

## Introduction

ToyoScreen RoboColumns are miniaturized chromatographic columns pre-packed with TOYOPEARL ion exchange, mixed-mode, hydrophobic interaction or affinity media. Available in different volumes, they are designed to operate with a robotic liquid handling system, such as the Freedom EVO® from TECAN. This approach allows automated high-throughput, small-scale biochromatographic separations of protein samples by running up to eight individual columns simultaneously. Liquid flow in the columns is driven by positive pressure liquid displacement, rather than by air pressure, thus mimicking the situation in columns individually connected to a conventional standalone chromatography system. ToyoScreen RoboColumns are packed with TOYOPEARL to our specifications by Atoll GmbH and are supplied in strips of 8 columns.

## Product Highlights

- Miniaturized column format
- High throughput parallel chromatography
- Automated screening of resins and parameters
- Better understanding of the design space

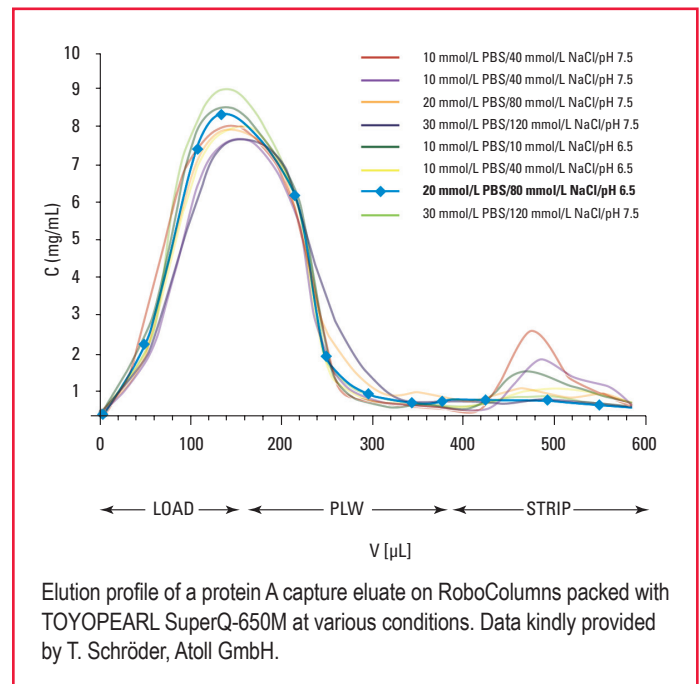
## Applications:

ToyoScreen RoboColumns can be used in a wide range of applications, including individual and parallel resin screening, optimization of separation conditions, scale-down experiments, as well as high throughput sample preparation. Binding and elution conditions, washing parameters, and others can be investigated to explore the design space of the particular molecule's purification process.

Design of Experiments (DoE), a statistical approach used to define those factors having the greatest impact on the process, is a suitable tool to minimize the number of experiments needed.

Figure 1 shows a screening experiment to optimize the chromatographic parameters for the intermediate flowthrough anion exchange step in a purification platform for monoclonals. Protein binding of a Protein A capture eluate on RoboColumns packed with TOYOPEARL SuperQ-650M was analyzed by varying salt concentration and pH of loading and washing buffer. Best results were achieved using 20 mmol/L sodium phosphate, 80 mmol/L sodium chloride, pH 6.5.

**Figure 1.** Optimization of anion exchange conditions.



## SEPARATION

ToyoScreen RoboColumns are ideal for small scale purifications/separations with a step-gradient or under isocratic conditions. For example, a mAb purification using Protein A affinity for in-process monitoring of fermentation or sample preparation prior to subsequent analysis by MS, ELISA or CGE/SDS-Page.

## Formats:

ToyoScreen RoboColumns are available in two formats with 200 µL (bed height of 10 mm) and 600 µL (bed height of 30 mm) resin volume, respectively. They are supplied in a row of eight units pre-packed with the same TOYOPEARL resin and sealed with two removable silicon cover seals for proper storage.

They can be individually arranged on a 96 position array plate. All chromatographic media used in the ToyoScreen RoboColumns are also available in larger pre-packed ToyoScreen columns of 1 mL or 5 mL volume and as bulk resins for use at all scales.

## Ordering Information

Part#	Description	Volume (μL)	Particle Size (μL)	Pore Size (Å)	Price
45001	<b>TOYOPEARL GigaCap S-650M</b>	200 × 8	75	1,000	\$170
45002	<b>TOYOPEARL GigaCap S-650M</b>	600 × 8	75	1,000	\$200
45003	<b>TOYOPEARL GigaCap Q-650M</b>	200 × 8	75	1,000	\$170
45004	<b>TOYOPEARL GigaCap Q-650M</b>	600 × 8	75	1,000	\$200
45005	<b>TOYOPEARL GigaCap CM-650M</b>	200 × 8	75	1,000	\$170
45006	<b>TOYOPEARL GigaCap CM-650M</b>	600 × 8	75	1,000	\$200
45011	<b>TOYOPEARL Q-600C AR</b>	200 × 8	65	750	\$170
45012	<b>TOYOPEARL Q-600C AR</b>	600 × 8	65	750	\$200
45031	<b>TOYOPEARL Phenyl-600M</b>	200 × 8	65	750	\$185
45032	<b>TOYOPEARL Phenyl-600M</b>	600 × 8	65	750	\$240
45033	<b>TOYOPEARL Butyl-600M</b>	200 × 8	65	750	\$185
45034	<b>TOYOPEARL Butyl-600M</b>	600 × 8	65	750	\$240
45035	<b>TOYOPEARL PPG-600M</b>	200 × 8	65	750	\$185
45036	<b>TOYOPEARL PPG-600M</b>	600 × 8	65	750	\$240
45037	<b>TOYOPEARL Phenyl-650M</b>	200 × 8	65	1,000	\$185
45038	<b>TOYOPEARL Phenyl-650M</b>	600 × 8	65	1,000	\$240
45051	<b>TOYOPEARL MX-Trp-650M</b>	200 × 8	75	1,000	\$185
45052	<b>TOYOPEARL MX-Trp-650M</b>	600 × 8	75	1,000	\$240
45061	<b>TOYOPEARL AF-rProtein A-650F</b>	200 × 8	45	1,000	\$250
45062	<b>TOYOPEARL AF-rProtein A-650F</b>	600 × 8	45	1,000	\$870
45099	<b>Array Plate</b>				\$90

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 Freedom EVO® is a trademark of Tecan.



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