

TOYOPEARL® Phenyl-600M

The newly developed Toyopearl Phenyl-600M is a resin for Hydrophobic Interaction Chromatography especially designed for:

- ❖ high dynamic binding capacity
- ❖ high protein load
- ❖ high antibody 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.

Toyopearl Phenyl-600M Highlights:

- ❖ HIC resin with high density of phenyl ligands
- ❖ High dynamic binding capacities (DBC) for both large and small proteins
- ❖ Optimized pore size of 750 Å for antibody separation
- ❖ Antibody recoveries greater than 90%
- ❖ Polymethacrylate based resin with excellent flow characteristics

Hydrophobic Interaction Chromatography (HIC) is a widely-used technique for the separation and purification of proteins and peptides. The mild conditions used in HIC typically maintain protein structure and biologic activity.

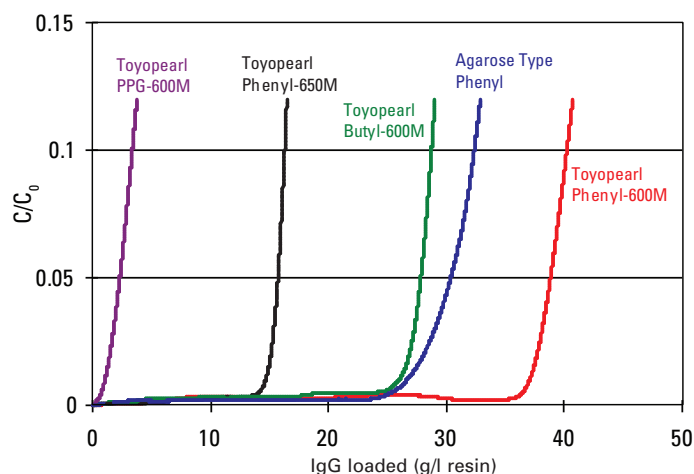
Tosoh Bioscience offers a broad range of HIC resins with different ligands and pore sizes to increase the probability of matching a resin best to the given target.

Dynamic binding capacities (DBC) at 300 cm/h

	Polyclonal IgG		Lysozyme
	DBC (g/L)	Recovery %	DBC (g/L)
Toyopearl Phenyl-600M	40	91	58
Agarose Type Phenyl	32	87	52
Toyopearl Butyl-600M	29	87	ND
Toyopearl Phenyl-650M	16	95	27
Toyopearl PPG-600M	3	ND	43

Table 1

Breakthrough curves of a polyclonal IgG on various HIC resins



Column: 7.8 mm ID x 20 cm L
 Sample: polyclonal human IgG
 Binding buffer: 1 g/l IgG in 0.1 M (NH₄)₂SO₄ - 0.1 mol/l sodium phosphate (pH 7.0)
 Linear velocity: 300 cm/h
 Temperature: 25 °C

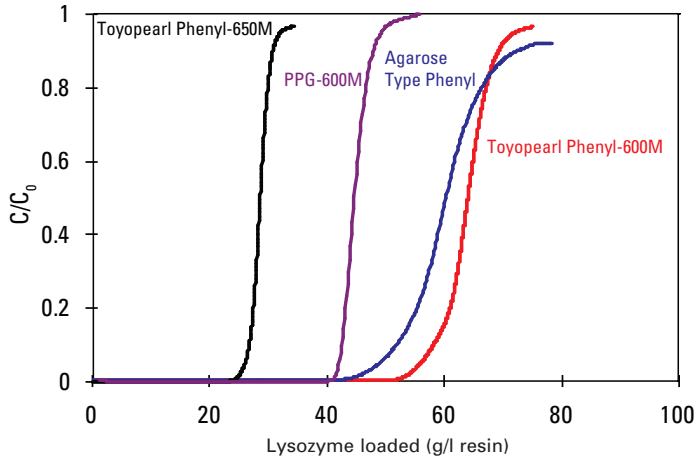
Figure 1

Toyopearl Phenyl-600M is the third product in our Toyopearl "600M" series of resins optimized for mAbs.

It complements Toyopearl PPG-600M and Butyl-600M. The order of hydrophobicities for the three ligands from lowest to highest is:

PPG < Phenyl < Butyl

Breakthrough curves of lysozyme on various resins



7.8 mm ID x 20 cm L
 Sample: lysozyme (from Sigma)
 Binding buffer: 1 g/l lysozyme in 1.8 mol/L $(\text{NH}_4)_2\text{SO}_4$ + 0.1 mol/l sodium phosphate (pH 7.0)
 Binding buffer: 1 g/L lysozyme in 1.8 mol/L $(\text{NH}_4)_2\text{SO}_4$ + 0.1 mol/L sodium phosphate (pH 7.0)
 Linear velocity: 300 cm/h
 Temperature: 25 °C

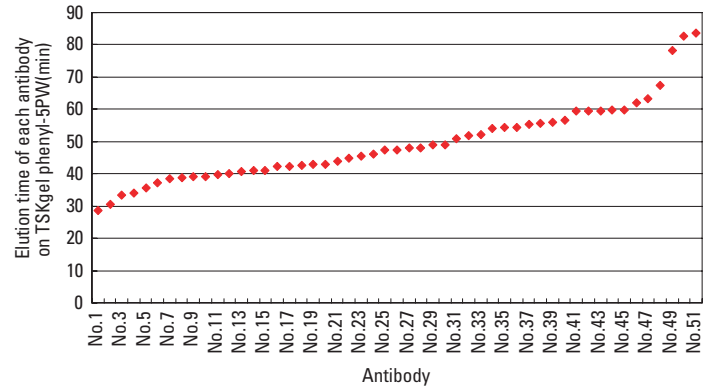
Figure 2

Toyopearl Phenyl-600M offers high dynamic binding capacities (DBC) for both small and large proteins (Table 1, Figure 2). In addition to the DBC of typically 40 g/liter resin (Figure 1), recoveries for IgG are also high, mostly greater than 90%.

Antibodies can vary greatly in their hydrophobicities (Figure 3). Having a diverse selection of ligands available can be very beneficial for the development process. For very hydrophobic antibodies less hydrophobic HIC resins like PPG-600M might be favourable. Therefore it is recommended that all three resins be screened when developing a mAb purification.

In order to simplify the resin screening, Tosoh Bioscience offers sets of prepacked ToyoScreen® columns.

Hydrophobic diversity of mouse monoclonals



Column: TSK-GEL Phenyl-5PW
 Column: TSKgel Phenyl-5PW
 Eluent: (A) 0.1 mol/l phosphate buffer containing 1.8 mol/l ammonium sulfate (pH 7.0)
 (B) 0.1 mol/l phosphate buffer (pH 7.0)
 Flow Rate: 1 ml/min
 Gradient: (B) 0% (0min)--0% (5min)--100% (65min) linear
 Detector: UV @ 280nm
 Samples: 51 kinds of mouse monoclonal antibodies
 Samples: 51 kinds of mouse monoclonal antibodies

Figure 3

For further details of choice and selection of
the TOYOPEARL® resin
that best suits your particular process puri-
fication needs, please contact us:

Tel. + 49 (0) 711 13257 0

or

info.tbg@tosoh.com

or

www.toyopearl.com

Ordering information

Toyopearl Phenyl-600M

Particle size: 40 - 90 µm
Pore size: 750 Å

Part-No	Description	Resin Volume
21887	Toyopearl Phenyl-600M	25 ml
21888	Toyopearl Phenyl-600M	100 ml
21889	Toyopearl Phenyl-600M	1 l
21890	Toyopearl Phenyl-600M	5 l
21891	Toyopearl Phenyl-600M	50 l
21892	ToyoScreen Phenyl-600M	1 ml x 6 ea.
21893	ToyoScreen Phenyl-600M	5 ml x 6 ea.

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