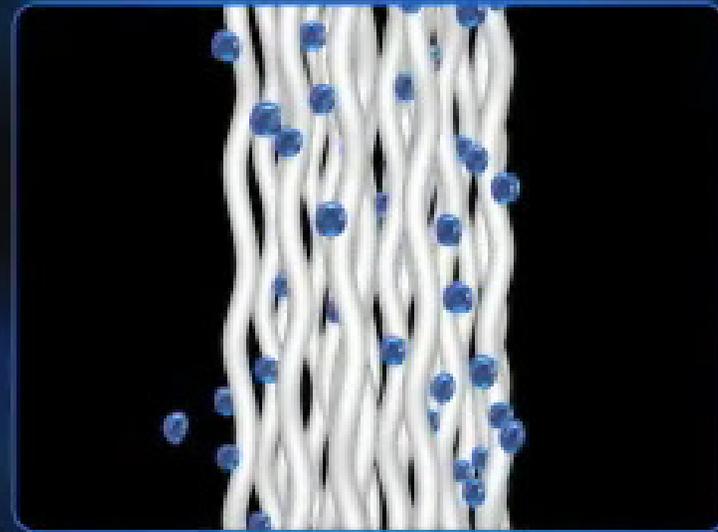
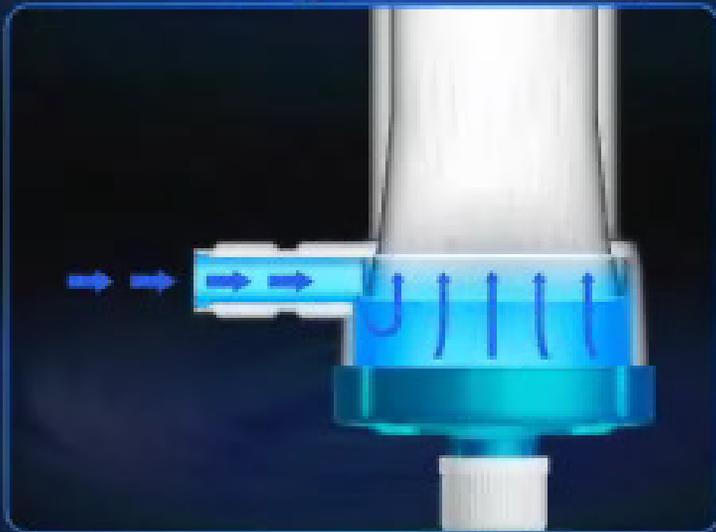
**Ultimate Small MW Clearance and  
Comprehensive Performance**

- 1. Uniform Flow Distribution of Dialysate**
- 2. Uniform Flow Distribution of Blood**
- 3. World first 2.5 m<sup>2</sup> Polysulfone Membrane**
- 4. Smaller Priming Volume**
- 5. Retained Biocompatibility Advantage**

A Combination of  
**new Jacket** and **REXBRANE**  
gives the uniform Flow

Uniform Dialysate Flow Distribution  
gives great Clearance Performance

Uniform Dialysate Flow Image

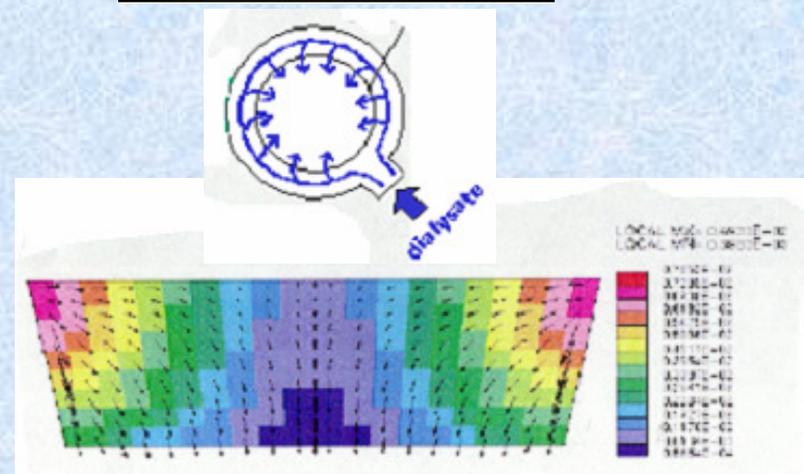
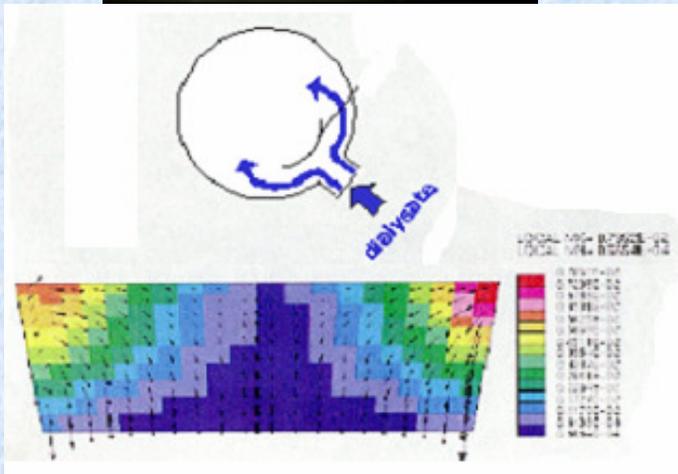
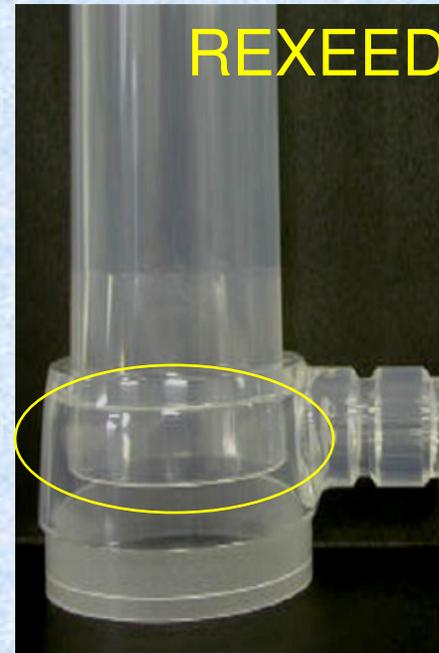


**New Jacket**  
Full Baffle  
Short Taper Structure

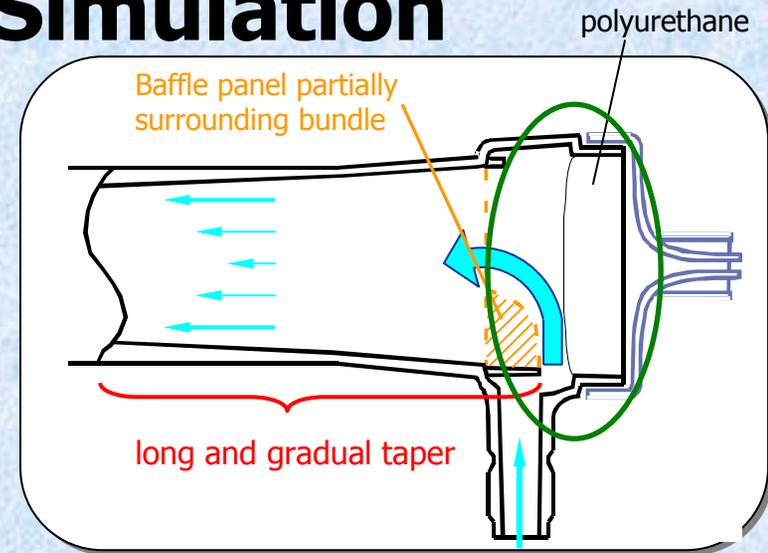
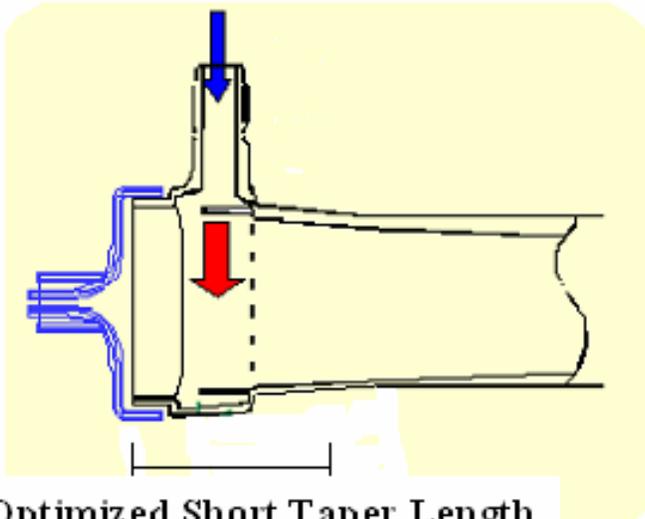
**REXBRANE**  
Waved Fiber  
Proprietary Biocompatibility  
Small Priming Volume  
The largest PS ever-2.5 m<sup>2</sup>

# Totally New Jacket Design

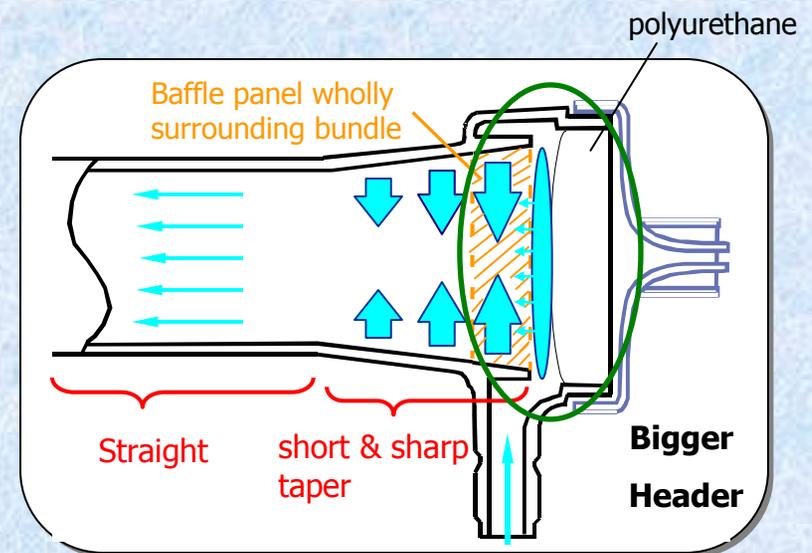
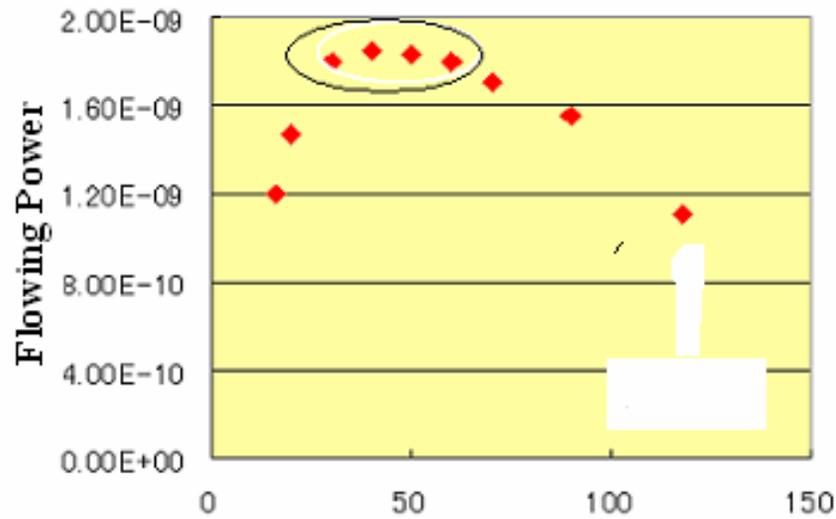
## PC Simulation-1: Effect of Full Baffle



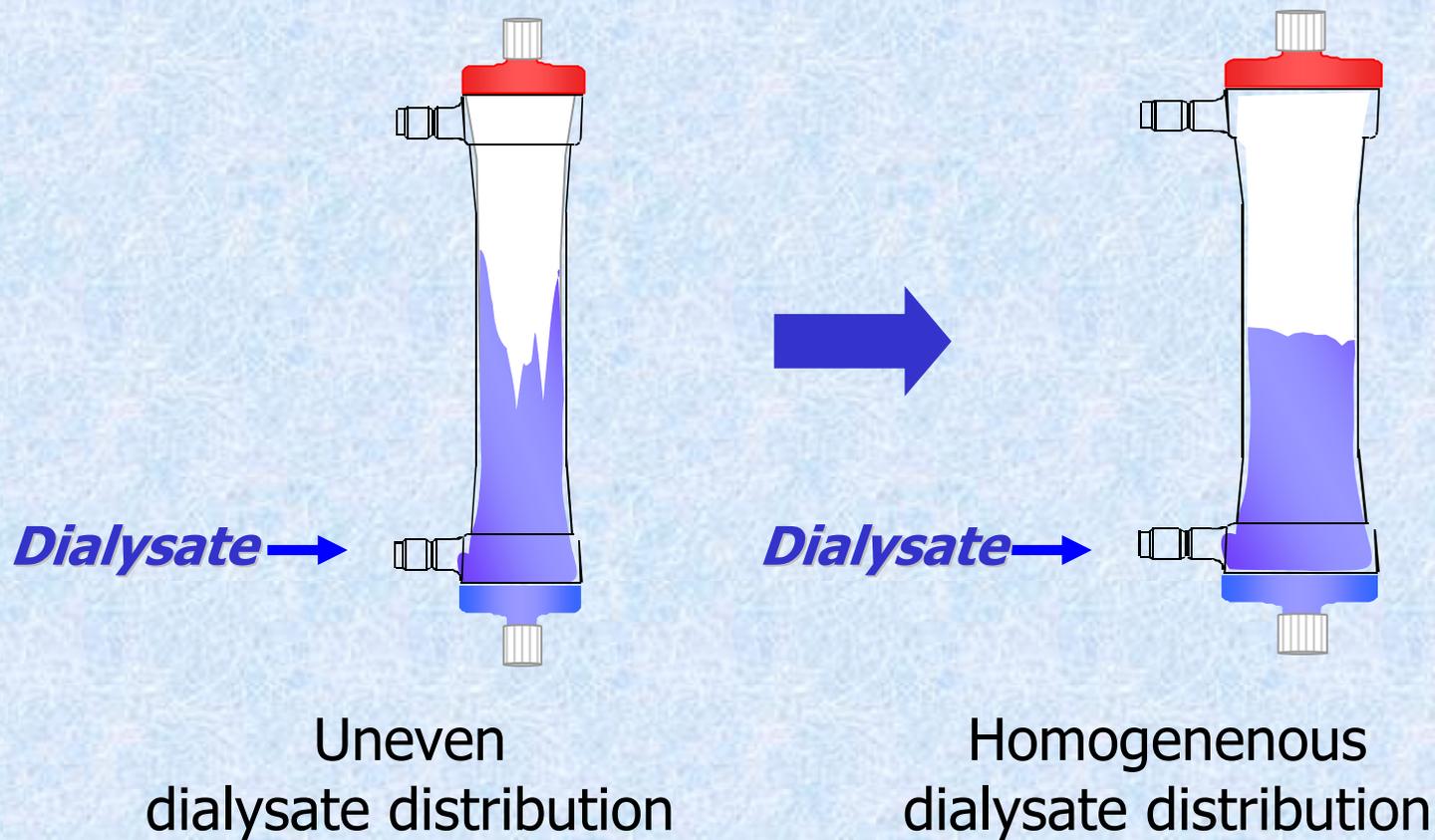
# Short Taper Optimization by Comp. Simulation



Optimized Short Taper Length

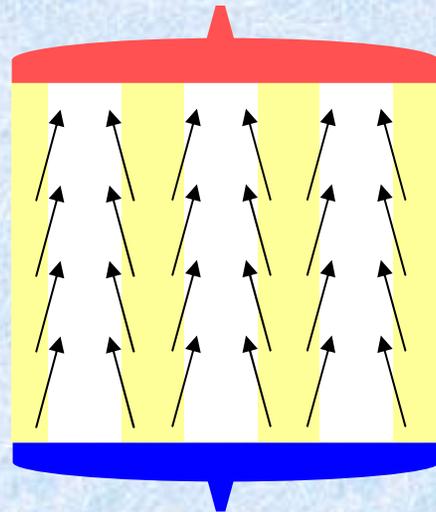


# Uniform Dialysate Distribution

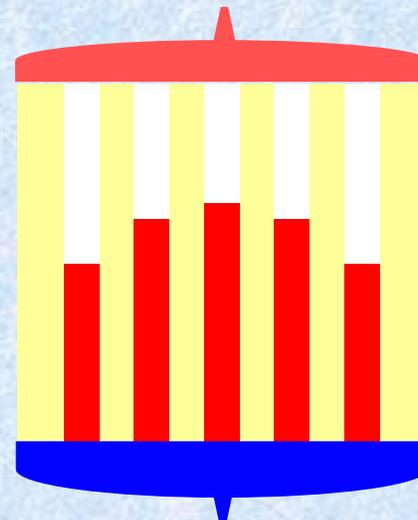
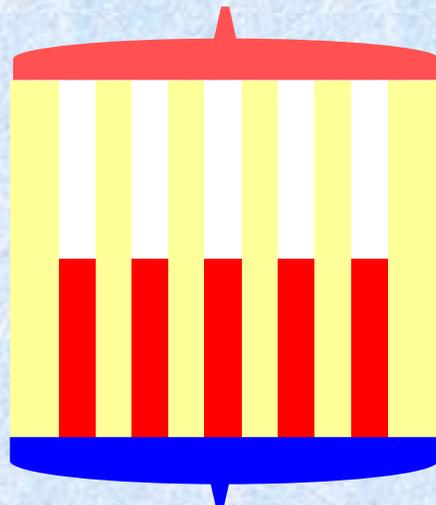
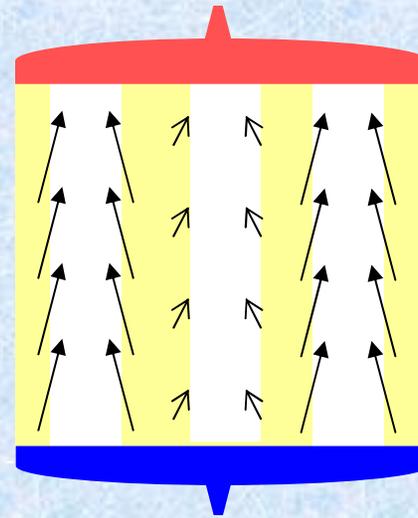


# Impact of Dialysate Flow Distribution on Blood Return (Image)

Uniform Pressure

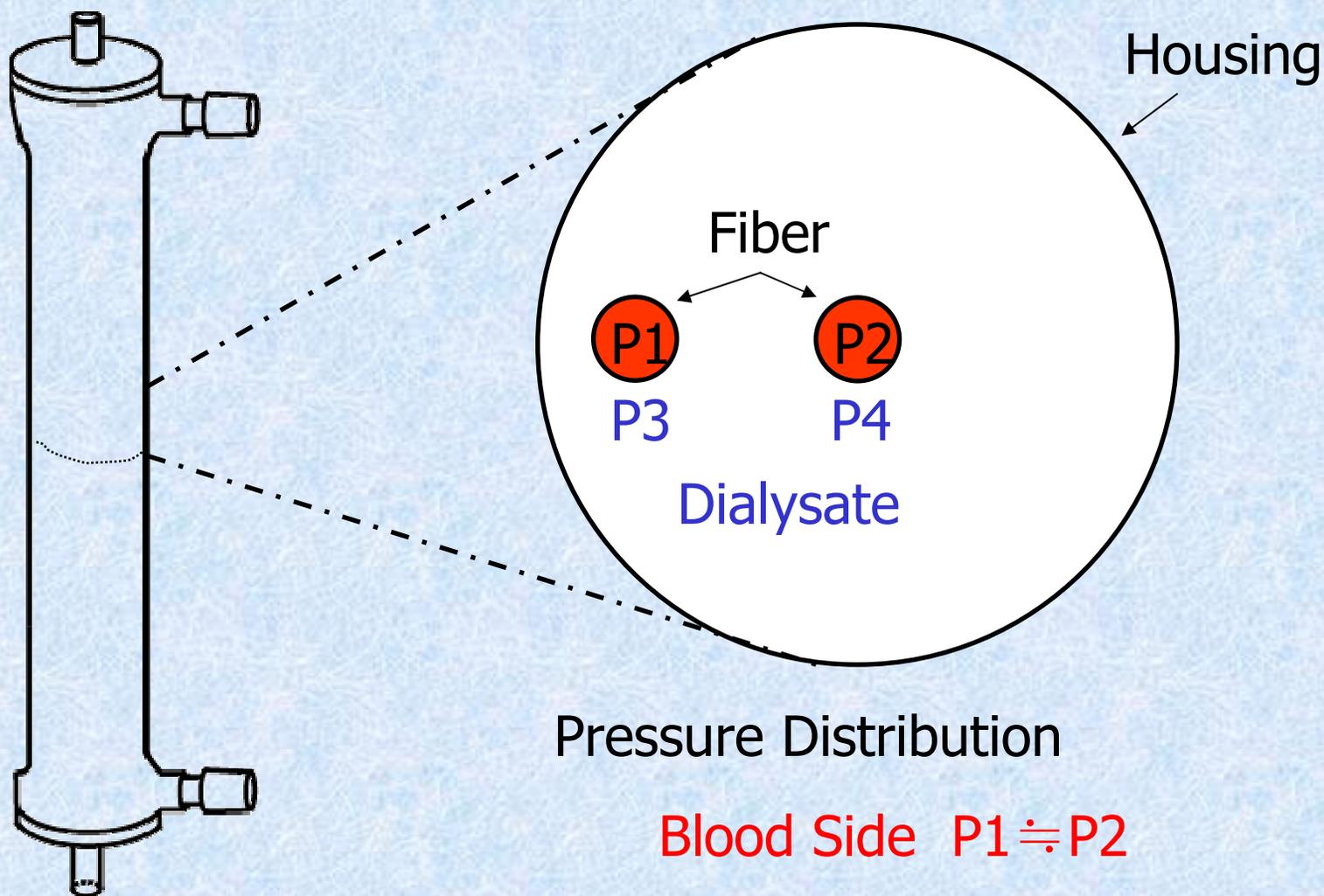


Un-uniform Pressure





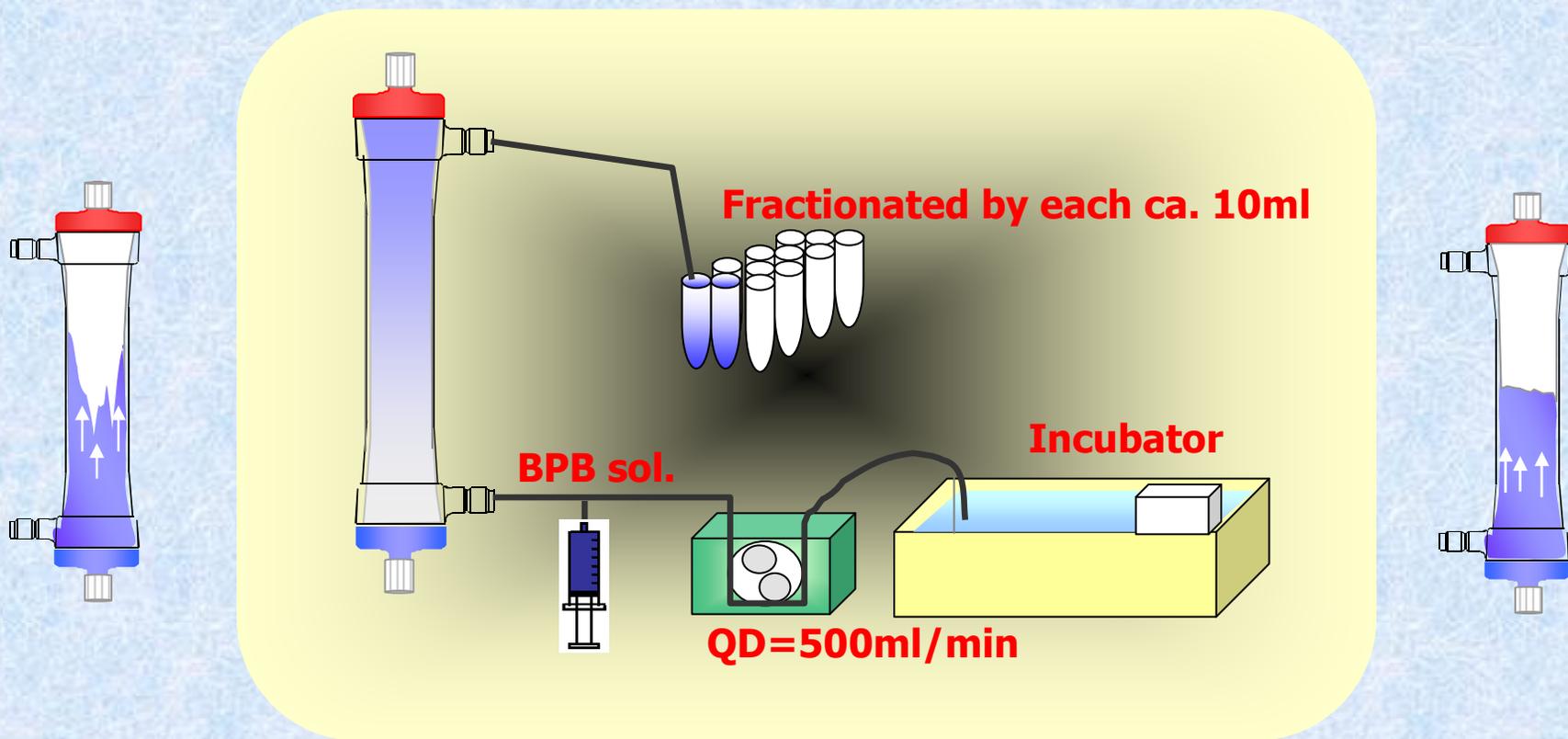
# Ideal Pressure Image inside of Jacket



Blood Side  $P1 \doteq P2$

Dialysate  $P3 \doteq P4$

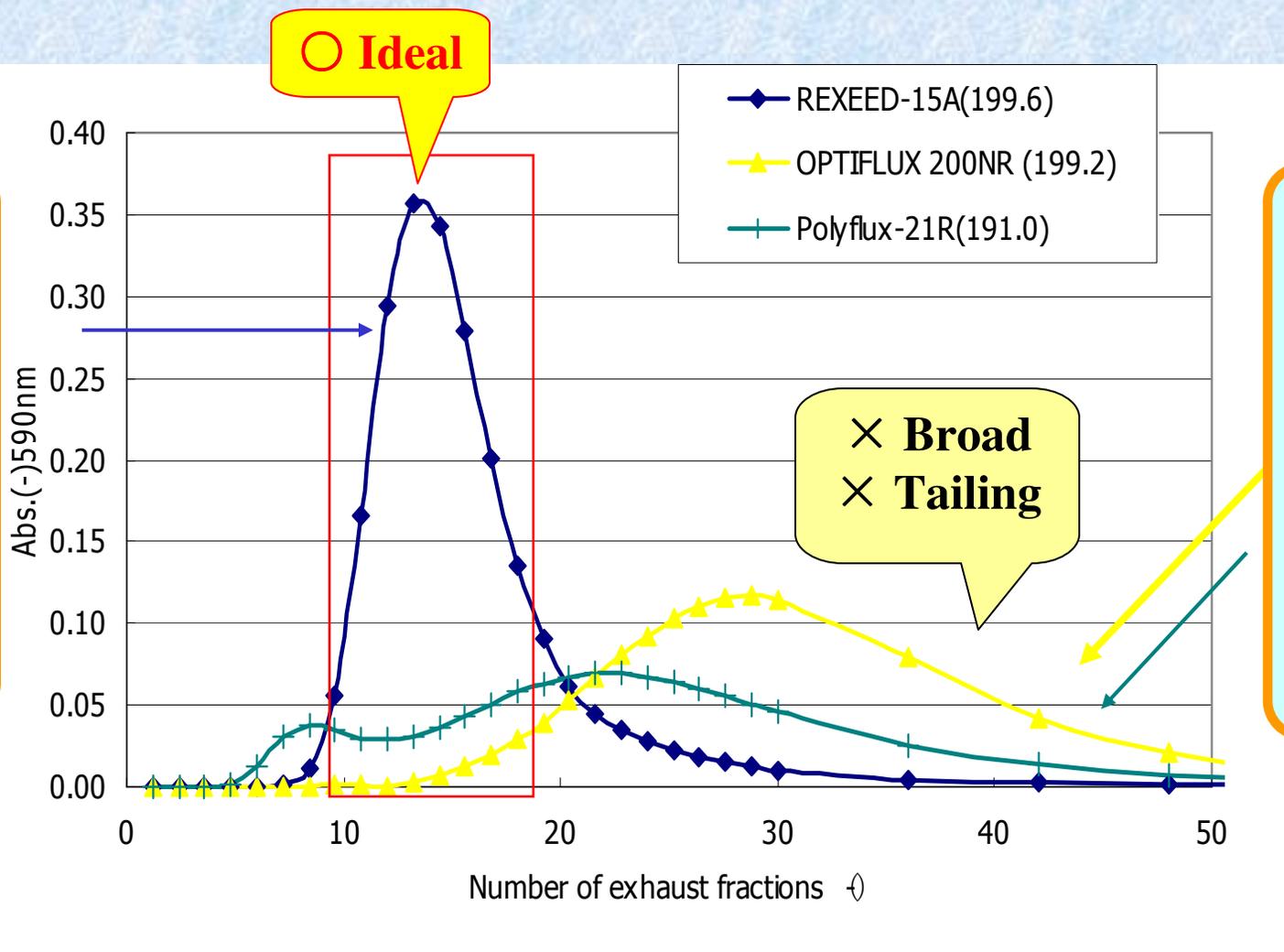
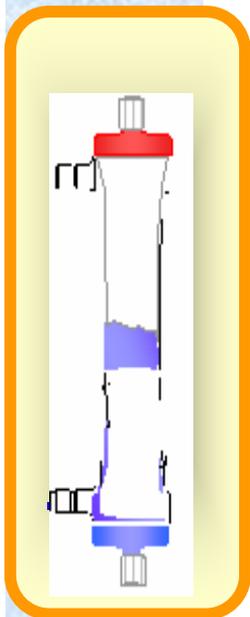
# Demonstration of Dialysate Uniform Flow <Dye Analysis>



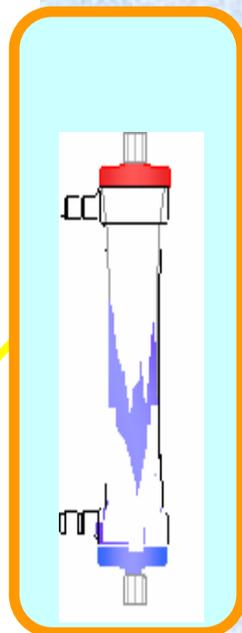
**Each fraction was analyzed for BPB Absorbance**

# Demonstration of Dialysate Uniform Flow

**REXEED-15**



**Others**

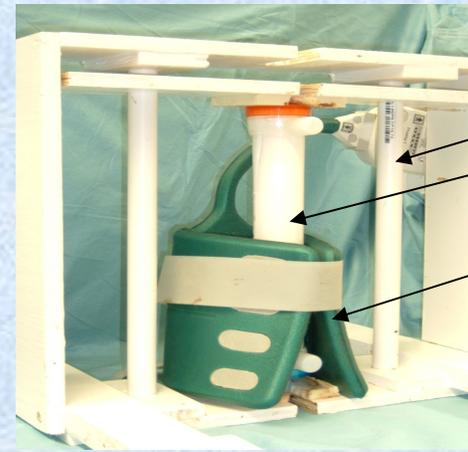
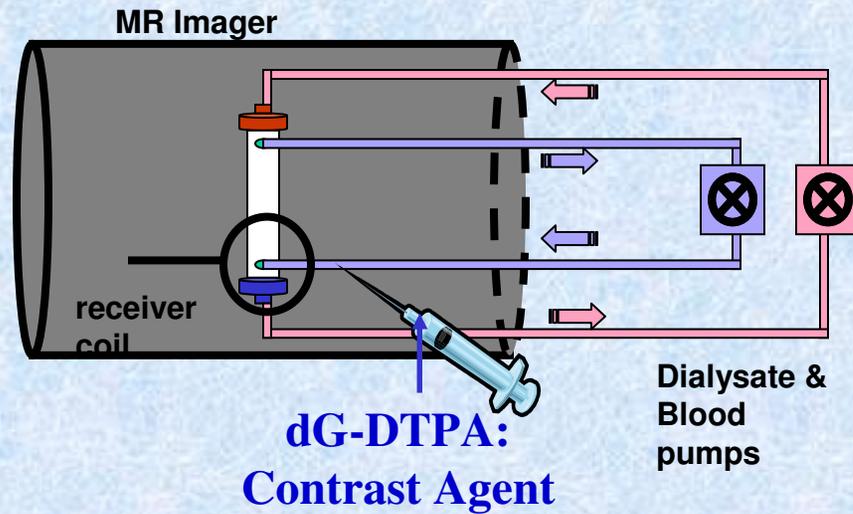


「Time Course of Absorbance of Dye」

**Qb=200mL, QD=500mL/min**

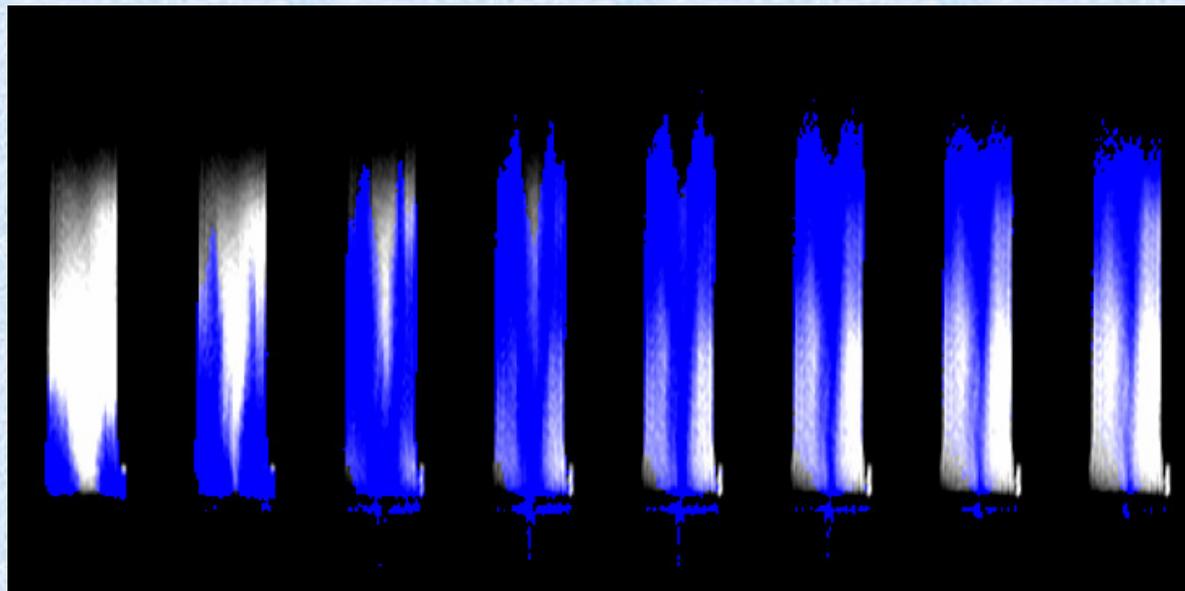
# Proof of Good Flow Distribution-2

## - Visualization of Dialysate Flow by MRI -

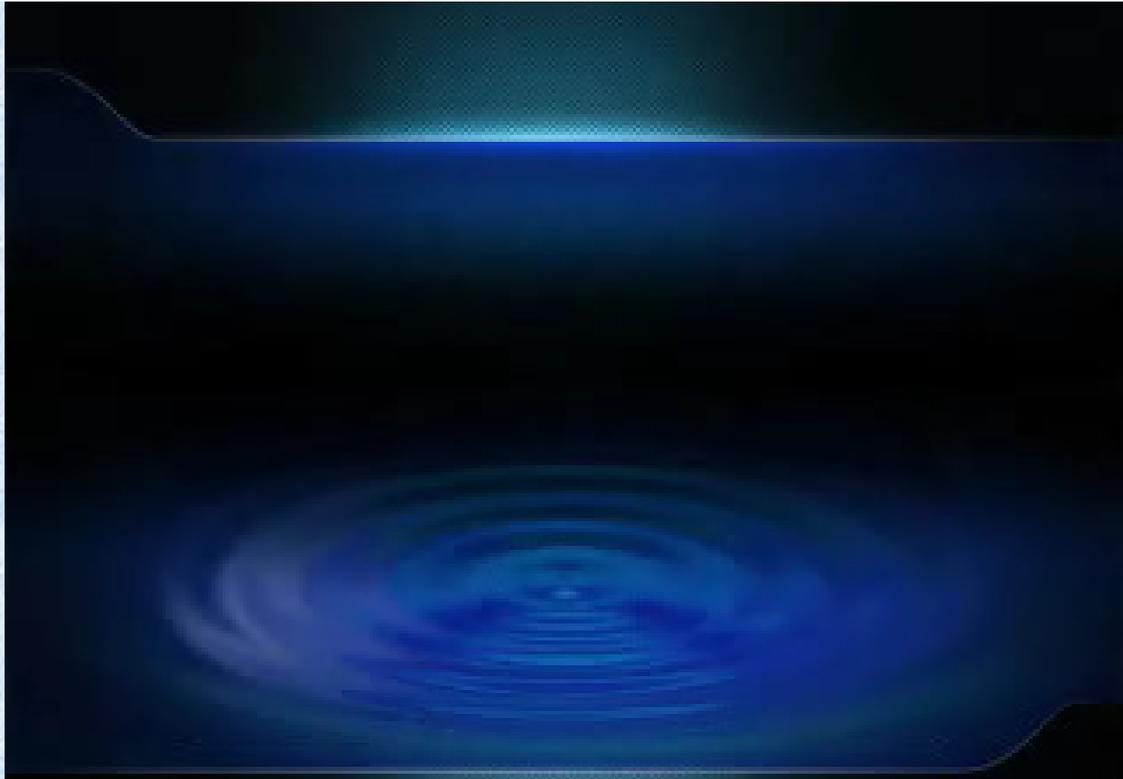


**Wooden Support frame**  
**Dialyzer**

**Flexible receiver coil**

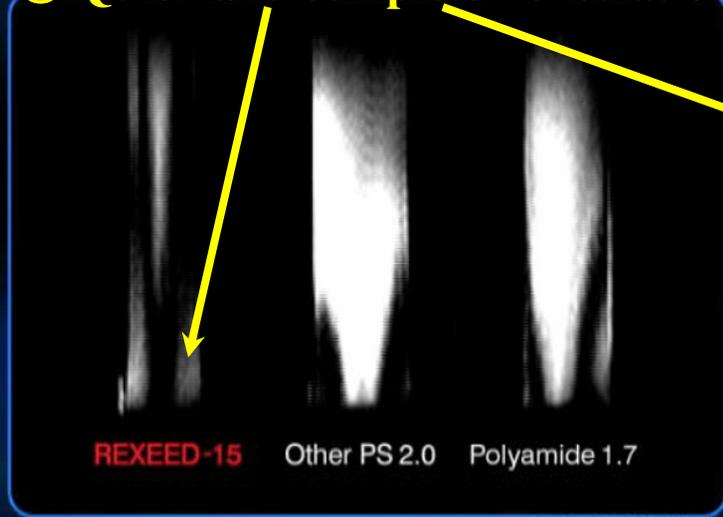


2005  
ASN



MR Image of Dialysate Flow

© Quick and complete Penetration

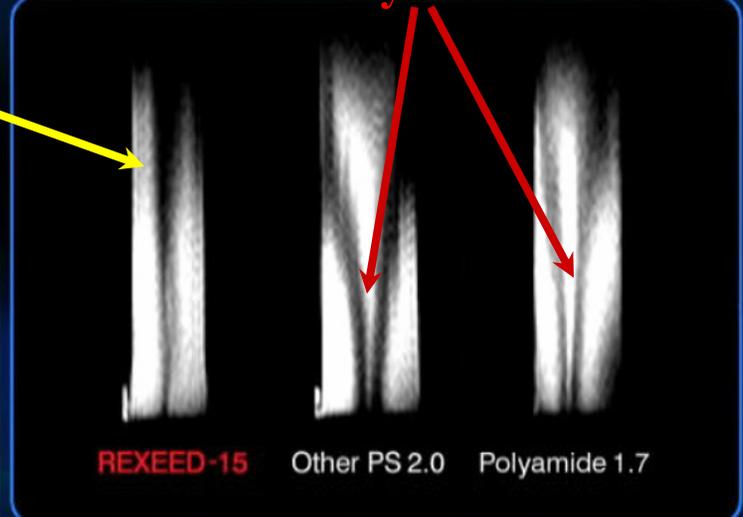


REXEED-15 Other PS 2.0 Polyamide 1.7

© Univ. of Kentucky

MR Image of Dialysate Flow

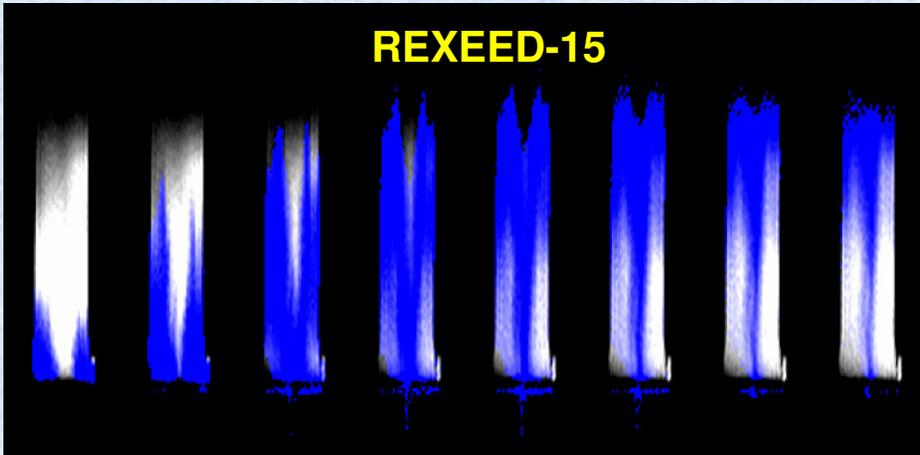
X No Dialysate Penetration



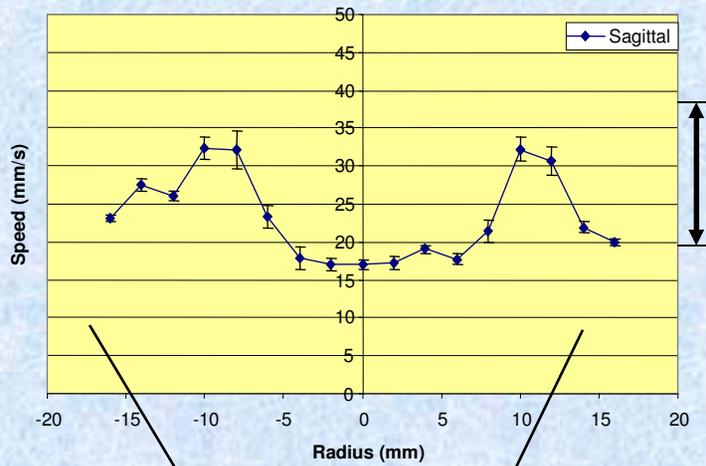
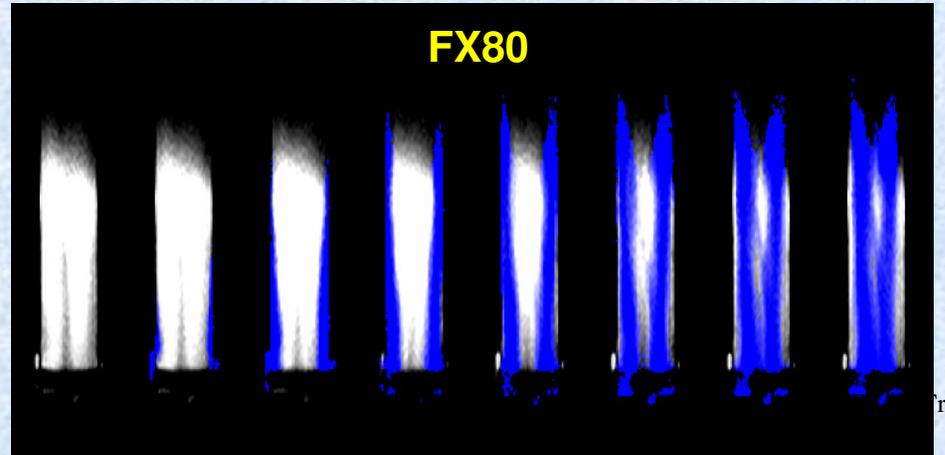
REXEED-15 Other PS 2.0 Polyamide 1.7

© Univ. of Kentucky

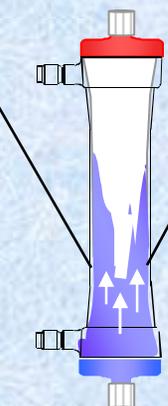
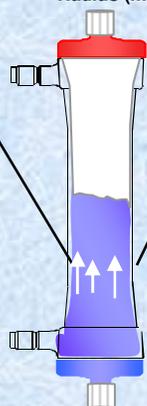
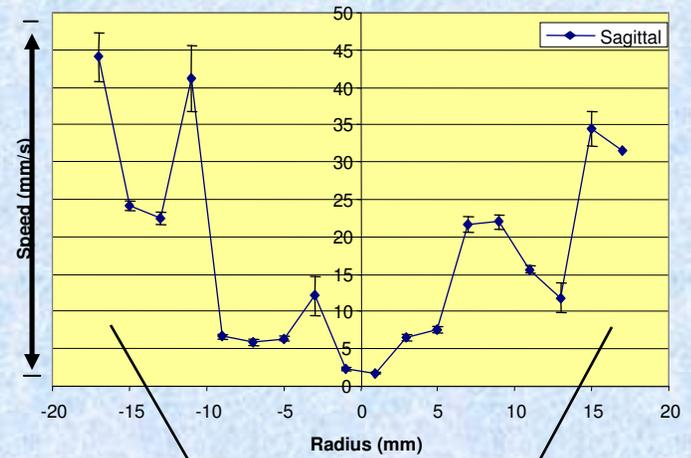
**REXEED-15**



**FX80**



Average Speed of  
Dialysate Flow  
In MRI



2005 ASN TH-PO629



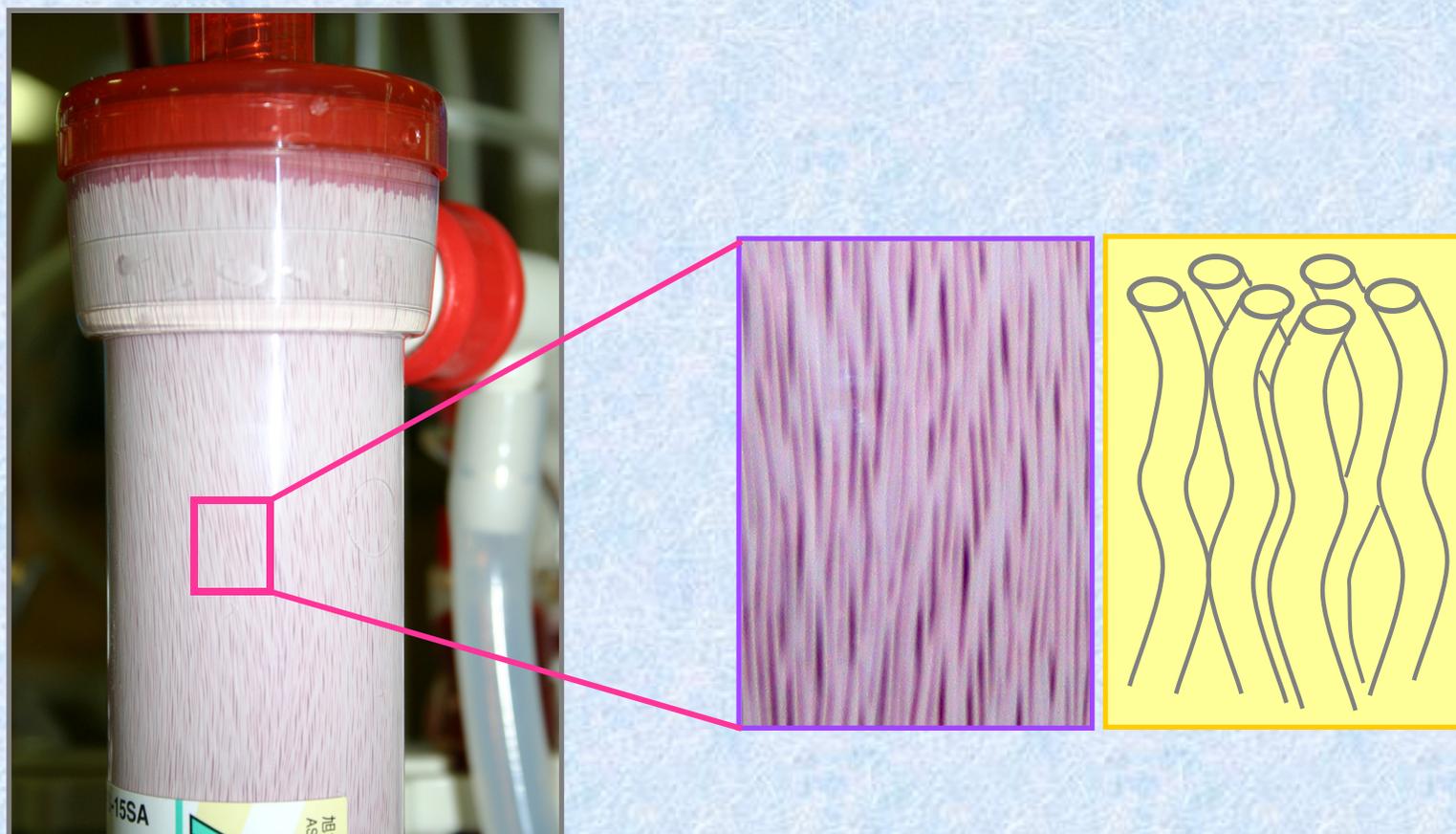
# REXEED Concept

## Ultimate Small MW Clearance and Comprehensive Performance

1. Uniform Flow Distribution of Dialysate
2. Uniform Flow Distribution of Blood
3. World first 2.5 m<sup>2</sup> Polysulfone Membrane
4. Smaller Priming Volume
5. Retained Biocompatibility Advantage

# Waved Fibers

**Waved Fibers make the most of Polysulfone Membrane**



# REXBRANE: A New Waved Fiber

Designed to maximize the Performance  
in conjunction with new Jacket Structure

**APS-S : Straight**  $\Phi 200 \mu m$

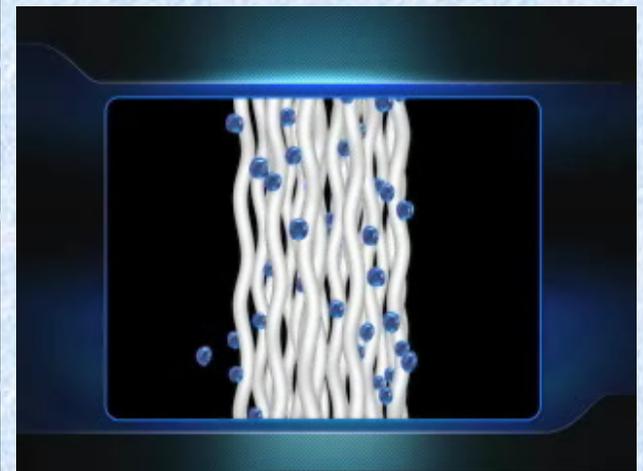
**REXEED-A : Waved**  
 $\Phi 185 \mu m$

**Fresenius FX**

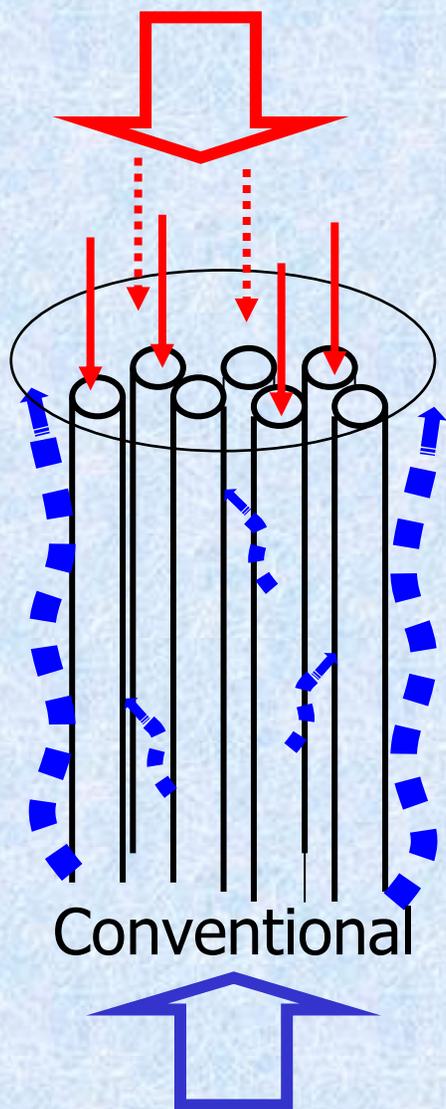
**Fresenius Optiflux**

**Fresenius F-HPS** **PS-UW**

**Polyflux 21R**

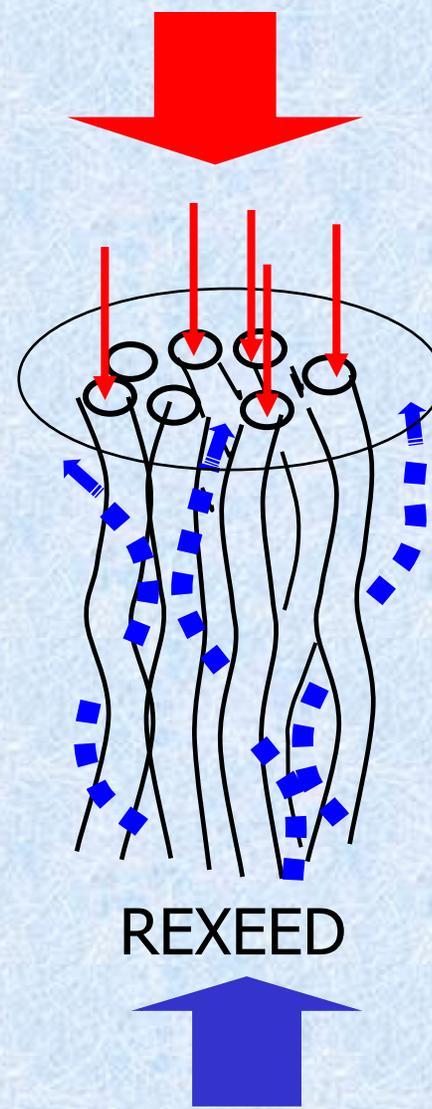


# Uniform Pressure Balance Image for **Blood** and **Dialysate**



## Expectation

1. **Uniform Blood Return**
2. **Less residual Blood**
3. **Higher SM Clearance**
4. **Uniform Performance**



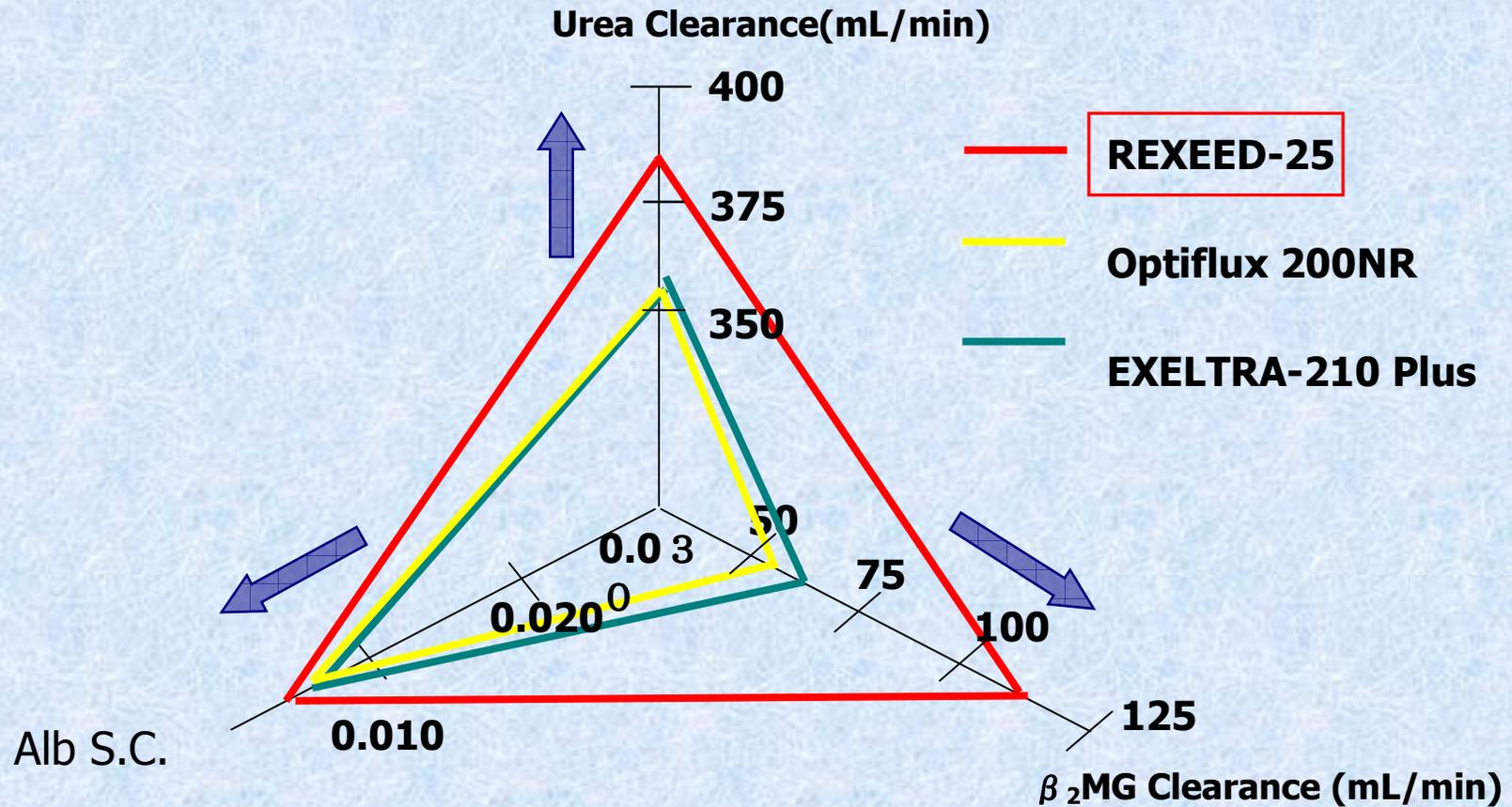


# REXEED Concept

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# In Vitro Performance of REXEED-25 and other Dialyzers



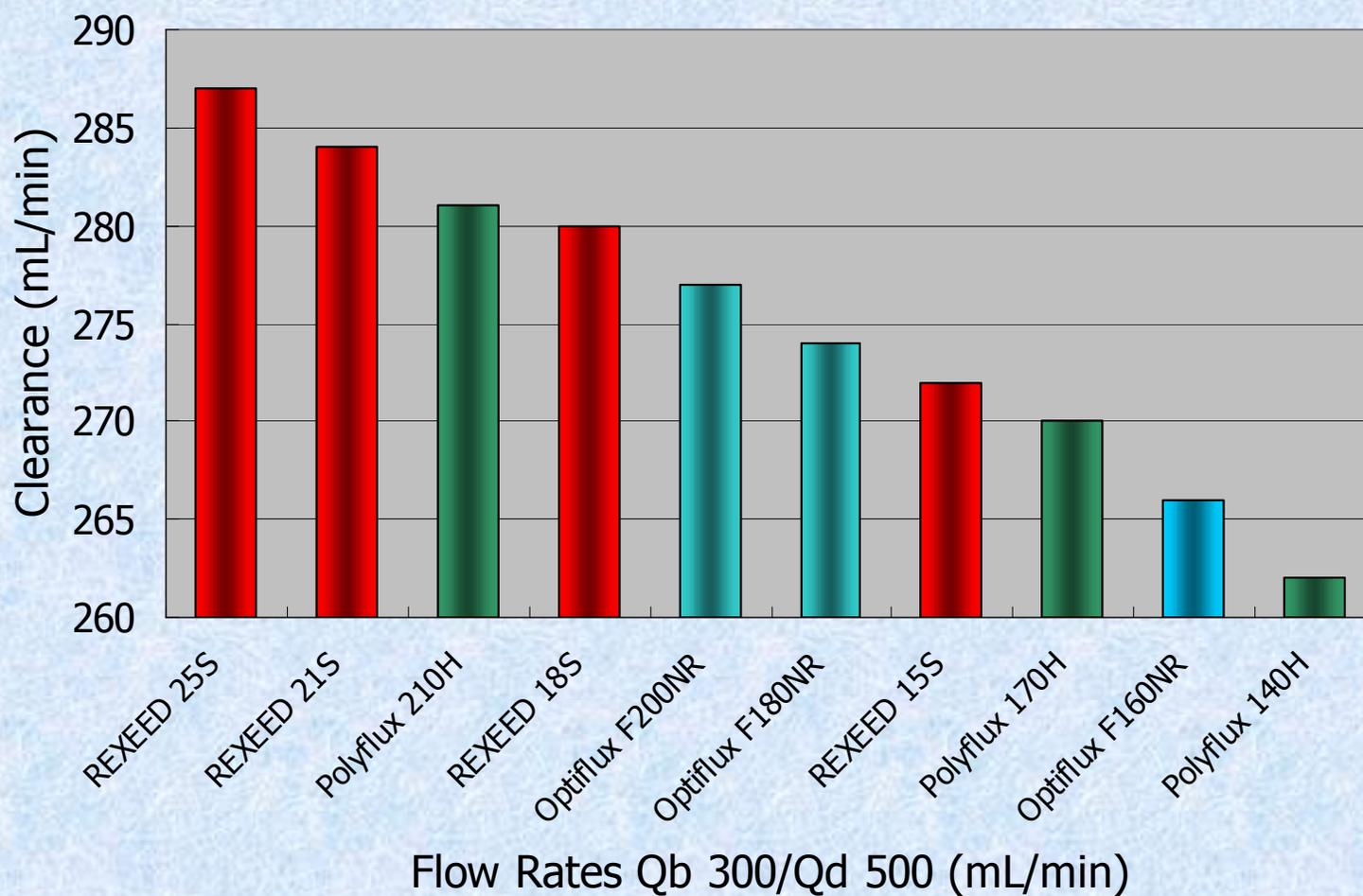
(in vitro, bovine plasma,  $Q_b=400\text{mL/min}$ .  $Q_d=800\text{mL/min}$ .  $Q_f=17, 20, 25\text{mL/min}$ )



# REXEED-S PERFORMANCE

manufacturer's published data

## UREA CLEARANCE





# REXEED-A Concept

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# Priming Volumes

1. Less Priming Volume with same Surface Area
2. Larger Surface Area with NO Priming Volume Increase

unit : m

	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.4	2.5	
<b>REXEED</b>	82			95			112		128	81-90 91-100
<b>Optiflux-NR</b>	83					112				101-110 111-120
<b>Polyflux-R</b>			121				152	165		121-130
<b>Polyflux-H</b>			115				125			130<
<b>Exeltra</b>	95		105		115					



# REXEED-A Concept

## Ultimate Small MW Clearance and Comprehensive Performance

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5. Retained Biocompatibility Advantage

# Excellent Biocompatibility of Asahi's PS

Surface Analysis by Atomic Force Microscopy

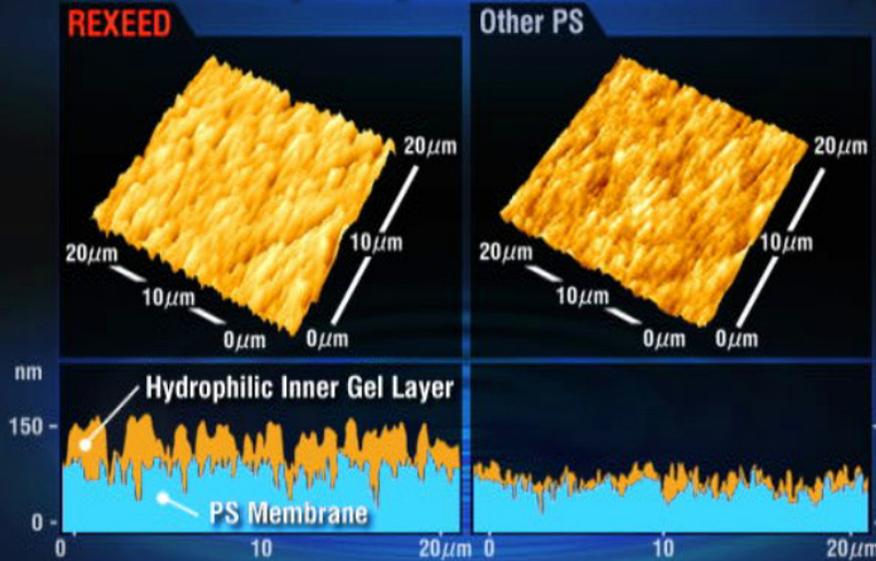
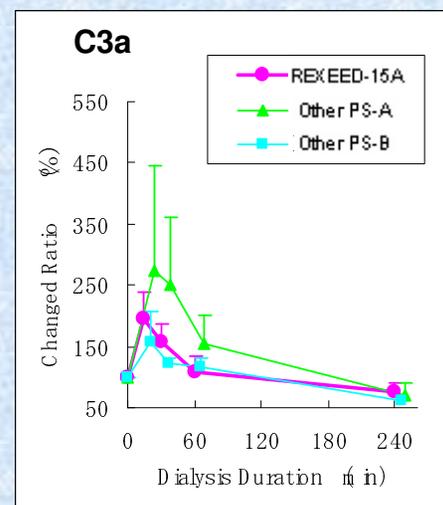
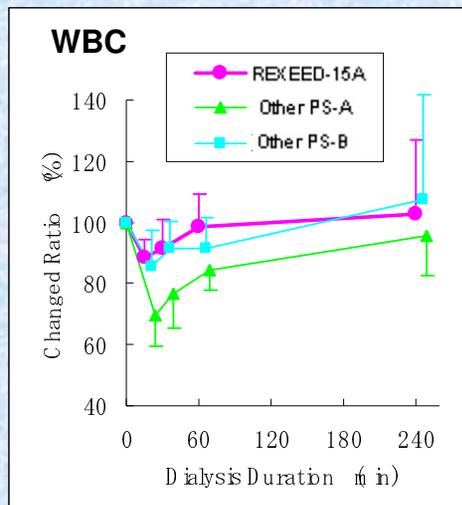
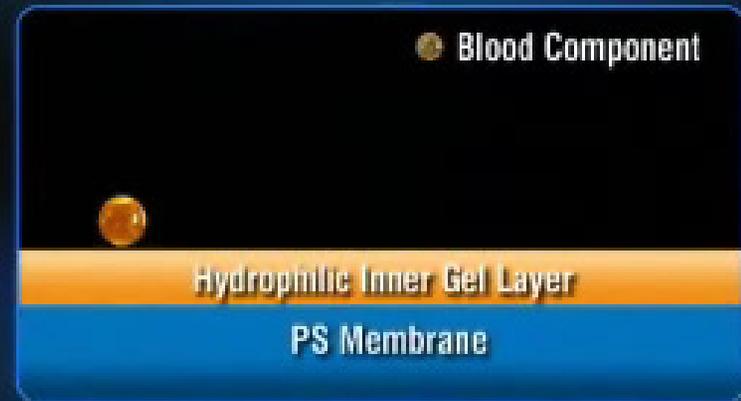


Image of Soft Gel Layer Effect on Biocompatibility

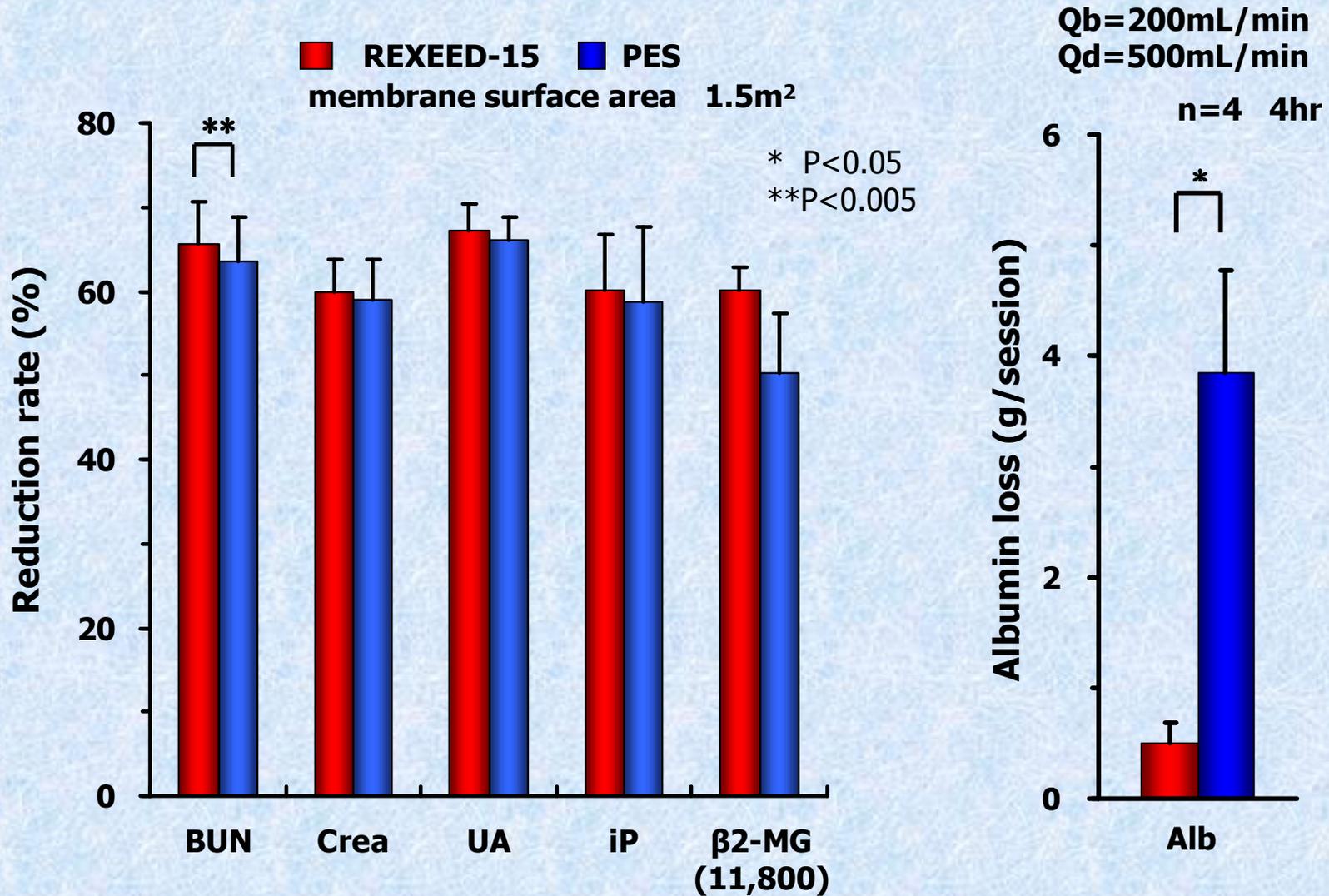




# **Technical Aspects of REXEED**

## **Clinical Experience**

# Clinical Evaluation of REXEED-15 and PES



Kushiro Urology Clinic

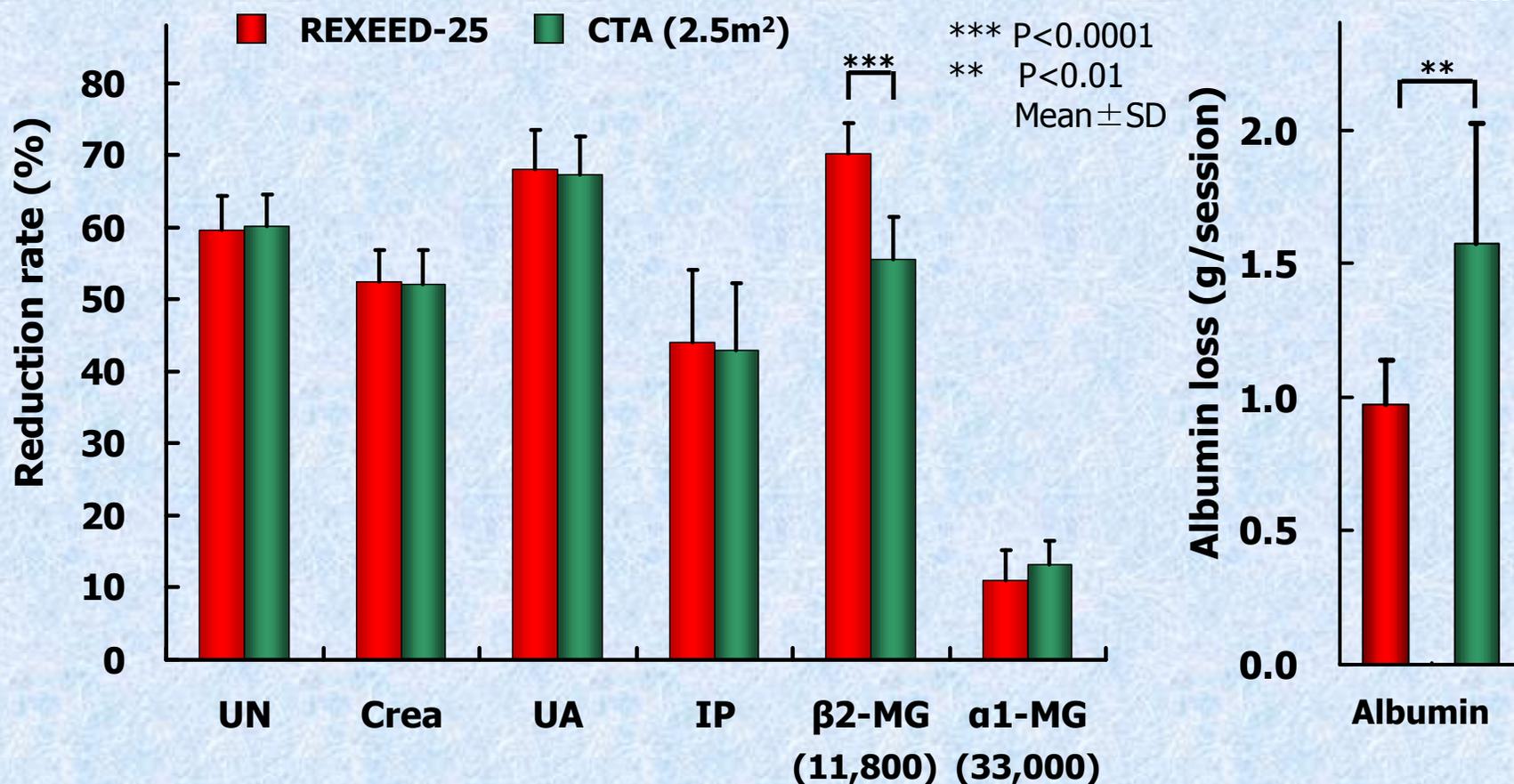
The 20th Congress for High Performance Membrane, '05



# Clinical Evaluation of REXEED-25 and FB-250F

Average weight of dialysis patients  $75.8 \pm 17.6\text{Kg}$   $n=8$

$Q_b=200\text{mL/min}$   
 $Q_d=500\text{mL/min}$   
4hrs

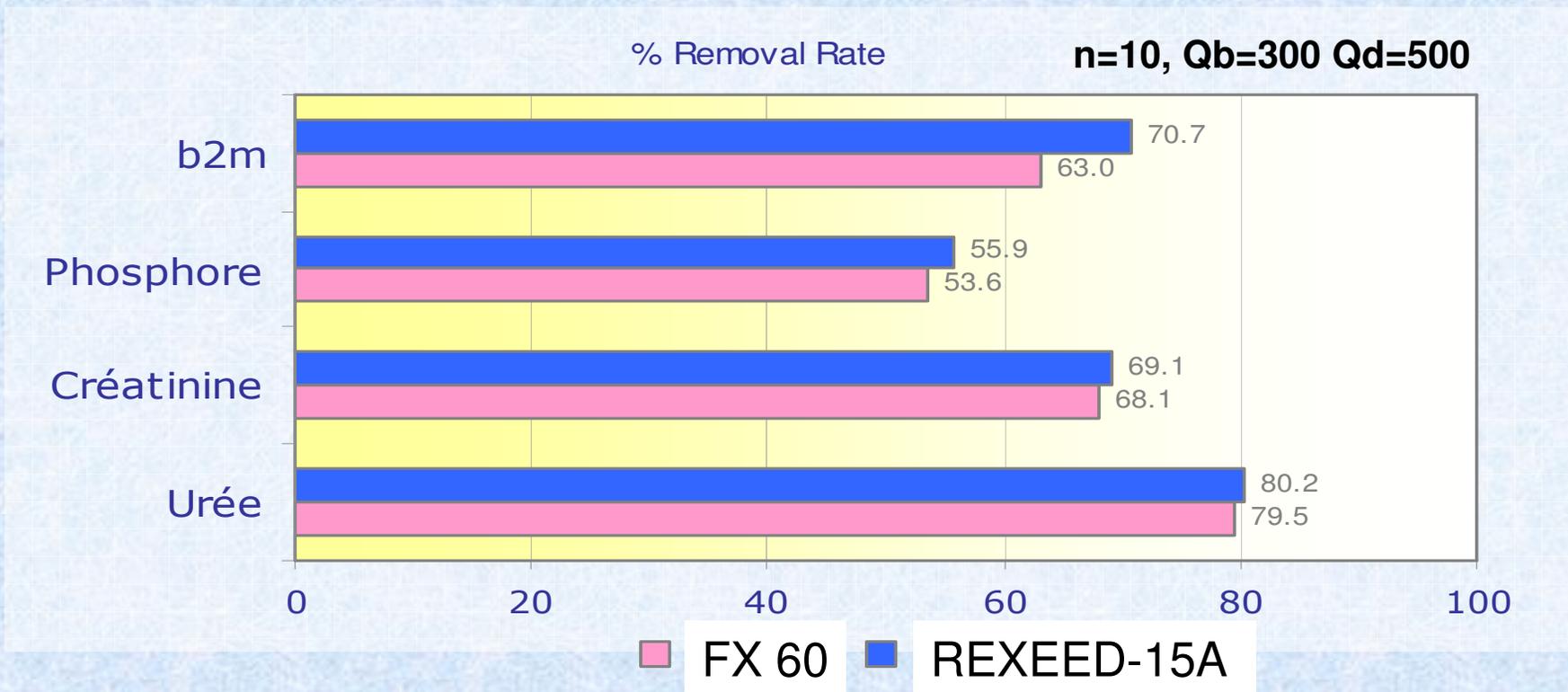


Kidney Center, Shirasagi Hospital

The 20th Congress for High Performance Membrane, '05

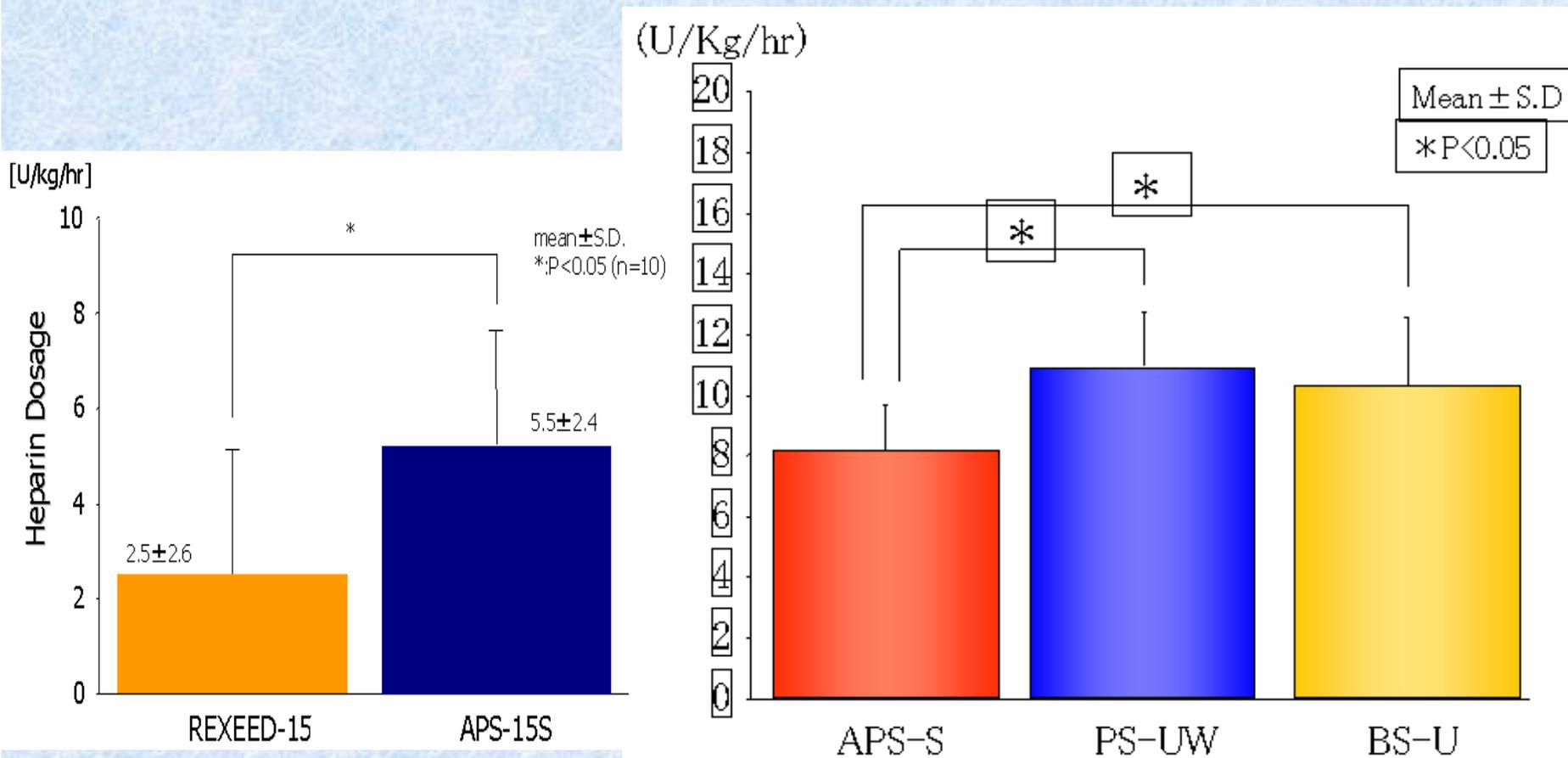


# France - Cabestany





# Minimum Heparin Requirement (Average)



# Complications and possible Causes to Dialyzers



## Solute Permeability

**Dialysis-related Amyloidosis**  
**Numbness Fatigue Hypotension**  
**Swelling Pain Hypertension**  
**Gout Anemia Arrhythmia**  
**Headache Itch Coughing**

## Biocompatibility

**REXEED** will Help the Pts by  
well Balanced SMW Permeability and Biocompatibility