TOSOH
Scantec Nordic
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ToyoScreen® RoboColumns®

ToyoScreen RoboColumns are miniaturized chromatographic columns pre-packed with TOYOPEARL ion exchange, mixed-mode, hydrophobic interaction or affinity media. These columns are available in different volumes and can be operated 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 stand-alone chromatography system. ToyoScreen RoboColumns are packed with TOYOPEARL media by Atoll GmbH, they are identical to the RoboColumns supplied by Atoll GmbH. A 96-well array plate is available to arrange the up to 96 RoboColumn units.

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 parallel resin screening, screening and optimization of separation conditions, scale-down experiments as well as high throughput sample preparation.

SCREENING

Parallel screening of chromatographic media as well as screening of conditions for binding, washing, and elution e.g. buffer pH, ionic strength, type of salt. When screening chromatographic conditions in order to optimize the separation and explore the design space the experimental set-up should simultaneously test many different conditions. 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.

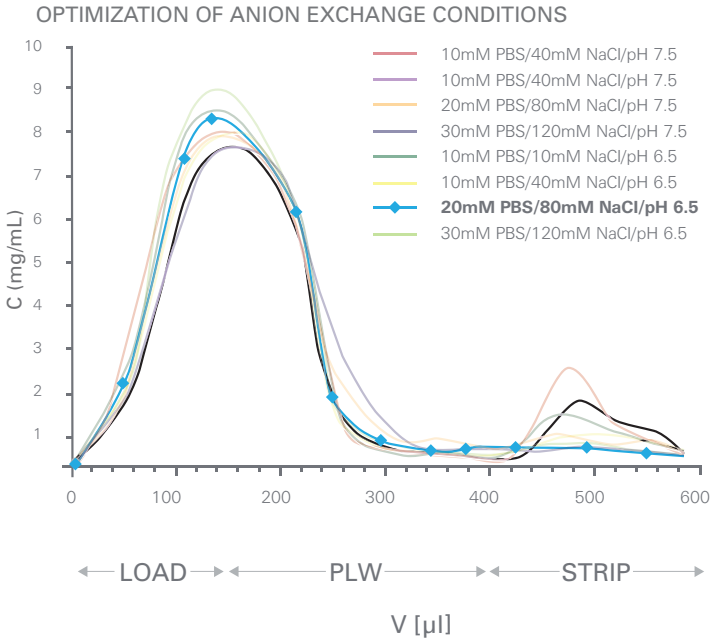

Figure 1

Elution profile of a protein A capture eluate on RoboColumns packed with Toyopearl SuperQ-650M at various conditions. Data kindly provided by T. Schröder, Atoll GmbH.

Figure 1 shows a screening experiment to optimize the chromatographic parameters for the intermediate flow-through 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.

SEPARATION

ToyoScreen RoboColumns can be applied to perform small scale purifications/separations either isocratic or by applying a step gradient. Examples are small scale 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

ToyoScreen® RoboColumn®

Part-no	Description	Volume (µL)	Particle size (µm)	Pore size (nm)
0045001	GigaCap S-650M	200 x 8	75	100
0045002	GigaCap S-650M	600 x 8	75	100
0045003	GigaCap Q-650M	200 x 8	75	100
0045004	GigaCap Q-650M	600 x 8	75	100
0045005	GigaCap CM-650M	200 x 8	75	100
0045006	GigaCap CM-650M	600 x 8	75	100
0045007	GigaCap DEAE-650M	200 x 8	75	100
0045008	GigaCap DEAE-650M	600 x 8	75	100
0045011	Q-600C AR	200 x 8	65	75
0045012	Q-600C AR	600 x 8	65	75
0045021	NH2-750F	200 x 8	45	100
0045022	NH2-750F	600 x 8	45	100
0045023	GigaCap S-650S	200 x 8	35	100
0045024	GigaCap S-650S	600 x 8	35	100
0045025	GigaCap Q-650S	200 x 8	75	100
0045026	GigaCap Q-650S	600 x 8	75	100
0045031	Phenyl-600M	200 x 8	65	75
0045032	Phenyl-600M	600 x 8	65	75
0045033	Butyl-600M	200 x 8	65	75
0045034	Butyl-600M	600 x 8	65	75
0045035	PPG-600M	200 x 8	65	75
0045036	PPG-600M	600 x 8	65	75
0045037	Phenyl-650M	200 x 8	65	100
0045038	Phenyl-650M	600 x 8	65	100
0045051	MX-Trp-650M	200 x 8	75	100
0045052	MX-Trp-650M	600 x 8	75	100
0045061	AF-rProtein A-650F	200 x 8	45	100
0045062	AF-rProtein A-650F	600 x 8	45	100
0045063	AF-rProtein A HC-650F	200 x 8	45	100
0045064	AF-rProtein A HC-650F	600 x 8	45	100
0045071	HW-40F	200 x 8	45	5
0045072	HW-40F	600 x 8	45	5
0045099	Array Plate			

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