



Zettachring 6, 70567 Stuttgart, Germany
Tel.: +49 (0)711 13257-0 Fax: +49 (0)711 13257-89
info.sep.eu@tosohbioscience.com, www.tosohbioscience.com

TOYOPEARL® Butyl-600M

The newly developed Toyopearl Butyl-600M is a resin for Hydrophobic Interaction Chromatography

especially designed for:

- monoclonal antibodies (mAb's)
- hydrophobic proteins
- high recovery

TOYOPEARL is a methacrylic polymer incorporating high mechanical stability. Resins are available as non-functionalized resins for SEC or derivatised with surface chemistries for alternative modes of chromatography such as IEC, HIC and AFC.

Product highlights

- Optimized pore size for monoclonal antibody separations
- High dynamic binding capacity with a typically greater mass recovery of more than 90% for mAb's
- Retention of high biological activity
- Excellent selectivity between monoclonals and proteins

The HIC portfolio

The Tosoh Bioscience HIC resin portfolio has been enhanced by the Toyopearl PPG-600M and Butyl-600M intermediate hydrophobic resins, which complement the whole HIC resin range of products (see Figure 1). Both resins incorporate a pore size which is especially designed for the mAb purification process.

Butyl-600M exhibits extended capacity and better hydrophobic selectivity compared to the already well-known HIC resins from Tosoh Bioscience.

The new Butyl-600M and the PPG-600M resins both provide prominent alternatives to Affinity Chromatography for antibody purification.

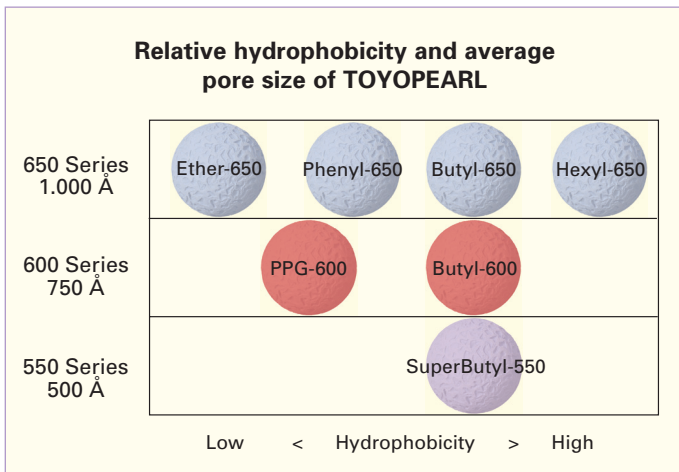


Figure 1 Product portfolio of TOYOPEARL HIC resins

Applications for Toyopearl Butyl-600M:

Butyl-600M exhibits excellent separation of IgG and alpha-fetoprotein (AFP), contained in fetal calf serum culture medium. As can be seen in Figure 2, the separation shows one peak for Phenyl-650M, using Butyl-600M selectivity is enhanced and the two substances elute separately.

The high dynamic binding capacity of Butyl-600M is shown in Figure 3. In comparison to Phenyl-650M and PPG-600M, Butyl-600M has the highest dynamic binding capacity of Anti Lutening Hormone (Mouse LH).

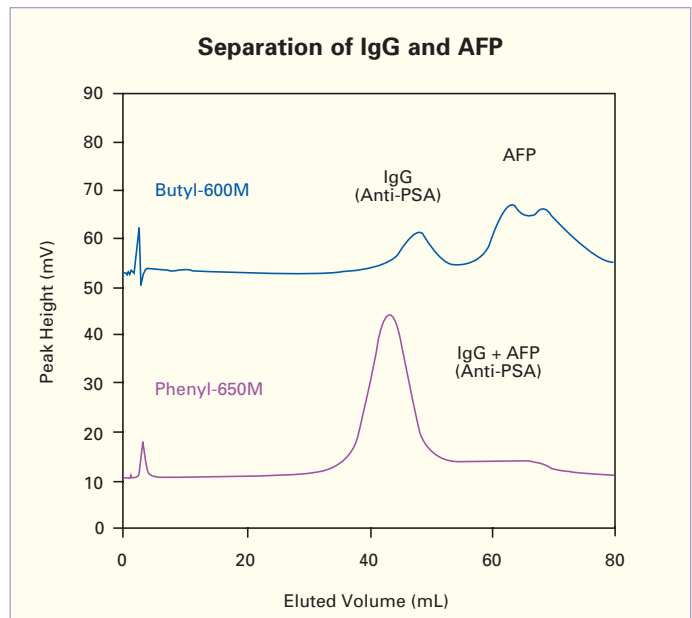


Figure 2

Column size : 7.5 mm ID x 7.5 cm L
 Eluent : (A) phosphate buffer + 1.0 mol/L ammonium sulfate (pH 7.4)
 (B) phosphate buffer (pH 7.4)
 Flow Rate : 1 mL/min
 Gradient : (B) 0% (5 min) - 100% (65 min) linear
 Sample : IgG Anti-PSA (prostate specific antigene) + AFP (alpha- fetoprotein) in 1.0 mol/L ammonium sulfate
 Injection Vol. : 200 µL
 Detection: UV @ 280 nm

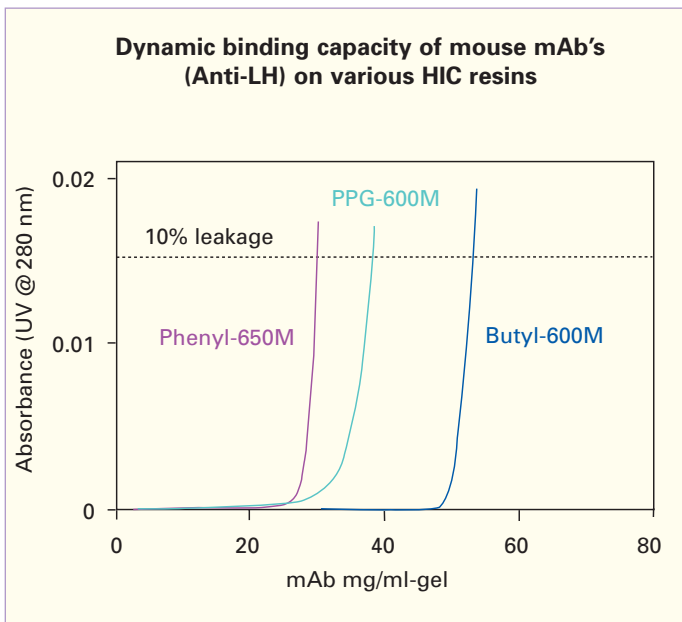


Figure 3

Column size : 7.8 mm ID x 20 cm L
 Feed : Mouse monoclonal antibody (Anti-LH)
 1 mg/mL in 0.1 mol/L phosphate buffer
 + 0.8 mol/L ammonium sulfate (pH 7.0)
 Linear velocity : 300 cm/h
 Temperature : 25 °C
 Detection: UV @ 280 nm

Table 1: Dynamic binding capacity

Product	Binding capacity, 10% leakage (mg/mL-gel)	Recovered capacity (mg/mL-gel)	Recovery (%)
Butyl-600M	54	49	91
PPG-600M	38	39	100
Phenyl-650M	30	29	95

The different hydrophobicities in comparison to Butyl-600M and PPG-600M are compared in Figure 4. The peaks of the separation of IgG and Albumin in cell culture supernatant show an inverse retention.

This inverse retention offers the choice to optimize your purification strategy.

Summary

The new Butyl-600M provides you with:

- High binding capacity for mAb's
- Efficient recovery
- Removing impurities

For further details
 of choice and selection of
 the TOYOPEARL[®] resin
 that best
 suits your particular
 process purification needs,
 please contact us:

Tel. + 49 (0) 711 13257 0

or

info.sep.eu@tosoh.com

or

www.toyopearl.com

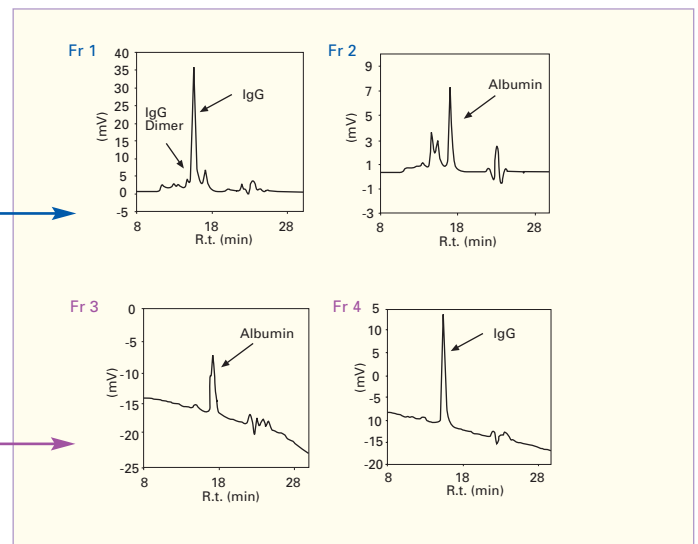
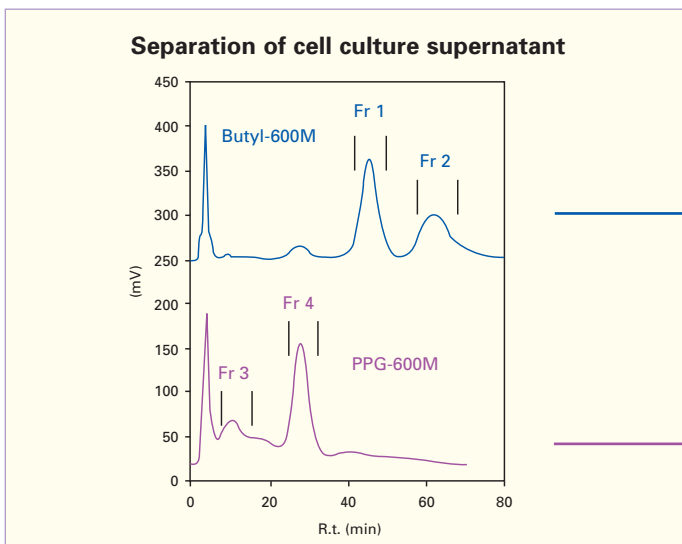


Figure 4

Separation on HIC resins

Column size: 7.5 mm ID x 7.5 cm L
 Eluent : (A) 0.1 mol/L phosphate buffer + 1.0 mol/L ammonium sulfate (pH 7.0)
 (B) 0.1 mol/L phosphate buffer (pH 7.0)
 Flow rate : 1 mL/min
 Gradient : 0% B - 100% B in 60 min linear
 Sample : Cell culture supernatant
 (x 2 diluted with 1.8 mol/L ammonium sulfate)
 Injection Vol. : 100 µL
 Detection: UV @ 280 nm

SEC assay of collected fractions

Column : TSKgel BioAssist G3SWXL, 7.8 mm ID x 30 cm L
 Eluent : 0.3 mol/L NaCl in 50 mmol/L phosphate buffer (pH 7.0)
 Flow rate : 1.0 mL/min