

p-Aminobenzamidine Agarose 6XL

p-Aminobenzamidine Agarose 6XL is an affinity adsorbent for purification of serine proteases and esterases such as trypsin, thrombin, kallikrein, urokinase, acetyl cholinesterase and alkaline phosphatase. p-Aminobenzamidine Agarose 6XL can be used in the separation of closely related proteases, for example, trypsin from chymotrypsin, or in the removal of trace protease contamination from a final product.



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Our Technology

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p-Aminobenzamidine Agarose 6XL is immobilized onto 6% cross-linked agarose via an epoxy linked spacer arm to provide a selective and robust adsorbent. This product is manufactured in a controlled environment to ISO 9001 Quality Standard and is designed for use in cGMP manufacturing.

Key Features

- Affinity purification or removal of serine proteases
- High purity p-aminobenzamidine ligand
- Ligand binds selectively to the active site of serine proteinases
- · High dynamic binding capacity
- Sanitisable with 20% ethanol/1.0 M acetic acid or 8 M urea allowing multiple cycles
- Highly reproducible batch-to-batch manufacture to ISO 9001 standard
- Supported with a comprehensive Regulatory Support File
- Multiple end users in regulated bio- pharmaceutical development and manufacturing scale processes

Advantages of p-Aminobenzamidine Agarose 6XL:

Optimised product:

p-Aminobenzamidine Agarose 6XL has been optimised for use in bioseparation applications using robust coupling chemistry and optimal ligand density.

Support matrix:

p-Aminobenzamidine Agarose 6XL is available on 6% cross-linked beaded agarose with mean particle size of 90 $\mu m.$

Adsorbent Stability:

p-Aminobenzamidine Agarose 6XL is stable across the range pH 3 - 12 without any significant ligand loss. However, this adsorbent must not be subjected to pH's above 12 as the benzamidine ligand is degraded at very high pH. This means p-Aminobenzamidine Agarose 6XL should not be treated with cleaning or sanitization solutions containing sodium hydroxide. This product is resistant to most commonly used buffer solutions and additives including denaturants (e.g. Urea), detergents (Triton, SDS) and thiol reducing agents.

p-Aminobenzamidine Agarose 6XL stable across the pH range

pH Stability

3 -12 (continuous exposure)

Figure 1: Stability profile for p-Aminobenzamidine Agarose 6XL, incubated in a range of test solutions from pH 0.0 (1 M HCl) to pH 14.00 (1 M NaOH) at ambient room temperature for 48 hours. Samples of supernatant were collected and assayed for the presence of ligand by UV absorbance.

Flow rates

p-Aminobenzamidine Agarose 6XL can be used at flow rates up to 300 cm/h at a pressure of 1 bar.



Figure 2: Pressure-flow curve for p- Aminobenzamidine Agarose 6XL (1 cm dia x 15 cm bed length).

Binding Capacities

 $p\mbox{-}Aminobenzamidine\mbox{-}Agarose\mbox{-}6XL\mbox{-}p\mbox{-}vvides\mbox{-}binding\mbox{-}capacities\mbox{-}up\mbox{-}to\mbox{-}40\mbox{-}mg/ml\mbox{-}for\mbox{-}serine\mbox{-}p\mbox{-}roteses.$



Figure 3: Static binding capacity of p- Aminobenzamidine Agarose 6XL for serine protease, trypsin (20 mM phosphate buffer, pH 7.0 containing 0.5 M NaCl).

Applications

p-Aminobenzamidine Agarose 6XL may be used to purify trypsin from bovine pancreas and to resolve trypsin from chymotrypsin. Other applications include the purification or removal of trypsinlike serine proteases, the resolution of plasminogen subspecies and the purification of aldehyde oxidase. Many proteases are prone to autodigestion and rapid purification provides significantly higher yield of the active protein.

Because of the its unique specificity, the adsorbent may also be used to remove trace protease contamination without compromising the yield of the final product.

Large Scale Manufacture & Validation support

Astrea Bioseparations can provide p-Aminobenzamidine Agarose 6XL in volumes sufficient to meet the requirements of the largest biomanufacturing processes. Single batches of up to 275 litres are produced in Astrea's controlled environment manufacturing facility under an ISO 9001 quality system. p-Aminobenzamidine Agarose 6XL is supported by a regulatory support file.

Technical Support

Astrea Bioseparations has comprehensive knowledge of the properties and applications of p-Aminobenzamidine Agarose 6XL. We can provide full support for the development of new applications and their implementation for biopharmaceutical manufacture.

Properties of p-Aminobenzamidine Agarose 6XL		
Ligands:	p-Aminobenzamidine	
Matrix:	6% cross-linked agarose	
Particle size:	45 - 165 μm 85% of beads within this range	
Binding capacity:	25 - 40 mg trypsin/ml	
Operational Flow rate:	Up to 300 cm/h	
Operating pressure:	Up to 3 bar (45 psi)	
Operating pH:	2 - 12	
pH stability:	Long term (> 3 months) pH 3 - 12	
Chemical stability:	All commonly used aqueous buffers and co-solvents.	
Sanitization:	20% ethanol / 1 M acetic acid pH 2.3 for 3 hours	
Storage:	24% ethanol / 76% 0.1 M NaCl	

Ordering Information

For small orders up to 500 mL, please visit our webshop.

We also offer a range of larger pack sizes for supply of bulk resins into cGMP development and manufacturing scale processes.

Adsorbent Gel Slurry

Pack Size	Product Code
25 mL	0320-00025
100 mL	0320-00100
500 mL	0320-00500
1,000 mL	0320-01000

Pre-Packed Columns

Astrea offer a range of pre-packed columns from a 1 mL and 5 mL column kits and 5 mL and 50 mL EvolveR columns for research and development as well as a range of up to 6.28 L GMP ready columns for pilot to process scale manufacturing.

For more details please visit our website or for more information on this or any other supply related matters please do not hesitate to contact us.

Contact Us:

With sales and support offices in North America and Europe, R&D facilities in Cambridge, UK and manufacturing facilities located on the Isle of Man, British Isles and in Joliette, QC, Canada we are able to meet your needs and support your application wherever you are.

Sales and Technical Support

Please contact us for further sales or technical support information regarding any of our innovative biochromatography products and services.

Horizon Park, Barton Road, Comberton, Cambridge, CB23 7AJ, UK

Tel: +44 (0) 1223 433 800

Sales:	sales@astrea-bio.com
Technical support:	techsupport@astrea-bio.com
Quality support:	quality@astrea-bio.com
Website:	www.astreabioseparations.com

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