

PreDictor™ 96-well filter plates and Assist software

PreDictor 96-well filter plates (Fig 1) are prefilled with GE Healthcare Life Sciences BioProcess™ chromatography media (resins). PreDictor plates support high-throughput process development (HTPD) by allowing parallel screening of chromatographic conditions, either in a manual or in an automated workflow. Assist software supports the PreDictor workflow from set up of experimental design to data evaluation. Data generated using PreDictor plates show good correlation with data from chromatography columns, making the plates an excellent tool for initial screening of process conditions.

Using PreDictor plates and Assist software shortens time-to-clinic and increases productivity in the process development laboratory by:

- Reduced experimental time: the time-scale for performing screening experiments can be reduced from weeks to hours
- Low sample consumption: the format significantly reduces sample consumption
- Increased process understanding: exploring an enlarged experimental space allows for a significant increase in process understanding

High-throughput process development for increased process understanding

Development of robust purification processes requires significant time and resources. The quality by design initiative by the FDA might put additional demands on process development work because a higher degree of process understanding is needed. This understanding can be obtained if a larger experimental space is investigated and/or more detailed studies are performed. Employing high-throughput techniques for process development aids in addressing these challenges.



Fig 1. PreDictor 96-well filter plates.

HTPD is a way of working that shortens development time and increases the amount of information available during early process development, while keeping sample consumption low. Chromatographic conditions are evaluated in a parallel manner using 96-well filter plates. As a result, a large number of experimental conditions can be evaluated simultaneously. This allows screening of a large experimental space to identify the sub-space that is favorable with respect to one or several defined responses. Once this sub-space has been found, optimization and scale-up can be done on columns and ÄKTA™ systems. The complete conceptual workflow is shown in Figure 2.



Fig 2. Conceptual visualization of a workflow for process development. Parallel screening using PreDictor plates or PreDictor RoboColumn units makes it possible to explore a large experimental space for best conditions (left). Once these have been identified, fine-tuning and verification are carried out on columns and ÄKTA systems (middle). Finally, scale-up is done under conditions in which a robust production scale process can be operated (right).



HTPD workflow

The HTPD workflow consists of the following steps:

1. Plan: systematic approach for experimental setup
2. Perform: testing of various experimental conditions in a parallel manner
3. Analyze: high-throughput analysis
4. Evaluate: data analysis and evaluation

Plan: systematic approach for experimental setup

An experimental setup should take advantage of the possibility to test many different conditions (factors) simultaneously. Preferentially this is done by using design of experiments (DoE), which employs statistics to identify and define the factors having the greatest impact on the process/product. This involves construction of a carefully selected set of experiments in which all relevant factors are varied and evaluated simultaneously to maximize the information gained. However, other experimental setups can be used as well. Before start, the experimental objectives should be defined. These can include:

Screening

- Which factors are most important (i.e., have significant effect on the response)?
- What factor range should be explored?

Optimization

- What is the optimal combination of settings for the important factors?
- If there is more than one response, is it possible to find common factor settings that satisfy all responses, or is a compromise needed?

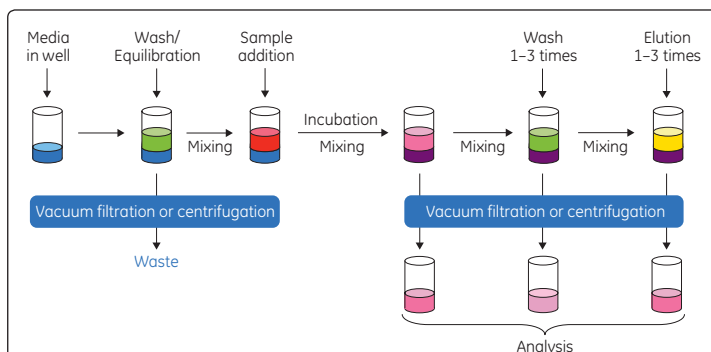
Robustness testing

- Is the process robust (i.e., unaffected by typical process variations)?
- How much will the product specifications vary due to process variations?

It is important to define the factors and responses to be studied. The selection of analytical techniques for the responses will affect the amount of sample needed for each experiment. We recommend replicates to allow for outlier analysis. The number of factors and the number of replicates will influence the plate setup. Assist software suggests plate layouts for different experimental designs.

Perform: testing of various experimental conditions in a parallel manner

The 96-well approach allows for high-throughput screening of a large number of experimental conditions. PreDicator plates are prefilled with different BioProcess chromatography media. Experiments are performed in batch mode, which eliminates errors induced by nonoptimal formats or packing procedures. The principle is shown schematically in Figure 3. Removal of liquid through the bottom filter is done by either centrifugation or vacuum filtration.



The theoretical basis for batch uptake – In a typical adsorption process, a mass transfer mechanism (responsible for protein transport) and ligand selectivity are independent of the mode of operation (i.e., are the same whether they occur in a batch system or packed column). If a column is approximated by a cascade of hypothetical stages (theoretical plates) where a separation occurs, a single well in the filter plate can be seen as a single stage in a cascade.

In a chromatography column, any separation taking place in a single stage is further magnified in the next stage in the series. Therefore, as long as a difference in adsorption capacities/rates for different constituents of a sample can be quantified in a single well, the results obtained using PreDicator plates correlate well with the same separation occurring in a column.

Fig 3. A batch uptake experiment occurring in the wells of PreDicator plates. The steps in PreDicator plate experiments are the same as in a typical chromatography experiment: equilibration, sample loading, wash, and elution.

Analyze: high-throughput analysis

The number of samples to analyze in the HTPD workflow will be numerous. Therefore, high-throughput analytical methods are preferred if available. In some cases, simple A_{280} measurements might be sufficient during the initial screening step.

During the initial screening phase, analyses should be limited to the most critical responses. Based on these results, selected conditions can be chosen for responses that require more advanced analytical methods.

Evaluate: data analysis and evaluation

Data are analyzed and evaluated by using traditional evaluation methods or dedicated software tools. Assist software supports the management and evaluation of data generated with PreDicator plates. Based on the results, further investigation in HTPD mode might be relevant before moving to column verification and fine-tuning.

Applications

Screening of chromatographic conditions

PreDicator plates can be used to screen different parts of the chromatographic cycle, for example determination of binding, wash, and elution conditions. This can be done for different chromatography media simultaneously using dedicated screening plates, or more thoroughly using plates with a single medium. Regardless of which, different applications will require different amounts of chromatography media in the wells (see “PreDicator plate selection” and Table 3).

Determination of absolute amounts in the lower concentration range can be difficult as it cannot be excluded that, under unfavorable conditions, nonspecific adsorption to the plate might occur.

Determination of adsorption isotherms

Adsorption isotherms can also be determined in PreDicator plates. In short, the adsorption isotherm describes the relation between the concentrations of protein(s) in the liquid and solid phases at equilibrium under a given set of experimental conditions. This helps to understand and correctly describe what happens during protein uptake under different conditions. Dedicated PreDicator plates are available to facilitate experimental setups.

Application examples are described in references that are found under the “Related literature” section.

PreDicator product characteristics

96-well filter plates

PreDicator plates are disposable, 96-well filter plates made of polypropylene (PP) and polyethylene (PE). Each well has a total volume of 800 µL, and each plate is prefilled with a defined amount of chromatography medium per well. Table 1 summarizes the characteristics of PreDicator filter plates. For each chromatography medium, different plates with different volumes of media are available to fit various applications (Tables 2 and 3). The plates are sealed at the top and bottom at delivery. Plates are supplied in packs of four, which is sufficient to perform 128 tests in a study measured as triplicates. For larger studies, it is preferable to use PreDicator plates from the same lot.

Prefilled chromatography media

Table 2 lists chromatography media that are available in PreDicator plates. For details on the different media, see corresponding data files listed under “Related literature”. Recommendations on which plate to use are given in Table 3.

Table 1. PreDicator plate characteristics

Plate size	127.8 × 30.6 × 85.5 mm (according to ANSI/SBS 1–2004, 3–2004 and 4–2004 standards)
Material	Polypropylene and Polyethylene
Number of wells	96
Well volume	800 µL
Working volume/well when incubating on a microplate shaker	100 to 300 µL ¹
Volume sedimented medium/well	2, 6, 20, or 50 µL. For PreDicator isotherm plates different in different wells: 2, 4, 6, 8, 20 and 50 µL
Medium suspensions in total volumes	200 µL for 2 µL sedimented medium/well 500 µL for 6, 20, and 50 µL sedimented medium/well For PreDicator isotherm plates: – 500 µL for 50 µL sedimented medium/well – 200 µL for 20 µL sedimented medium/well – 500 µL for 8 µL sedimented medium/well – 375 µL for 6 µL sedimented medium/well – 250 µL for 4 µL sedimented medium/well – 125 µL for 2 µL sedimented medium/well
Storage solution	PreDicator Capto™ S, Capto S ImpAct, Capto SP ImpRes, Capto MMC ImpRes, SP Sepharose™ Fast Flow, CIEEX ² screening, Capto CIEEX polishing screening, Capto SP ImpRes isotherm, Capto S isotherm, and SP Sepharose Fast Flow isotherm: 20% ethanol + 0.2 M sodium acetate All other PreDicator plates: 20% ethanol
Recommended storage temperature	PreDicator MabSelect™, MabSelect SuRe™, MabSelect SuRe LX, MabSelect Xtra™, and Capto L: 2°C to 8°C All other PreDicator plates: 4°C to 30°C
Working temperature	4°C to 30°C (all plates)
Centrifugation recommended	300 to 500 × g (sample dependent)
Centrifugation maximum	700 × g
Vacuum pressure recommended	-0.15 to -0.3 bar (sample dependent)
Vacuum pressure maximum	-0.5 bar
Microplate shaker mixing speed	1100 rpm with 3 mm circular centripetal movement or sufficient mixing to maintain slurried chromatography medium in wells
Bar coded	Placed on one of the short ends of the filter plate and containing: Article number, Lot number, and Individual identification number

¹ The lower volume in this interval indicates the working volume needed for effective mixing of sample/liquid on microplate shaker. The upper limit is the limiting volume for avoiding cross contamination between wells during mixing on a microplate shaker without sealing the top of the filter plate.

Note: The volume and the amount of protein needed for analysis are also to be taken into consideration.

² CIEEX = cation exchange

PreDicator plate selection

Different PreDicator plates

For optimal results, different applications and samples will require that the correct type of plate is used. Different PreDicator plates are therefore available to support different types of studies.

The plates can be divided into three main categories:

1. Single medium plates

- For binding, wash, or elution studies on a single chromatography medium
- Same volume in all wells on a plate
- For each chromatography medium two to three different single medium plates are available, each with a different medium volume per well. Select plate depending on type of study (see Table 3).

2. Media screening plates

- For binding, wash, or elution studies on multiple chromatography media
- Six types of plates are available:
 - Capto CIEC polishing screening (Capto S ImpAct, Capto SP ImpRes and Capto MMC ImpRes).
 - Capto AIEC polishing screening (Capto Q, Capto Q ImpRes, Capto adhere and Capto adhere ImpRes).
 - Anion and multimodal anion exchange (Capto Q, Capto DEAE, Q Sepharose Fast Flow and Capto adhere).
 - Cation and multimodal cation exchange (Capto S, SP Sepharose Fast Flow and Capto MMC).
 - HIC screening high hydrophobicity (Phenyl Sepharose 6 Fast Flow (low sub), Capto Butyl, Phenyl Sepharose 6 Fast Flow (high sub) and Capto Phenyl (high sub)).
 - HIC screening low hydrophobicity (Butyl-S Sepharose 6 Fast Flow, Octyl Sepharose 4 Fast Flow, Butyl Sepharose 4 Fast Flow and Capto Octyl).
- For each plate type, two different media screening plates are available, each with different media volumes per well. Select plate depending on type of study (see Table 3).

3. Adsorption isotherm plates

- For binding studies performed under equilibrium conditions to obtain fundamental thermodynamic understanding of the adsorption process
- Contains a single medium in all wells but with different volumes in different wells. This design allows simple and rapid construction of isotherms because different phase ratios are obtained without sample manipulations.

Table 2. Available PreDicator plate products

Product	Single medium plate	Chromatography medium volume per well ¹ (μL)
Ion exchange		
PreDicator Capto S ImpAct	Yes	2 or 20
PreDicator Capto Q	Yes	2 ² , 20 or 50
PreDicator Capto S	Yes	2, 20 or 50
PreDicator Capto DEAE	Yes	2, 20 or 50
PreDicator Capto Q ImpRes	Yes	6 or 20
PreDicator Capto SP ImpRes	Yes	6 or 20
PreDicator Q Sepharose Fast Flow	Yes	6, 20 or 50
PreDicator SP Sepharose Fast Flow	Yes	6, 20 or 50
Multimodal		
PreDicator Capto MMC	Yes	6 ² , 20 or 50
PreDicator Capto adhere	Yes	6, 20 or 50
PreDicator Capto MMC ImpRes	Yes	6 or 20
PreDicator Capto adhere ImpRes	Yes	6 or 20
Affinity		
PreDicator MabSelect SuRe LX	Yes	6, 20 or 50
PreDicator MabSelect	Yes	6, 20 or 50
PreDicator MabSelect SuRe	Yes	6, 20 or 50
PreDicator MabSelect Xtra	Yes	6, 20 or 50
PreDicator Capto L	Yes	6, 20 or 50
Hydrophobic interaction		
PreDicator Butyl Sepharose 4 Fast Flow	Yes	6 or 50
PreDicator Butyl-S Sepharose 6 Fast Flow	Yes	6 or 50
PreDicator Capto Butyl	Yes	6 or 50
PreDicator Capto Octyl	Yes	6 or 50
PreDicator Octyl Sepharose 4 Fast Flow	Yes	6 or 50
PreDicator Capto Phenyl (high sub)	Yes	6 or 50
PreDicator Phenyl Sepharose 6 Fast Flow (high sub)	Yes	6 or 50
PreDicator Phenyl Sepharose 6 Fast Flow (low sub)	Yes	6 or 50
Screening plates		
PreDicator HIC screening high hydrophobicity ³	No	6 or 50
PreDicator HIC screening low hydrophobicity ⁴	No	6 or 50
PreDicator AIEC screening ⁵	No	2/6 or 20
PreDicator CIEC screening ⁶	No	2/6 or 20
PreDicator Capto CIEC polishing screening ⁷	No	2/6 or 20
PreDicator Capto AIEC polishing screening ⁸	No	2/6 or 20
Isotherm plates		
PreDicator adsorption isotherm plate	No	Different medium volume in different wells (2, 4, 6, 8, 20 and 50)

¹ Note that the total medium suspension volume per well is larger than the chromatography medium volume. The total medium suspension volume per well is different depending on chromatography medium volume in the well. For total medium suspension volume per well, see Table 1.

² The plates with 2 and 6 μL are developed for the same application. Different volumes are used based on the properties of the media: 2 μL is sufficient for the high-capacity ion exchangers, while for the other media 6 μL is required for optimal results.

³ PreDicator HIC screening high hydrophobicity contains following media: Phenyl Sepharose 6 Fast Flow (low sub), Capto Butyl, Phenyl Sepharose 6 Fast Flow (high sub) and Capto Phenyl (high sub).

⁴ PreDicator HIC screening low hydrophobicity contains following media: Butyl-S Sepharose 6 Fast Flow, Octyl Sepharose 4 Fast Flow, Butyl Sepharose 4 Fast Flow and Capto Octyl.

⁵ PreDicator AIEC screening 2 μL/6 μL contains the following media volumes per well: Capto Q 2 μL, Capto DEAE 2 μL, Q Sepharose Fast Flow 6 μL and Capto adhere 6 μL. PreDicator AIEC screening plate 20 μL contains 20 μL per well of the corresponding media.

⁶ PreDicator CIEC screening 2 μL/6 μL contains the following media volumes per well: Capto S 2 μL, SP Sepharose Fast Flow 6 μL and Capto MMC 6 μL. PreDicator CIEC screening plate 20 μL contains 20 μL per well of the corresponding media.

⁷ PreDicator Capto CIEC polishing screening 2 μL/6 μL contains the following media volumes per well: Capto S ImpAct 2 μL, Capto S ImpRes 6 μL and Capto MMC ImpRes 6 μL. PreDicator Capto CIEC polishing screening plate 20 μL contains 20 μL per well of the corresponding media.

⁸ PreDicator Capto AIEC polishing screening 2 μL/6 μL contains the following media volumes per well: Capto Q 2 μL, Capto Q ImpRes 6 μL, Capto adhere 6 μL and Capto adhere ImpRes 6 μL. PreDicator Capto AIEC polishing screening plate 20 μL contains 20 μL per well of the corresponding media.

Operation

The standardized 96-well plate format gives considerable flexibility regarding mode of operation. PreDicator plates can be used in automated workflows using robotic systems, or operated manually using multichannel pipettes. Removal of liquid can be made by either centrifugation or vacuum. Recommendations on centrifugation speed or vacuum filtration are given in Table 1.

PreDicator plates and the chromatography media are compatible with solutions commonly used in purification of biopharmaceuticals. Repeated loadings and long incubation times using buffers or samples containing certain detergents might induce leakage through the filter. Recommendations to minimize leakage when working with detergents are given in the PreDicator plate Instructions.

Table 3. PreDicator plate selection guide

Single medium plates	Binding conditions (µL/ well)				Wash/elute conditions (µL/well)			
	2	6	20	50	2	6	20 ¹	50 ²
Capto Q	++	NA	-	-	-	NA	++	+
Capto S	++	NA	-	-	-	NA	++	+
Capto S ImpAct	++	NA	-	NA	-	NA	++	NA
Capto Q ImpRes	NA	++	-	NA	NA	-	++	NA
Capto SP ImpRes	NA	++	-	NA	NA	-	++	NA
Capto DEAE	++	NA	-	-	-	NA	++	+
Capto MMC	NA	++	-	-	NA	-	++	+
Capto MMC ImpRes	NA	++	-	NA	NA	-	++	NA
Capto adhere	NA	++	-	-	NA	-	++	+
Capto adhere ImpRes	NA	++	-	NA	NA	-	++	NA
Q Sepharose Fast Flow	NA	++	-	-	NA	-	++	+
SP Sepharose Fast Flow	NA	++	-	-	NA	-	++	+
MabSelect family	NA	++	-	-	NA	-	++	+
Capto L	NA	++	-	-	NA	-	++	+
Butyl-S Sepharose 6 Fast Flow	NA	++	NA	-	NA	-	NA	++
Butyl Sepharose 4 Fast Flow	NA	++	NA	-	NA	-	NA	++
Capto Butyl	NA	++	NA	-	NA	-	NA	++
Octyl Sepharose 4 Fast Flow	NA	++	NA	-	NA	-	NA	++
Capto Octyl	NA	++	NA	-	NA	-	NA	++
Phenyl Sepharose 6 Fast Flow (high sub)	NA	++	NA	-	NA	-	NA	++
Capto Phenyl (high sub)	NA	++	NA	-	NA	-	NA	++
Phenyl Sepharose 6 Fast Flow (low sub)	NA	++	NA	-	NA	-	NA	++
Screening plates	2 or 6		20 or 50		2 or 6		20 or 50	
Capto CIEC polishing screening plate	++		-		-		++	
Capto AIEC polishing screening plate	++		-		-		++	
AIEC screening plate	++		-		-		++	
CIEC screening plate	++		-		-		++	
HIC screening high hydrophobicity	++		-		-		++	
HIC screening low hydrophobicity	++		-		-		++	

++ First choice + Possible - Not recommended NA Product not available

Isotherm plates

Medium volume per well (µL)

Different in different wells: 2, 4, 6, 8, 20, and 50

Media available³

Capto Q, Capto S, Capto SP ImpRes, Capto DEAE, Capto MMC, Capto adhere, Q Sepharose Fast Flow, SP Sepharose Fast Flow, MabSelect, MabSelect SuRe, and MabSelect Xtra

Note: Only one type of medium per plate

¹ The 20 µL plate is the preferred plate for the first set of experiments.

² The 50 µL plate can be used for certain experiments, for example when protein concentrations are in the higher range or when there is a need for high amounts of sample for analysis.

³ Additional media available on request.

High well-to-well and plate-to-plate reproducibility

Consistent well-to-well and plate-to-plate performance is obtained regardless of mode of operation and ensures high reproducibility of results. Figure 4 shows binding capacities determined in a 2 μ L PreDicator Capto S plate after overloading it with protein. The relative standard deviation (RSD) calculated over several plates is 4.5%. This low variation in binding capacity clearly demonstrates the low variation in media volume between wells when compared to the variability of the UV assay (RSD = 3%).

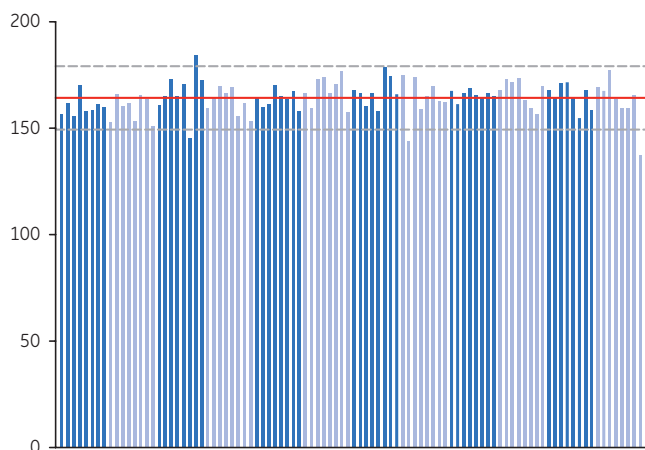
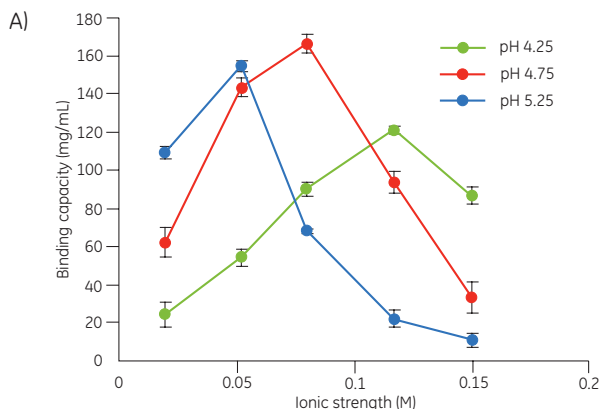


Fig 4. Reproducibility of capacities for chymotrypsin (60 min incubation) determined in a 2 μ L PreDicator Capto S plate. The solid red line corresponds to the average value, dashed lines denote ± 2 standard deviations. Columns 1 to 12 on the PreDicator plate are denoted by the alternating colored bars, indicating the absence of any significant edge effects.

Easy scale-up with reliable results

The optimized purification protocol can easily be scaled up as a majority of the media are available in prepacked columns and all are available as bulk media. The correlation between data obtained with PreDicator plates and those obtained in column experiments is very good, which makes the plates an excellent tool for initial screening of process conditions. Figure 5 shows the results from screening for optimal loading conditions for conalbumin on Capto S, with the same experiment performed both on PreDicator plates (Figure 5A) and in a packed column (Figure 5B).



Conalbumin shows nontraditional behavior when binding to the cation exchanger (i.e., the highest binding capacity is obtained at intermediate ionic strength instead of at lowest ionic strength). The results clearly show that this non-traditional behavior is captured equally well in the plate as in the column experiment. For further details on nontraditional behavior, see Application Note, Screening and optimization of loading conditions on Capto S (28-4078-16).

Assist software for PreDicator plates

In order to facilitate the high-throughput methodology, Assist software has been developed to support PreDicator plates.

The software guides the user through the experimental workflow, assists in setting up the experiments, and manages and evaluates the data (Fig 6).

Assist software suggests an experimental design based on the type of study (e.g., binding, wash, elution, or determination of adsorption isotherms), and based on the experimental conditions (e.g., buffer system, pH, or salt concentration). It also documents the chosen experimental design.

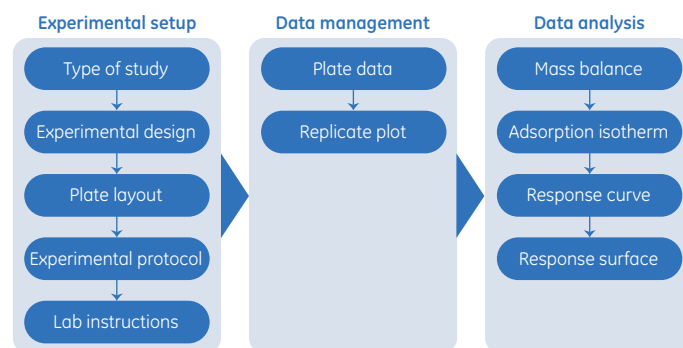


Fig 6. Overview of functionalities provided by Assist software for PreDicator plates.

Data evaluation includes calculation and visualization of mass balance, and calculation and visualization of response curves and surface plots. In this way, the effects of experimental conditions on responses, such as binding capacity or yield, can easily be identified. Table 4 summarizes the specifications for Assist software.

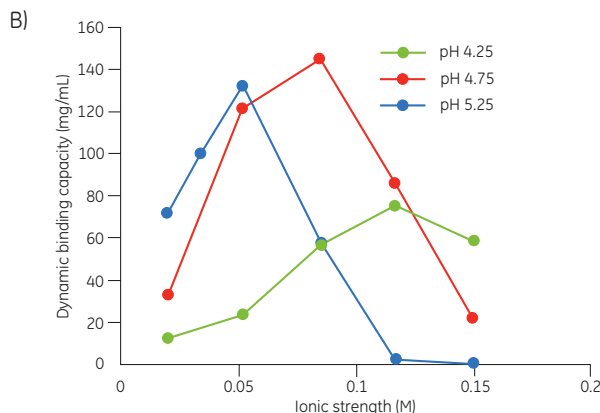


Fig 5. Determination of loading conditions for conalbumin on Capto S medium. (A) Binding capacities at 60 min in PreDicator Capto S 2 μ L plates. Error bars represent one standard deviation, based on triplicates. (B) Dynamic binding capacities at 10% breakthrough. Residence time 2 min, column Tricorn™ 5/100 (column volume 2 mL).

Table 4. Specifications for Assist software

Operating system	Windows XP®, Windows Vista®, or Windows® 7 32-bit
Workstation	Intel™ dual-core recommended 500 MB (1 GB recommended) Video card capable of 24-bit color Screen resolution min. 1024 × 768 pixels CD or DVD drive required.
E-licenses	Required

Summary

Parallel screening in a miniaturized format allows for higher throughput, better process understanding, and low sample consumption. The availability of PreDicator 96-well filter plates, prefilled with BioProcess chromatography media, and Assist software for experimental setup and data evaluation enables high-throughput screening of downstream purification process conditions, while keeping sample consumption at a minimum.

Ordering Information

Note: The pack size of all PreDicator plates is 4 × 96-well filter plates.

Single media plates	Code number
Ion exchange	
PreDicator Capto Q, 2 µL	28-9257-73
PreDicator Capto Q, 20 µL	28-9258-06
PreDicator Capto Q, 50 µL	28-9258-07
PreDicator Capto S, 2 µL	28-9258-08
PreDicator Capto S, 20 µL	28-9258-09
PreDicator Capto S, 50 µL	28-9258-10
PreDicator Capto S ImpAct, 2 µL	17-3717-16
PreDicator Capto S ImpAct, 20 µL	17-3717-17
PreDicator Capto DEAE, 2 µL	28-9258-11
PreDicator Capto DEAE, 20 µL	28-9258-12
PreDicator Capto DEAE, 50 µL	28-9258-13
PreDicator Capto SP ImpRes, 6 µL	17-5468-16
PreDicator Capto SP ImpRes, 20 µL	17-5468-17
PreDicator Capto Q ImpRes, 6 µL	17-5470-16
PreDicator Capto Q ImpRes, 20 µL	17-5470-17
PreDicator Q Sepharose Fast Flow, 6 µL	28-9432-69
PreDicator Q Sepharose Fast Flow, 20 µL	28-9432-70
PreDicator Q Sepharose Fast Flow, 50 µL	28-9432-71
PreDicator SP Sepharose Fast Flow, 6 µL	28-9432-72
PreDicator SP Sepharose Fast Flow, 20 µL	28-9432-73
PreDicator SP Sepharose Fast Flow, 50 µL	28-9432-74
Multimodal	
PreDicator Capto MMC, 6 µL	28-9258-14
PreDicator Capto MMC, 20 µL	28-9258-15
PreDicator Capto MMC, 50 µL	28-9258-16
PreDicator Capto MMC ImpRes, 6 µL	17-3716-30
PreDicator Capto MMC ImpRes, 20 µL	17-3716-31
PreDicator Capto adhere, 6 µL	28-9258-17
PreDicator Capto adhere, 20 µL	28-9258-18
PreDicator Capto adhere, 50 µL	28-9258-19
PreDicator Capto adhere ImpRes, 6 µL	17-3715-30
PreDicator Capto adhere ImpRes, 20 µL	17-3715-31

Single media plates	Code number
Affinity	
PreDicator MabSelect, 6 µL	28-9258-20
PreDicator MabSelect, 20 µL	28-9258-21
PreDicator MabSelect, 50 µL	28-9258-22
PreDicator MabSelect SuRe, 6 µL	28-9258-23
PreDicator MabSelect SuRe, 20 µL	28-9258-24
PreDicator MabSelect SuRe, 50 µL	28-9258-25
PreDicator MabSelect SuRe LX, 6 µL	17-5474-30
PreDicator MabSelect SuRe LX, 20 µL	17-5474-31
PreDicator MabSelect SuRe LX, 50 µL	17-5474-32
PreDicator MabSelect Xtra, 6 µL	28-9432-75
PreDicator MabSelect Xtra, 20 µL	28-9432-76
PreDicator MabSelect Xtra, 50 µL	28-9432-77
PreDicator Capto L, 6 µL	17-5478-30
PreDicator Capto L, 20 µL	17-5478-31
PreDicator, Capto L, 50 µL	17-5478-32
Hydrophobic interaction	
PreDicator Butyl Sepharose 4 Fast Flow, 6 µL	17-0980-16
PreDicator Butyl Sepharose 4 Fast Flow, 50 µL	17-0980-17
PreDicator Butyl-S Sepharose 6 Fast Flow, 6 µL	17-0978-16
PreDicator Butyl-S Sepharose 6 Fast Flow, 50 µL	17-0978-17
PreDicator Capto Butyl, 6 µL	17-5459-16
PreDicator Capto Butyl, 50 µL	17-5459-17
PreDicator Capto Octyl, 6 µL	17-5465-16
PreDicator Capto Octyl, 50 µL	17-5465-17
PreDicator Capto Phenyl (high sub), 6 µL	17-5451-16
PreDicator Capto Phenyl (high sub), 50 µL	17-5451-17
PreDicator Octyl Sepharose 4 Fast Flow, 6 µL	17-0946-16
PreDicator Octyl Sepharose 4 Fast Flow, 50 µL	17-0946-17
PreDicator Phenyl Sepharose 6 Fast Flow (high sub), 6 µL	17-0973-16
PreDicator Phenyl Sepharose 6 Fast Flow (high sub), 50 µL	17-0973-17
PreDicator Phenyl Sepharose 6 Fast Flow (low sub), 6 µL	17-0965-16
PreDicator Phenyl Sepharose 6 Fast Flow (low sub), 50 µL	17-0965-17
Screening plates	
PreDicator Capto CIEX polishing screening, 2 µL/6 µL	29-0955-68
PreDicator Capto CIEX polishing screening, 20 µL	29-0955-67
PreDicator Capto AIEX polishing screening, 2 µL/6 µL	29-0955-70
PreDicator Capto AIEX polishing screening, 20 µL	29-0955-69
PreDicator AIEX screening, 2 µL/6 µL	28-9432-88
PreDicator AIEX screening, 20 µL	28-9432-89
PreDicator CIEX screening, 2 µL/6 µL	28-9432-90
PreDicator CIEX screening, 20 µL	28-9432-91
PreDicator HIC screening high hydrophobicity, 6 µL	28-9923-92
PreDicator HIC screening high hydrophobicity, 50 µL	28-9923-97
PreDicator HIC screening low hydrophobicity, 6 µL	28-9923-95
PreDicator HIC screening low hydrophobicity, 50 µL	28-9923-98
Adsorption isotherm plates	
PreDicator Capto Q Isotherm ¹	28-9432-78
PreDicator Capto S Isotherm ¹	28-9432-79
PreDicator Capto SP ImpRes isotherm ¹	17-5468-18
PreDicator Capto DEAE Isotherm ¹	28-9432-80
PreDicator Capto MMC Isotherm ¹	28-9432-81
PreDicator Capto adhere Isotherm ¹	28-9432-82
PreDicator MabSelect Isotherm ¹	28-9432-83
PreDicator MabSelect SuRe Isotherm ¹	28-9432-84
PreDicator MabSelect Xtra Isotherm ¹	28-9432-85
PreDicator Q Sepharose Fast Flow Isotherm ¹	28-9432-86
PreDicator SP Sepharose Fast Flow Isotherm ¹	28-9432-87

¹ Plates manufactured on request.

Software	Code number
Assist 1.2 Software package	28-9969-17
Assist 1.2 1-User License*	28-9453-97

* Assist v1.2 also works with previous software versions 1.0 and 1.1.

Related products

Accessories	Quantity	Code number
Collection Plate, 500 µl V-bottom	5 × 96 well plates	28-4039-43
Microplate Foil, 96-well	100 × self-adhesive, transparent plastic foils	BR-1005-78

Prepacked columns	Quantity	Code number
HiScreen Capto Q	1 × 4.7 mL	28-9269-78
HiScreen Capto S	1 × 4.7 mL	28-9269-79
HiScreen Capto S ImpAct	1 × 4.7 mL	17-3717-47
HiScreen Capto DEAE	1 × 4.7 mL	28-9269-82
HiScreen Capto MMC	1 × 4.7 mL	28-9269-80
HiScreen Capto adhere	1 × 4.7 mL	28-9269-81
HiScreen Capto adhere ImpRes	1 × 4.7 mL	17-3715-20
HiScreen Capto MMC ImpRes	1 × 4.7 mL	17-3716-20
HiScreen Capto SP ImpRes	1 × 4.7 mL	17-5468-15
HiScreen Capto Q ImpRes	1 × 4.7 mL	17-5470-15
HiScreen MabSelect	1 × 4.7 mL	28-9269-73
HiScreen MabSelect SuRe	1 × 4.7 mL	28-9269-77
HiScreen MabSelect SuRe LX	1 × 4.7 mL	17-5474-15
HiScreen MabSelect Xtra	1 × 4.7 mL	28-9269-76
HiScreen Capto L	1 × 4.7 mL	17-5478-14
HiScreen Butyl FF	1 × 4.7 mL	28-9269-84
HiScreen Butyl-S FF	1 × 4.7 mL	28-9269-85
HiScreen Octyl FF	1 × 4.7 mL	28-9269-86
HiScreen Phenyl FF (high sub)	1 × 4.7 mL	28-9269-88
HiScreen Phenyl FF (low sub)	1 × 4.7 mL	28-9269-89
HiScreen Capto Phenyl (high sub)	1 × 4.7 mL	28-9924-72
HiScreen Capto Butyl	1 × 4.7 mL	28-9924-73

Related literature

PreDictor literature	Code number
Handbook	
High throughput process development with PreDictor plates	28-9403-58
Application notes	
Screening of loading conditions on Capto S using a new high-throughput format, PreDictor plates	28-9258-40
High-throughput screening of elution pH for monoclonal antibodies on MabSelect SuRe using PreDictor plates	28-9277-92
Adsorption equilibrium isotherm studies using a high-throughput method	28-9403-62
High-throughput screening and optimization of a protein capture step in a monoclonal antibody process	28-9468-58
High-throughput screening and process development for capture of recombinant pro-insulin from <i>E. coli</i>	28-9966-22
High-throughput screening of HIC media in PreDictor plates for capture of recombinant Green Fluorescent Protein from <i>E. coli</i>	28-9964-49
High-throughput process development for design of cleaning-in-place protocols	28-9845-64
Screening and optimization of loading conditions on Capto S	28-4078-16
Mini Poster	
High-throughput screening of elution conditions on Capto MMC using PreDictor plates	28-9277-90
Additional literature	Code number
Data files	
PreDictor RoboColumn	28-9886-34
Capto S, Capto Q, and Capto DEAE	11-0025-76
Capto S ImpAct	29-0670-18
Capto MMC	11-0035-45
Capto adhere	28-9078-88
Capto MMC ImpRes	29-0356-74
Capto adhere ImpRes	29-0344-97
Capto SP ImpRes and Capto Q ImpRes	28-9837-63
MabSelect	18-1149-94
MabSelect SuRe	11-0011-65
MabSelect SuRe LX	28-9870-62
MabSelect Xtra	11-0011-57
Capto L	29-0100-08
Sepharose Fast Flow IEX media and prepacked formats	18-1020-66
Capto Phenyl (high sub) and Capto Butyl	28-9558-57
Butyl-S Sepharose 6 Fast Flow	11-0026-34
Phenyl Sepharose 6 Fast Flow (low sub) and Phenyl Sepharose 6 Fast Flow (high sub)	18-1020-53
Butyl Sepharose 4 Fast Flow	18-1020-70

For local office contact information, visit
www.gelifesciences.com/contact

www.gelifesciences.com/predictor

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