

TOYOPEARL® PPG-600M

Toyopearl Polypropylenglycol-600

#426

The newly developed Toyopearl PPG 600 is a resin for Hydrophobic Interaction Chromatography especially of

- monoclonal antibodies (Mab's)
- hydrophobic proteins
- pegylated (polyethyleneglycol modified) targets

Toyopearl PPG-600M is functionalized with a novel polyether phase.

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

- Pore size optimized for monoclonal antibody separations
- High dynamic binding capacity with a typically greater mass recovery than 95%
- Retention of high biological activity
- Excellent selectivity between albumin and monoclonals

Applications for Toyopearl PPG-600:

Toyopearl PPG-600 with a pore size of 750 Å is optimized for monoclonal antibody separations and is ideal to be used as intermediate stage of antibody manufacturing.

For monoclonal antibody purification, the main prerequisite is a high dynamic binding capacity. The new Toyopearl PPG-600 shows a higher dynamic binding capacity compared to Toyopearl Phenyl-650M for IgG (see Figure 1).

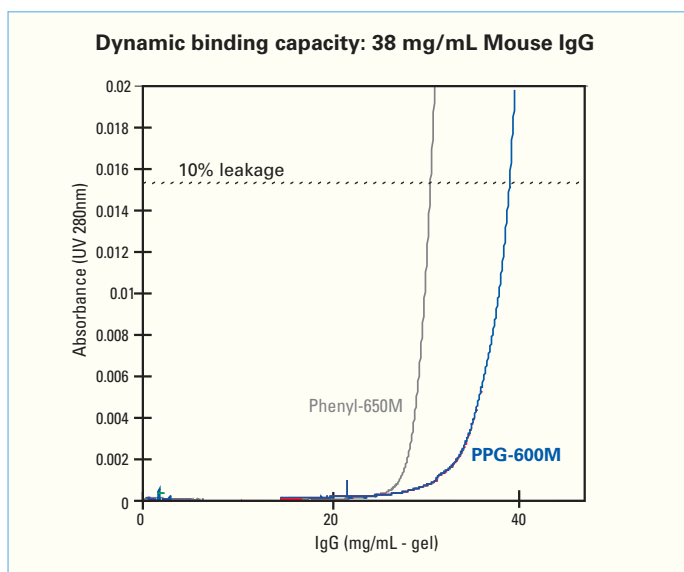


Figure 1: Dynamic Binding Capacity of IgG

Column Size : 7.8 mm ID X 20 cm L
 Linear Velocity : 300 cm/h
 Feed : MAb IgG (Anti-LH) 1 mg/mL
 in 0.1 M Phosphate Buffer + 0.8 M Ammonium Sulfate (pH 7.0)

However, not only the high binding capacity is significant also the efficient recovery for IgG and the excellent selectivity in removing impurities from antibodies of ascites samples. Figure 2 shows the complete separation of albumin and IgG from mouse ascites.

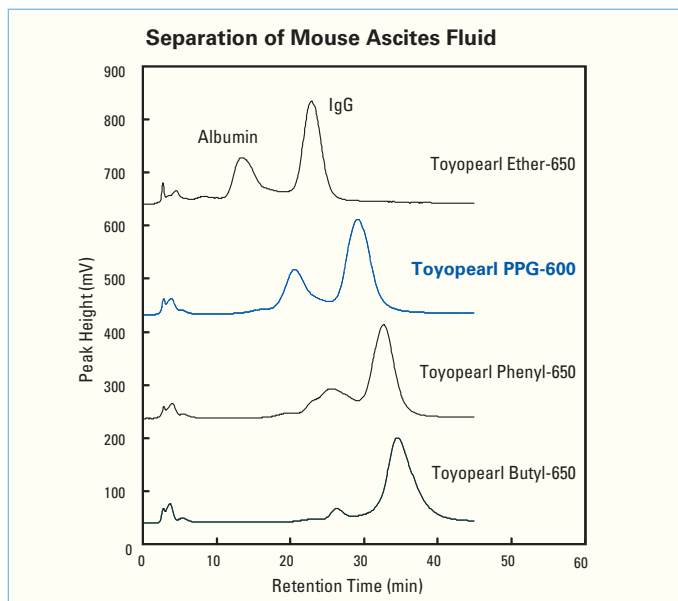


Figure 2: Separation Conditions of Toyopearl HIC Media

Column Size: 7.5 mm ID x 7.5 cm L
 Eluent: (A) 0.1 M phosphate buffer containing 1.8 M ammonium sulfate (pH 7.0)
 (B) 0.1 M phosphate buffer (pH 7.0)
 Gradient: 0% B - 100% B in 30 min.
 Flow Rate: 1 mL/min
 Injection Vol.: 100 µL

Product	Dynamic Binding Capacity (mg/ml-Gel, 10% Leakage)	Eluted amount (mg/ml-Gel)	Recovery (%)
PPG-600M	38	39	100
Phenyl-650M	30	29	95



The polyether ligand results in higher hydrophobicity of the resin than Toyopearl Ether-650 and less hydrophobicity than Toyopearl Phenyl-650 (see Figure 3).

In addition to the monoclonal applications, the Toyopearl PPG-600 polyether ligand also excels with hydrophobic proteins. Certain pegylated molecules also may take advantage of its unique selectivity.

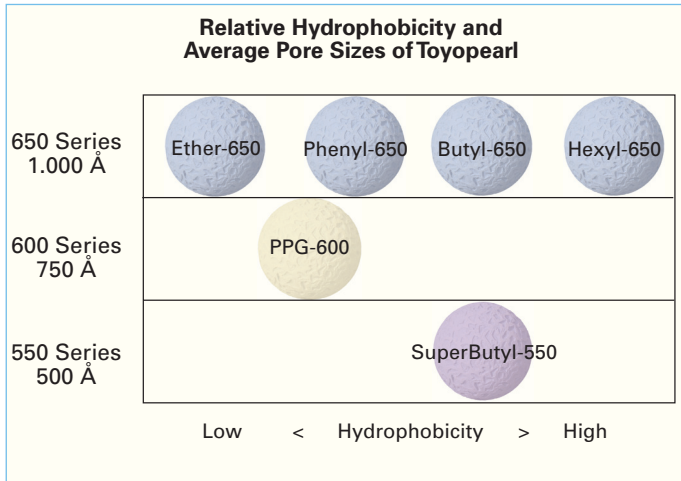


Figure 3: Product Portfolio of Toyopearl HIC Resins

With the new Toyopearl PPG-600 resin Tosoh Bioscience now offers a comprehensive product portfolio regarding different grades of hydrophobicity.

As demonstrated in figure 4, Toyopearl PPG-600 shows a narrow elution peak of IgG, so the sample is more pure and concentrated.

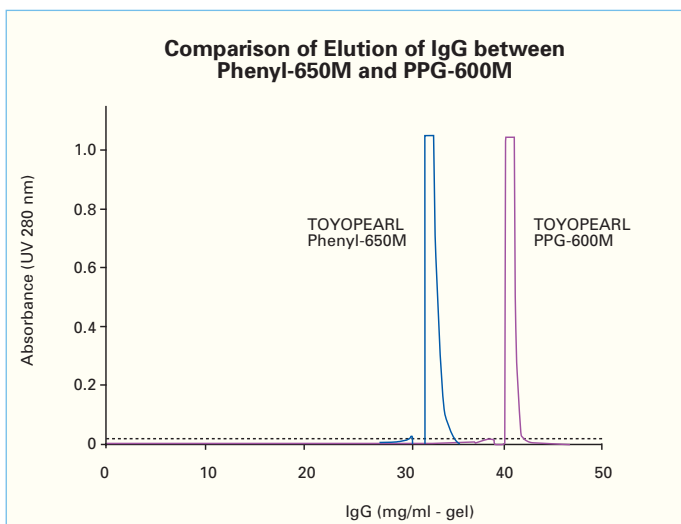


Figure 4: Elution of IgG on Toyopearl Phenyl-650M vs. Toyopearl PPG-600M

Column Size: 7.8 mm ID x 20 cm L
 Flow Rate: 2.39 ml/min (linear velocity: 300 cm/h)
 Feed: MAb IgG (Anti-LH) 1 mg/ml in 0.1 M phosphate buffer containing 0.8 M ammonium sulfate (pH 7.0)
 Wash: 0.1 M phosphate buffer containing 1.1 M ammonium sulfate (pH 7.0)
 Elute: 0.1 M phosphate buffer (pH 7.0)
 Feed until 10% Leak => Wash 6 min => Elute

Characteristics:

Excl. limit MW:	approx. 8×10^5 Dalton
Ligand:	Polypropylene PPG
Particle size:	M grade (45-90 μ m) for intermediate process
Hydrophobicity:	Ether > PPG > Phenyl
Dynamic Binding capacity (MAb: Anti LH):	38mg/mL-gel

Summary:

Now PPG-600 enhances the range of the HIC-products from Tosoh Bioscience. By offering six different ligands and pore size combinations a large range of selectivities is given for customer evaluation.

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

For immediate start or screening, please request our new ToyoScreen kit for PPG-600 (6 x 1ml or 6 x 5ml) or the complete ToyoScreen HIC kit (materials included as in Figure 3, available in 6 x 1ml and 6 x 5ml).

For further details
of choice and selection of
the Toyoparl® resin
that best
suits your particular
process purification needs,
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