

[Cat. No.] TA-1021-1, TA-1021-5, TA-1021-10

## Introduction

AccuNanoBead™ Protein G Magnetic NanoBeads are silica beads conjugated with high purity (>95%) Protein G, which allow specific recognition of antibodies and purification of 1.2 mg of human IgG per 1 ml of bead solution. This product can be used for antibody purification, immunoprecipitation, antigen-antibody interaction, and cell separation.

## Features & Benefits

- Outstanding efficiency: Minimized loss through a strong magnetism out of magnetic nanobeads.
- Large binding capacity: Magnetic nanobeads with an average diameter of 400 nm gives rise to large surface areas for binding.
- High specificity: Reduced non-specific binding by using homogeneous spherical magnetic nanobeads.

## Components

| Components                                  | TA-1021-1       | TA-1021-5       | TA-1021-10       |
|---------------------------------------------|-----------------|-----------------|------------------|
| AccuNano Bead™ Protein G Magnetic NanoBeads | 40 mg/ml x 1 ea | 40 mg/ml x 5 ea | 40 mg/ml x 10 ea |

\* **Note:** For research use only. Not for use in diagnostic or therapeutic procedures.

## Specifications

| AccuNanoBead™ Protein G Magnetic NanoBeads |                                   |
|--------------------------------------------|-----------------------------------|
| Composition                                | Silica based magnetic nanobeads   |
| Binding capacity                           | > 1.2 mg of human IgG/ml of beads |
| Size                                       | Average 400 nm                    |
| Concentration                              | 40 mg/ml                          |

## Storage Buffer

AccuNanoBead™ Protein G Magnetic NanoBeads are supplied as a 4% (v/v) suspension in 1X storage buffer (phosphate buffered saline, pH 7.4, 0.02% Tween-20, and 0.1% NaN<sub>3</sub>).

## Storage

Store at 2 ~ 8°C

## Precautions

- Do not freeze and vigorously vortex AccuNanoBead™ Protein G Magnetic NanoBeads.
- An exact protocol may need to be optimized by the user.

## Online Resources



Korean



English

Visit our **product page** for additional information and protocols

## Ordering Information

| Description                                | Cat. No.                             |
|--------------------------------------------|--------------------------------------|
| AccuNanoBead™ Protein G Magnetic NanoBeads | TA-1021-1<br>TA-1021-5<br>TA-1021-10 |

## Notice

BIONEER corporation reserves the right to make corrections, modifications, improvements and other changes to its products, services, specifications or product descriptions at any time without notice.

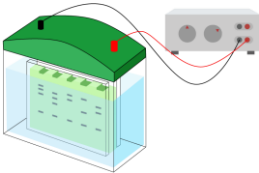
## Explanation of Symbols

|                                   |               |              |                |                   |                              |
|-----------------------------------|---------------|--------------|----------------|-------------------|------------------------------|
| LOT                               | Batch Code    | REF          | Catalog Number | Caution           | Consult Instructions For Use |
| Contains Sufficient for <n> tests | Do not Re-use | Manufacturer | RUO            | Research Use Only |                              |
| Temperature Limitation            | Use-by Date   |              |                |                   |                              |

## Experimental Procedures

| Steps                        |                                                                                                                                  | Procedure Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Antibody purification</b> |                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1                            |  <p><b>Equilibrating magnetic nanobeads</b></p> | <ol style="list-style-type: none"> <li>1. Resuspend AccuNanoBead™ Protein G Magnetic NanoBeads by gently vortexing.</li> <li>2. Transfer 100 µl of magnetic nanobeads to a 1.5 ml tube and place the tube on a Neodymium (Nd) magnet for 1 min.</li> <li>3. Remove the supernatant.</li> <li>4. Equilibrate by adding 1 ml of Binding &amp; Washing buffer to the bead slurry and mix briefly.</li> <li>5. Place the tube on the Nd magnet for 1 min and remove the supernatant.</li> <li>6. Repeat step 4 and 5 once more.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2                            |  <p><b>Sample Binding</b></p>                  | <ol style="list-style-type: none"> <li>7. Load about 500 µl of the sample containing antibody and 500 µl of Binding &amp; Washing buffer onto the pre-equilibrated magnetic nanobeads.</li> <li>8. Incubate in a rotator for 1 hr at room temperature.<br/>*Note: Make sure that the magnetic nanobeads are evenly resuspended. This is important for an efficient purification.</li> <li>9. Place the tube on the Nd magnet for 1 min and remove the supernatant.<br/>* Note: Supernatant from this step is the <u>Unbound sample</u> for checking the binding efficiency.</li> </ol>                                                                                                                                                                                                                                                                                                                                                     |
| 3                            |  <p><b>Washing magnetic nanobeads</b></p>     | <ol style="list-style-type: none"> <li>10. Add 500 µl of Binding &amp; Washing buffer and wash the magnetic nanobeads by gently pipetting.</li> <li>11. Place the tube on the Nd magnet for 1 min and remove the supernatant.<br/>* Note: Supernatant from this step is the <u>Washing sample</u> for checking the washing conditions.</li> <li>12. Repeat step 10 and 11 once more.<br/>* Note: After the final wash, the remaining Binding &amp; Washing buffer should be removed completely.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4                            |  <p><b>Elution</b></p>                        | <ol style="list-style-type: none"> <li>13. Add 100 µl of Elution buffer to elute antibody from magnetic nanobeads and gently mix.</li> <li>14. Incubate for 1 min at room temperature.</li> <li>15. Place the tube on the Nd magnet for 1 min and transfer the elution fraction to a new tube.<br/>Note: For a better yield, repeat the elution step once more or increase elution buffer volume.</li> <li>16. Add 10 µl (10% of eluate‡) of Neutralization buffer† to the elution fraction.<br/>Note: Elution fraction from this step is the <u>Elution sample</u> for checking the target proteins.<br/>† User may utilize other buffers for neutralization depending on the purpose of the experiment.<br/>‡ Elution buffer and Neutralization buffer should be mixed at a ratio of 9:1. The pH of mixture should be between 7-8. This only applies when using Elution buffer and Neutralization buffer provided in the kit.</li> </ol> |

| Immunoprecipitation |                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                   |  <p><b>Equilibrating magnetic nanobeads</b></p> | <ol style="list-style-type: none"> <li>1. Resuspend AccuNanoBead™ Protein G Magnetic NanoBeads by gently vortexing.</li> <li>2. Transfer 50 µl of magnetic nanobeads to a 1.5 ml tube and place the tube on a Neodymium (Nd) magnet for 1 min.</li> <li>3. Remove the supernatant.</li> <li>4. Equilibrate by adding 250 µl of Binding &amp; Washing buffer to the bead slurry and mix briefly.</li> <li>5. Place the tube on the Nd magnet for 1 min and remove the supernatant.</li> <li>6. Repeat step 4 and 5 once more.</li> </ol> |
| 2                   |  <p><b>Loading antibody</b></p>                 | <ol style="list-style-type: none"> <li>7. Load about 1-10 µg of antibody in 200 µl of Binding &amp; Washing buffer onto the pre-equilibrated magnetic nanobeads.</li> <li>8. Incubate in a rotator for 10 min at room temperature.</li> <li>9. Place the tube on the Nd magnet for 1 min and remove the supernatant.<br/>* <b>Note:</b> Supernatant from this step is the <u>Unbound sample</u> for checking the binding efficiency</li> </ol>                                                                                          |
| 3                   |  <p><b>Washing magnetic nanobeads</b></p>     | <ol style="list-style-type: none"> <li>10. Add 250 µl of Binding &amp; Washing buffer and wash the magnetic nanobeads by gently pipetting.</li> <li>11. Place the tube on the Nd magnet for 1 min and remove the supernatant.<br/>* <b>Note:</b> Supernatant from this step is the <u>Washing sample</u> for checking the washing conditions.</li> <li>12. Repeat step 10 and 11 once more.<br/>* <b>Note:</b> After the final wash, the remaining Binding &amp; Washing buffer should be removed completely.</li> </ol>                |
| 4                   |  <p><b>Antigen and antibody Binding</b></p>   | <ol style="list-style-type: none"> <li>13. Add 100-1,000 µl of sample containing target proteins and gently vortex.</li> <li>14. Incubate in a rotator for 1 hr at room temperature.<br/>* <b>Note:</b> Make sure that the magnetic nanobeads are resuspended well.</li> <li>15. Place the tube on the Nd magnet for 1 min and remove the supernatant.<br/>* <b>Note:</b> Supernatant from this step is the <u>Binding sample</u> for checking the binding of antigen and antibody.</li> </ol>                                          |
| 5                   |  <p><b>Washing magnetic nanobeads</b></p>     | <ol style="list-style-type: none"> <li>16. Add 200 µl of Binding &amp; Washing buffer and wash the magnetic nanobeads by gently pipetting.</li> <li>17. Place the tube on the Nd magnet for 1 min and remove the supernatant.</li> <li>18. Repeat step 16 and 17 two times.</li> <li>19. 200 µl of Binding &amp; Washing buffer.</li> <li>20. Resuspend well and transfer it to a new tube.</li> </ol>                                                                                                                                  |

|                                  |                                                                                                                          | <p>21. Centrifuge for 1-3 sec at 1,000-3,000 rpm briefly.</p> <p>22. Place the tube on the Nd magnet for 1 min and remove the supernatant.<br/>* <b>Note:</b> The Remaining Binding &amp; Washing buffer should be removed completely.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------|---------|--------|------|-------|----------------|------|------|------------------------|-------|---|--------------|-------|-------|
| <b>Elution</b>                   |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
| 6                                |  <p><b>Denaturing elution</b></p>       | <p>23. Add 10 µl of Elution buffer and 10 µl of distilled water (D.W.) and gently mix.</p> <p>24. Incubate at 70°C for 10 min.</p> <p>25. Place the tube on the Nd magnet for 1 min and transfer the elution fraction to a new tube.<br/>* <b>Note:</b> Elution fraction from this step is the <b>Elution sample</b> for checking the target proteins.</p> <p>26. Analyze the samples with SDS-PAGE.</p>                                                                                                                                                                                                                                                                                                                                                                                          |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
|                                  |  <p><b>Non-denaturing elution</b></p>  | <p>27. Add 20 µl of Elution buffer and gently mix.</p> <p>28. Incubate for 2 min at room temperature.</p> <p>29. Place the tube on the Nd magnet for 1 min and transfer the elution fraction to a new tube.</p> <p>30. Add 2 µl (10% of eluate‡) of Neutralization buffer† to the elution fraction.<br/>* <b>Note:</b> Elution fraction from this step is the <b>Elution sample</b> for checking the target proteins.<br/>† User may utilize other buffers for neutralization depending on the purpose of the experiment.<br/>‡ Elution buffer and Neutralization buffer should be mixed at a ratio of 9:1. The pH of mixture should be between 7-8. This only applies when using Elution buffer and Neutralization buffer provided in the kit.</p> <p>31. Analyze the samples with SDS-PAGE.</p> |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
|                                  |  <p><b>Option</b></p>                 | <p>• You can also use BIONEER's MagListo™-2 Magnetic Separation Rack (Cat. No. TM-1010) instead of a Nd magnet. Refer to the Manual of this product for additional information.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
| <b>Identification of samples</b> |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
|                                  |  <p><b>Analysis with SDS-PAGE</b></p> | <p>• Analyze the samples with SDS-PAGE.</p> <p>ex) Protocol for SDS-PAGE.</p> <table border="1"> <thead> <tr> <th></th><th>Unbound/Washing/<br/>Binding</th><th>Elution</th></tr> </thead> <tbody> <tr> <td>Sample</td><td>5 µl</td><td>15 µl</td></tr> <tr> <td>4X Loading dye</td><td>5 µl</td><td>5 µl</td></tr> <tr> <td>Distilled water (D.W.)</td><td>10 µl</td><td>-</td></tr> <tr> <td>Total volume</td><td>20 µl</td><td>20 µl</td></tr> </tbody> </table> <p>- Denaturize at 95°C for 5 min.<br/>- Load 5 µl each of "Unbound, Washing and Binding sample" and 10 µl of "Elution sample" on the SDS-PAGE gel.<br/>- Run SDS-PAGE.<br/>- Perform staining with Coomassie Blue R-250.</p>                                                                                                 |  | Unbound/Washing/<br>Binding | Elution | Sample | 5 µl | 15 µl | 4X Loading dye | 5 µl | 5 µl | Distilled water (D.W.) | 10 µl | - | Total volume | 20 µl | 20 µl |
|                                  | Unbound/Washing/<br>Binding                                                                                              | Elution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
| Sample                           | 5 µl                                                                                                                     | 15 µl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
| 4X Loading dye                   | 5 µl                                                                                                                     | 5 µl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
| Distilled water (D.W.)           | 10 µl                                                                                                                    | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |
| Total volume                     | 20 µl                                                                                                                    | 20 µl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                             |         |        |      |       |                |      |      |                        |       |   |              |       |       |