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Arginine-based protein A elution buffer

Arg-Antibody Elution Buffer (pH 4.0)

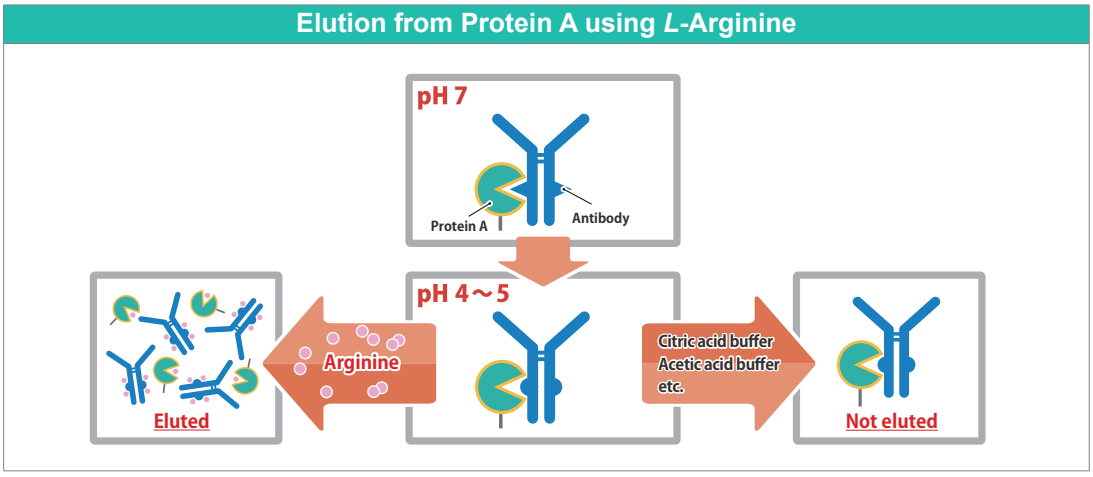
This product leads to effective elution of antibodies from protein A columns under mild pH (pH 4.0). Normally, antibodies are not effectively eluted at pH 4.0. Use of a lower pH can lead to partial denaturation and subsequent aggregation of the eluted antibodies. This product is based on the unique characteristics of arginine which suppresses protein-protein interactions.

This product is manufactured with permission from Ajinomoto Co., Inc. based on the patent JP 4826995*.

*JP: 4826995, US: 8084032, 8435527, 2012-0264918, EP: 1568710, CN: 1680426

Features

- Enables effective elution of antibodies from protein A column, reducing potential risk of acid denaturation and resultant aggregation
- Virus inactivation, a key step of clinical antibody manufacturing, is enhanced by arginine
- The use of this product has no impact on the preceding processes of antibody purification, e.g., loading step of cell culture medium and the following column washing step
- Arginine-based elution buffers are available in different formats upon request

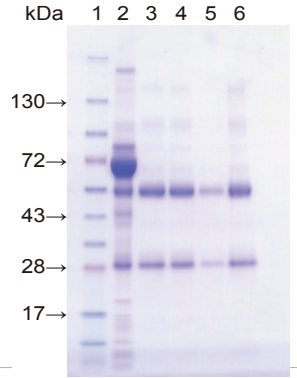


Example: Comparison with glycine-HCl elution buffer

Procedure

1. Equilibrate protein A column (here COSMOGEL Ig-Accept Protein A) with D-PBS
2. Load human serum
3. Wash with 10 column volumes of D-PBS
4. Elute with 5 volumes of acid (0.1 M glycine pH 2.8 - 4.0) or Arg-Antibody Elution Buffer
5. Analyze eluted fractions, e.g., by SDS-PAGE

Results



Arg-Antibody elution buffer shows much higher recovery (lane 6) than glycine buffer (lane 5).

Lane 1: Molecular weight marker (#09547-74)
Lane 2: Serum
Lane 3: 0.1 M Gly pH 2.8
Lane 4: 0.1 M Gly pH 3.4
Lane 5: 0.1 M Gly pH 4.0
Lane 6: Arg-Antibody Elution Buffer

Note that lanes 3, 4, 5 and 6 are independent results of the above procedure using different elution buffers.

General protocol

Purification of antibody on Protein A column

1. Equilibrate a protein A column with an appropriate buffer.
2. Load a sample expressing antibodies.
3. Wash the column with an appropriate buffer.
4. Elute antibody with 5-10 column volumes of Arg-Antibody Elution Buffer.
5. If necessary, perform virus inactivation taking advantage of enhanced virus inactivation by arginine.
6. Proceed to next step, e.g., additional chromatography or buffer-exchange.

Cation exchange chromatography of the above eluted sample

1. Equilibrate an appropriate cation exchange column with acetate buffer. The pH of the acetate buffer should be determined by the pI value of the antibody.
2. Dilute the above eluate with 2-3 volumes of an appropriate acetate buffer.
3. Load the diluted sample.
4. Wash the column with an appropriate acetate buffer. The components of Arg-Antibody Elution Buffer are completely washed out in this process.
5. Elute the antibody using high salt concentration, pH changes, or combination of both.

Potential applications

As Arg-Antibody Elution Buffer can effectively weaken protein-protein interactions, there are a few additional applications of this product.

1. Antigen-antibody affinity chromatography
2. Dye chromatography
3. Ligand chromatography

References

1. Elution of antibodies from Protein-A column by aqueous arginine solutions. *Protein Expression and Purification* **36**(2), 244-248 (2004).
2. Effective elution of antibodies by arginine and arginine derivatives in affinity column chromatography. *Analytical Biochemistry* **345**(2), 250-257 (2005).
3. Role of arginine in protein refolding, solubilization, and purification. *Biotechnology Progress* **20**(5), 1301-1308 (2004).
4. Screening of effective column rinse solvent for Protein-A chromatography. *Protein Expression and Purification* **70**(2), 218-223 (2010).

Ordering Information

Product Name	Storage	Product No.	PKG Size
Arg-Antibody Elution Buffer(pH 4.0)	Room Temperature (Refrigerate after opening)	17088-15	500 ml

Use promptly after opening. This product is filtered but no preservative is used.

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