CaptureSelect™ Antibody Affinity Resins

Pub. No. MAN0017191 Rev. C.0

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from thermofisher.com/support.

Product information

CaptureSelect™ affinity resins can be used for the purification and isolation of proteins and/or antibodies and antibody subtypes from complex sources such as plasma, serum, and cell culture supernatants.

Storage

Store all resins and columns at 2–8°C. Do not freeze.

Characteristics

All agarose-based resins can handle a max operating pressure of 2 bar (0.2 MPa), and a max pressure during column packing of 3 bar (0.3 MPa). POROS-based resins have a max operating pressure of 100 bar (10 MPa).

Table 1 Resin characteristics

CaptureSelect™ Affinity Resin	Binding characteristics	Resin and particle size	Dynamic binding capacity (g/L)
IgA	Human IgA (including dimeric and secretory IgA) binding to Fc domain	Aldehyde-activated agarose, 65 µm	>8.0
IgA (bovine)	Bovine IgA (monomeric, dimeric and secretory IgA)	Aldehyde-activated agarose, 65 µm	>10.0
IgA-CH1	Binds monomeric, dimeric, and secretory human IgA binding to CH1 domain (also binds IgA Fabs)	Aldehyde-activated agarose, 65 µm	>6.0
IgE	Human IgE (all subclasses; binds to CH4 domain)	Epoxide-activated agarose 65 µm	>15.0
IgG1 (human)	Human IgG (no cross-binding to other human IgG subclasses)	Aldehyde-activated agarose, 35 µm	>8.0
IgG3 (human)	Human IgG (no cross-binding to other human IgG subclasses)	Aldehyde-activated agarose, 35 µm	>6.0
IgG4 (human)	Human IgG (no cross-binding to other human IgG subclasses)	Epoxide-activated agarose 65 µm	>10.0
IgG-Fc (rabbit)	Rabbit IgG-Fc (binds to the Fc domain; no binding to other species)	Epoxide-activated agarose, 65 µm	>15.0
IgG-CH1	Human IgG (binds to CH1 domain; suitable for Fab/Fab2 purification)	Aldehyde-activated agarose, 65 µm	>15.0
CH1-XL	Next generation of IgG-CH1, a human Fab purification platform	Epoxide-activated agarose, 65 µm	> 25.0
FcXL	Human IgG (all subclasses bind the CH3 domain)	Aldehyde-activated agarose, 65 µm	>20.0
FcXP	Next generation of FcXL, improved binding capacity and stability	Epoxide-activated agarose, 65 µm	>35.0
POROS FcXP	FcXP ligand immobilized on POROS resin; suitable for high flow rates and 1 minute contact time (high productivit)y	POROS EP450, 50 µm	>20.0
IgG-Fc (multi-species)	Binds to the IgG Fc domain of several species (human, primate, rat, mouse, guinea pig, bovine, horse, sheep and, goat)	Epoxide-activated agarose, 65 µm	>20.0 (human IgG)
POROS IgM	Binds to the IgM Fc domain of several species (human, rat, and mouse)	POROS EP150, 50 µm	>6.0
KappaXL (human)	Human Ig (constant domain of kappa light chain; binds all human kappa lgs)	Aldehyde-activated agarose, 65 µm	>20.0 (IgG)
KappaXP (human)	Next generation of KappaXL ligand; improved binding capacity and stability	Epoxide-activated agarose, 65 µm	>35.0 (IgG)
LambdaXP (human)	Human Ig (constant domain of lambda light chain; binds all human lambda lgs)	Epoxide-activated agarose, 65 µm	>30.0 (IgG)
LC-kappa (murine)	Murine Ig (constant domain of kappa light chain; binds mouse, rat, and guinea pig kappa lgs)	Epoxide-activated agarose, 65 µm	>15.0
LC-lambda (mouse)	Mouse Ig (constant domain of lambda light chain; binds mouse lambda lgs)	Aldehyde-activated agarose, 65 µm	>10.0

Table 2 Pre-packed CaptureSelect™ resin and Minichrom column specifications for CH1-XL, FcXP, KappaXL, and KappaXP

Specification	Pre-packed resin	MiniChrom
Column volume	1 mL and 5 mL	1 mL and 5 mL
Column dimension	• 7 × 25 mm (1 mL) • 14 × 32.5 mm (5 mL)	• 8 × 20 mm (1 mL) • 8 × 100 mm (5 mL)
Operating pressure	< 2 bar (0.2 MPa)	< 2 bar (0.2 MPa)
Maximum pressure	3 bar (0.3 MPa)	3 bar (0.3 MPa)
Flow rates	• 0.5–1.0 mL/min (1 mL) • 2.5–5.0 mL/min (5 mL)	• 0.5–2.5 mL/min
Storage solution	20% (v/v) ethanol	20% (v/v) ethanol

Note: Lower flow rates, especially during sample loading, can increase the dynamic binding capacity of the of the columns due to prolonged contact time of the sample with the affinity resin.

Note: Only 5 mL CaptureSelect™ MiniChrom columns are suitable for process development.

Conditions for use

Use a contact time of at least 4 minutes to obtain good binding capacities for all agarose-based resins.

Use buffers at physiological pH and ionic strength like PBS and TBS at pH 7.0 to 7.5 for equilibration and binding.

CaptureSelect™ Affinity Resin	Elution buffer
IgA	100mM glycine, pH 3.0
IgA-CH1	100mM glycine, pH 3.0
IgA (bovine)	100mM glycine, pH 3.0
IgE	50 mM citric acid, 150 mM NaCl, pH 3.5
IgG1 (human)	100mM glycine, pH 3.0
IgG3 (human)	100mM glycine, pH 3.0
IgG4 (human)	100mM glycine, pH 3.0
IgG-Fc (rabbit)	100mM glycine, pH 3.0
IgG-CH1	20 mM citric acid, 150 mM NaCl, pH 3.5
CH1-XL	50 mM sodium acetate, pH 4.5
FcXL	20 mM acetic acid pH 4.0; 50 mM sodium acetate, 1.0M $MgCl_2$, 40% propylene glycol, pH 5.0-6.0
FcXP	20 mM acetic acid pH 3.0-4.0; 100 mM Tris, 2.0M $MgCl_2$, 40% propylene glycol, pH 7.0
POROS FcXP	20 mM acetic acid pH 3.0-4.0; 100 mM Tris, 2.0M $MgCl_2$, 40% propylene glycol, pH 7.0
IgG-Fc (multispecies)	100mM glycine, pH 3.0
POROS™ IgM	100mM glycine, pH 3.0
KappaXL (human)	20 mM citric acid, pH 3.5
KappaXP (human)	20mM acetic or citric acid; 100mM Tris, 1.5 M $MgCl_2$, pH 6.0
LambdaXP (human)	25 mM acetic acid, pH 3.5
LC-kappa (murine)	100mM glycine, pH 3.0
LC-lambda (murine)	100mM glycine, pH 3.0

Instructions for use

1. Pack the column.
2. Equilibrate with 5 to 10 column volumes (CV) of the equilibration/wash buffer recommended in “Conditions for use” on page 2.
3. Prepare and load the sample.
   The sample loading volume depends on the concentration of the target molecule and the dynamic binding capacity of the resin. See “Characteristics” on page 1.
   - Dissolve, dilute, or exchange samples into the equilibration buffer. This is particularly important for large samples (greater than 25% of the column volume).
   - Centrifuge and filter samples (0.22 or 0.45 µm) before injection.
4. Wash with 5 to 10 CV of the equilibration/wash buffer recommended in “Conditions for use” on page 2, or until you see a stable baseline.
5. Elute with 5 to 10 CV of the elution buffer recommended in “Conditions for use” on page 2, or until you see a stable baseline.
6. Re-equilibrate with 5 to 10 CV of the equilibration/wash buffer recommended in “Conditions for use” on page 2, or until you see a stable baseline.
7. Re-equilibrate in equilibration/wash buffer.
   If the column will not be used immediately, store the resin in 20% ethanol at 4°C (39°F), stable for up to 1 year.

Example application: CaptureSelect™ FcXP IgG purification from human plasma

Figures 1 and 2 are examples of an application run with the following conditions:

Column: 4 mL (0.5 cm X 20 cm) CaptureSelect™ FcXP

Load: 15 mL undiluted human plasma

Flow rate: 150 cm/h, 8 minutes contact time

Equilibration/ binding buffer: 10 mM citric acid, 150mM NaCl, pH 7.4

Elution buffer: 20 mM citric acid, pH 3.5

Strip buffer: 100 mM citric acid, pH 2.0

Go to **www.thermofisher.com/captureselect** for additional examples.

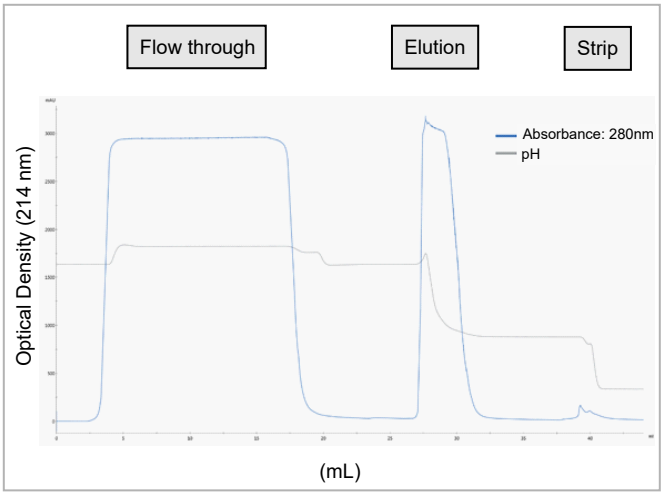

Fig. 1 CaptureSelect™ FcXP IgG purification from human plasma

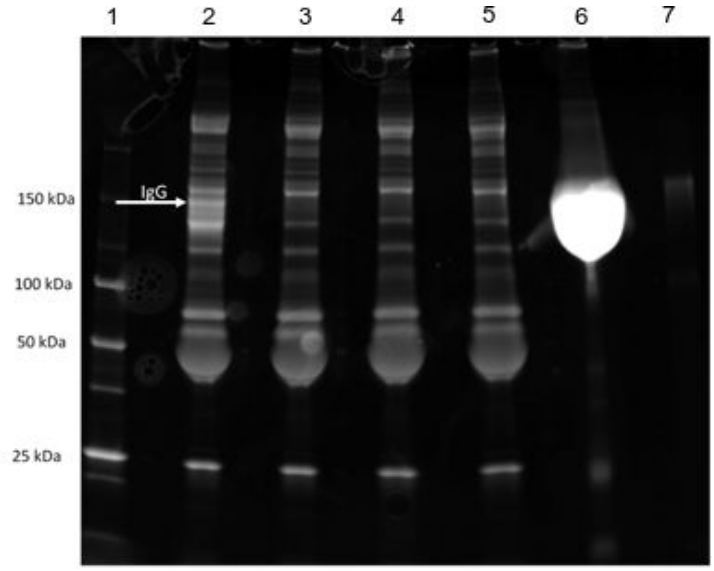

Fig. 2 Non-reduced TGX stain-free protein gel

① Molecular weight marker
② Human plasma
③ Flow through (early)
④ Flow through (middle)
⑤ Flow through (late)
⑥ Elution
⑦ Strip

Ordering information

CaptureSelect™ Affinity Resin and binding specificity	Amount	Cat. No.
IgA	5 mL	194288005
	10 mL	194288010
	50 mL	194288050
	250 mL	1942880250
	500 mL	1942880500
IgA-CH1	5 mL	194311005
	10 mL	194311010
	50 mL	194311050
IgA (bovine)	5 mL	2943511005
	10 mL	2943511010
	50 mL	2943511050
IgE	5 mL	2943542005
	10 mL	2943542010
	50 mL	2943542050
IgG1 (human)	5 mL	191303005
	10 mL	191303010
	50 mL	191303050
IgG3 (human)	5 mL	191304005
	10 mL	191304010
	50 mL	191304050
IgG4 (human)	5 mL	2942902005
	10 mL	2942902010
	50 mL	2942902050
IgG-Fc (rabbit)	5 mL	2943642005
	10 mL	2943642010
	50 mL	2943642050
IgG-CH1	5 mL	194320005
	10 mL	194320010
	50 mL	194320050
CH1-XL	5 mL	1943462005
	10 mL	1943462010
	50 mL	1943462050
CH1-XL pre-packed columns	5 1 mL	494346201
	1 5 mL	494346205
	1 1 mL MiniChrom column	5943462001
	1 5 mL MiniChrom column	5943462005
FcXL	5 mL	194328005
	10 mL	194328010
	50 mL	194328050
FcXP	5 mL	1943712005
	10 mL	1943712010
	50 mL	1943712050
FcXP pre-packed columns	5 1 mL	494371201
	1 5 mL	494371205
	1 1 mL MiniChrom column	5943712001
	1 5 mL MiniChrom column	5943712005
POROS FcXP	5 mL	2803712005
	10 mL	2803712010
	50 mL	2803712050
IgG-Fc (multispecies)	5 mL	2942852005
	10 mL	2942852010
	50 mL	2942852050
	250 mL	2942852250
	500 mL	2942852500
IgM	5 mL	195289005
	10 mL	195289010
	50 mL	195289050
	250 mL	1952890250
	500 mL	1952890500
KappaXL (human)	5 mL	194321005
	10 mL	194321010
	50 mL	194321050
KappaXL pre-packed columns	5 1 mL	494321001
	1 5 mL	494321005
KappaXP (human)	5 mL	2943212005
	10 mL	2943212010
	50 mL	2943212050
KappaXP pre-packed columns	5 1 mL	494321201
	1 5 mL	494321205
	1 5 mL MiniChrom column	5943212005
LambdaXP (human)	5 mL	2943752005
	10 mL	2943752010
	50 mL	2943752050
LC-kappa (murine)	5 mL	191315005
	10 mL	191315010
	50 mL	191315050
LC-lambda (mouse)	5 mL	194323005
	10 mL	194323010
	50 mL	194323050

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  - User guides, manuals, and protocols
  - Certificates of Analysis
  - Safety Data Sheets (SDSs; also known as MSDSs)

Note: For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

For more information

For more information on CaptureSelect™ and POROS™ products, go to **www.thermofisher.com/captureselect**.

Limited product warranty

Life Technologies Corporation and/or its affiliate(s) warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at **www.thermofisher.com/us/en/home/global/terms-and-conditions.html**. If you have any questions, please contact Life Technologies at **www.thermofisher.com/support**.

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For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.

Revision history: Pub. No. MAN0017191

Revision	Date	Description
C.0	15 September 2021	Updates to the following sections: • "Characteristics" on page 1 • "Conditions for use" on page 2 • "Example application: CaptureSelect™ FcXP IgG purification from human plasma" on page 2 • "Ordering information" on page 3
B.0	25 September 2018	Update to product listings.