

CaptureSelect™ Protein Affinity Resins

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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 description

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.

Product specifications

Table 1 Resin specifications

CaptureSelect™ affinity resin and binding specificity	Resin and particle size	Dynamic binding capacity per mL of resin
Alpha-1 Antitrypsin (human AAT)	Aldehyde-activated agarose, 35 µm	>10 mg
Antithrombin III (human ATIII)	NHS-activated agarose, 90 µm	>6 mg
Apolipoprotein H (human ApoH)	Aldehyde-activated agarose, 65 µm	>2 mg
C1-inhibitor (human C1 esterase inhibitor)	Aldehyde-activated agarose, 70 µm	>5 mg
C-tag [C-terminal 4 amino acid tag E-P-E-A / independent of species]	Aldehyde-activated agarose, 35 µm	±250 nmol recombinant protein
C-tagXL [C-terminal 4 amino acid tag E-P-E-A / independent of species]	Epoxide-activated agarose, 65 µm	>400 nmol
Fibrinogen (Human fibrinogen from human plasma)	Aldehyde-activated agarose, 35 µm	>10.0 mg
Fib-XL (Human fibrinogen from human plasma)	Epoxide-activated POROS™ resin, 50 µm	>15 mg
Follicle Stimulating Hormone (human FSH)	Aldehyde-activated agarose, 70 µm	>3 mg
GM-CSF (human Granulocyte Macrophage colony-stimulating factor)	Aldehyde-activated agarose, 65 µm	>2 mg
Human Albumin (HSA/ Human Serum Albumin)	Aldehyde-activated agarose, 70 µm	>15 mg
hCG (Alpha chain of human chorionic gonadotropin)	Aldehyde-activated agarose, 65 µm	~4 mg
Human Growth Hormone (hGH)	Aldehyde-activated agarose, 70 µm	>3 mg
tPA (human tissue plasminogen activator)	Aldehyde-activated agarose, 65 µm	>8 mg
Transferrin (human transferrin)	Aldehyde-activated agarose, 35 µm	>8 mg

Table 2 Pre-packed CaptureSelect™ C-tag and C-tagXL column specifications

Specification	Description
Column volume	1 mL and 5 mL
Column dimension	<ul style="list-style-type: none"> 7 × 25 mm (1 mL) 14 × 32.5 mm (5 mL)
Operating pressure	< 2 bar [0.2 MPa]
Maximum pressure	3 bar [0.3 MPa]
Flow rates	<ul style="list-style-type: none"> 0.5–1.0 mL/min (1-mL column) 2.5–5.0 mL/min (5-mL column) <p>Note: Lower flow rates, especially during sample loading, can increase the dynamic binding capacity of the columns due to prolonged contact time of the sample with the affinity resin.</p>
Storage solution	20% (v/v) ethanol

Note: Pre-packed CaptureSelect™ columns are not suitable for process development.

Conditions for use

All resins have a flow rate of 150 cm/hour and a pressure limit of 3 bar.

CaptureSelect™ affinity resin	Equilibration/wash buffer	Elution buffer
AAT (human)	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	0.1 M glycine, pH 3.0
ATIII (human)	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	20 mM Tris, 2.0 M MgCl ₂ , pH 7.0
ApoH (human)	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	50 mM citric or acetic acid pH 3.0, 0.1 M glycine pH 3.0
C1-inhibitor	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	Neutral pH: 20 mM Tris, pH 7.0, 2.0 M MgCl ₂ Acidic pH: 20 mM citric acid, pH 3.0
C-tag	PBS, pH 7.2–7.4, or other physiological pH buffers. Binding possible in denaturing conditions like urea (≤ 8.0 M) and guanidine HCl (≤ 1.0 M)	Neutral pH: <ul style="list-style-type: none"> 20 mM Tris, pH 7.0, 2.0 M MgCl₂ 20 mM Tris, pH 7.0, 1.0 M NaCl 50% (v/v) propylene glycol Acidic pH: 20 mM citric acid, pH 3.0
C-tag XL	<ul style="list-style-type: none"> Physiological: 20 mM Tris (when MgCl₂ is used for elution) or PBS, pH 7.2–7.4 Denaturing: 50 mM Tris, up to 8 M urea or 1.0 M guanidine, pH 7.0–7.4 	Neutral pH: <ul style="list-style-type: none"> 20 mM Tris, 2.0 M MgCl₂ 20 mM Tris, 1 M NaCl, 50% (v/v) propylene glycol (PG) 20 mM Tris, 2 mM "S-E-P-E-A" peptide Acidic pH: 50 mM citric or acetic acid pH 3.0, 0.1 M glycine, pH 3.0
Fibrinogen (human)	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	20 mM Tris, 50% (v/v) propylene glycol, 1.0 M arginine, pH 7.4

CaptureSelect™ affinity resin	Equilibration/wash buffer	Elution buffer
Fib-XL	20 mM Tris (when MgCl ₂ is used for elution) or PBS, pH 7.2–7.4 (physiological pH and ionic strength)	Neutral pH: 20 mM Tris 1.0 M MgCl ₂ + 40% (v/v) propylene glycol. Acidic pH: 50 mM citric or acetic acid pH 3.0, 0.1 M glycine, pH 3.0
FSH (human)	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	20 mM Tris, 2.0 M MgCl ₂ , pH 7.4
GM-CSF	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	50 mM citric or acetic acid pH 3.0, 0.1 M glycine, pH 3.0
HSA	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	Neutral pH: <ul style="list-style-type: none"> 20 mM Tris, pH 7.0, 2.0 M MgCl₂ 20 mM Tris, pH 7.0, 1.0 M NaCl 50% (v/v) propylene glycol Acidic pH: 20 mM Citric acid, pH 3.0
hCG	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	50 mM citric or acetic acid pH 3.0, 0.1 M glycine pH 3.0
hGH	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	20 mM citric acid, pH 3.0
tPA	20 mM Tris (when MgCl ₂ is used for elution) or PBS, pH 7.2–7.4 (physiological pH and ionic strength)	Neutral pH: 20 mM Tris, 2.0 M MgCl ₂ pH 7 Acidic pH: 50 mM citric or acetic acid pH 3.0, 0.1 M glycine pH 3.0
Transferrin (human)	PBS, pH 7.2–7.4 (physiological pH and ionic strength)	Neutral pH: <ul style="list-style-type: none"> 20 mM Tris, pH 7.0, 2.0 M MgCl₂ 20 mM Tris, pH 7.0, 1.0 M NaCl 50% (v/v) propylene glycol Acidic pH: 20 mM Citric acid, pH 3.0

Instructions for use

- Pack the column.
- Equilibrate with 5–10 column volumes (CV) of the equilibration/wash buffer recommended in “Conditions for use” on page 1.
- 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 “Storage” 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 μm or 0.45 μm) before injection.
- Wash with 5 to 10 CV of the equilibration/wash buffer recommended in “Conditions for use” on page 1, or until you see a stable baseline.
- Elute with 5–10 CV of the elution buffer recommended in “Conditions for use” on page 1, or until you see a stable baseline.
- Re-equilibrate with 5–10 CV of the equilibration/wash buffer recommended in “Conditions for use” on page 1, or until you see a stable baseline.
- 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 with CaptureSelect™ AAT affinity resin

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

Resin: AAT

Sample: Human serum

Equilibration and wash buffer: PBS, pH 7.4

Elution buffer: 20 mM Tris, 2.0 M MgCl₂, pH 7.0

Flow: 150 cm/h

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

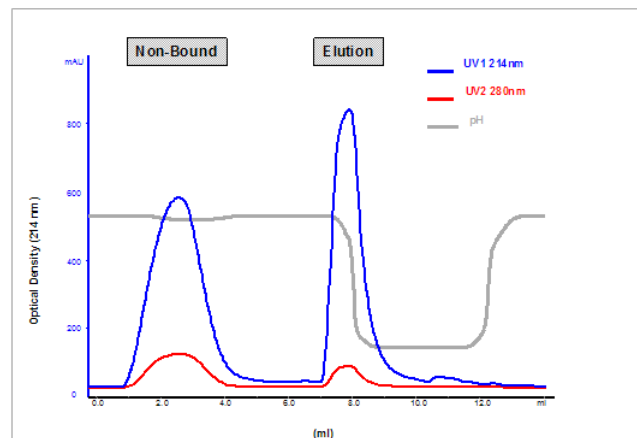


Fig. 1

1 Cycle is:

- 10 column volumes (CV) equilibration
- Sample loading
- 10 CV wash out unbound sample
- 5 CV elution
- 10 CV re-equilibration

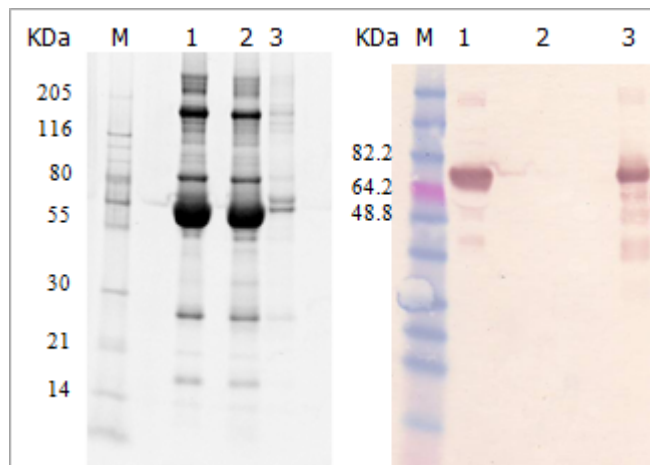


Fig. 2

Starting material, non-bound fractions, and elution pool analysis: SYPRO™ Ruby gel-stained SDS-PAGE and Western blot

M: Molecular weight marker

1: Human Serum

2: Flow through fraction

3: Elution fraction (MgCl₂, pH 7.0)

Antibodies for Western blot:

Mouse anti human AAT

Goat anti Mouse AP Conjugate

Ordering information

Table 3 CaptureSelect™ affinity resins

CaptureSelect™ affinity resin and binding specificity	Amount	Cat. No.
Alpha-1 Antitrypsin (human AAT)	5 mL	191287005
	10 mL	191287010
	50 mL	191287050
Antithrombin III (human ATIII)	5 mL	190317005
	10 mL	190317010
	50 mL	190317050
Apolipoprotein H (human ApoH)	5 mL	2943421005
	10 mL	2943421010
	50 mL	2943421050
C1-inhibitor (human C1 esterase inhibitor)	5 mL	194340005
	10 mL	194340010
	50 mL	194340050
C-tag [C-terminal 4 amino acid tag E-P-E-A / independent of species]	5 mL	191307005
	10 mL	191307010
	50 mL	191307050
	500 mL	191307500
C-tagXL [C-terminal 4 amino acid tag E-P-E-A / independent of species]	5 mL	2943072005
	10 mL	2943072010
	50 mL	2943072050
Fibrinogen (Human fibrinogen from human plasma)	5 mL	191291005
	10 mL	191291010
	50 mL	191291050
Fib-XL (Human fibrinogen from human plasma)	5 mL	2802912005
	10 mL	2802912010
	50 mL	2802912050
Follicle Stimulating Hormone (human FSH)	5 mL	194318005
	10 mL	194318010
	50 mL	194318050
GM-CSF (human Granulocyte Macrophage colony-stimulating factor)	5 mL	2943472005
	10 mL	2943472010
	50 mL	2943472050
Human Albumin (HSA/ Human Serum Albumin)	5 mL	191297005
	10 mL	191297010
	50 mL	191297050
hCG (Alpha chain of human chorionic gonadotropin)	5 mL	194341005
	10 mL	194341010
	50 mL	194341050
Human Growth Hormone (hGH)	5 mL	190316005
	10 mL	190316010
	50 mL	190316050
tPA (human tissue plasminogen activator)	10 mL	2943430010
	50 mL	2943430050
	1L	294343001L
Transferrin (human)	5 mL	191306005
	10 mL	191306010
	50 mL	191306050

Table 4 CaptureSelect™ prepacked columns

CaptureSelect™ affinity resin and binding specificity	Amount	Cat. No.
C-tag [C-terminal 4 amino acid tag E-P-E-A / independent of species]	5 × 1 mL prepacked column	491307001
C-tagXL [C-terminal 4 amino acid tag E-P-E-A / independent of species]	5 × 1 mL prepacked column	494307201
	1 × 5 mL prepacked column	494307205

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 - 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

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Revision	Date	Description
A.0	27 June 2017	Replaces 4486257. Added new product information.

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