UltraBio™ Anti-His Magnetic Beads

Cat. No.: A751541 | Pack size: 0.2 mL / 1 mL | Storage: 2-8 °C; do not freeze

Overview

UltraBio™ Anti-His Magnetic Beads are polymer magnetic beads conjugated with Anti-His recombinant tag antibody for capture and enrichment of His-tagged fusion proteins. The beads combine superparamagnetic responsiveness with a polymer matrix, enabling rapid magnetic separation, low non-specific adsorption, and efficient protein interaction workflows.

The product is designed primarily for protein interaction experiments such as immunoprecipitation (IP), Co-IP, and pull-down assays. Each standard reaction uses 20 µL of bead suspension and can be eluted either with acidic elution buffer followed by neutralization or directly with SDS-PAGE loading buffer for gel electrophoresis or Western blot analysis.

Key Features

- Anti-His antibody ligand for specific recognition of His-tagged fusion proteins
- Polymer magnetic bead matrix with fast magnetic response and good dispersibility
- Low non-specific adsorption, suitable for IP, Co-IP, and pull-down workflows
- Supplied as a 10 mg/mL bead suspension with 1 µm particle size
- Compatible with Western blot and SDS-PAGE downstream analysis

Product Specifications

Parameter	Specification	Notes
Product name	UltraBio™ Anti-His Magnetic Beads	His tag magnetic beads for protein interaction experiments
Cat. No.	A751541	Available pack sizes: 0.2 mL and 1 mL
Grade & purity	BioReagent; for protein analysis	10 mg/mL; particle size: 1 µm
Bead matrix	Polymer magnetic beads	Superparamagnetic polymer microspheres
Ligand	Anti-His recombinant tag antibody (mouse anti)	Recognizes His-tagged target proteins

Parameter	Specification	Notes
Storage buffer	Tris (pH 8.0), 0.01% Tween 20, 0.1% ProClin 300	Resuspend thoroughly before use
Storage conditions	Store at 2-8 °C; do not freeze	Long-term stability: 24 months under recommended conditions
Shipping	Wet ice; do not freeze	Avoid frozen shipment or storage

Product Contents & Storage

Cat. No.	Component	0.2 mL	1 mL	Storage
A751541	UltraBio™ Anti-His Magnetic Beads (10 mg/mL; 1 µm)	0.2 mL	1 mL	2-8 °C; do not freeze

Shelf life: Stable for 24 months when stored at 2-8 °C. Do not freeze.

Note: *Minor bead aggregation may occur during storage. Thorough resuspension by gentle inversion is required before pipetting.*

Materials Required But Not Supplied

Item	Recommended Specification	Purpose
Magnetic stand	Compatible with 1.5 mL microcentrifuge tubes	Rapid magnetic separation
1.5 mL microcentrifuge tubes	Low protein-binding preferred	Reaction and washing vessel
Rotary mixer or tube rotator	4 °C or room-temperature operation	Uniform sample/bead incubation
Wash Buffer	20 mM Na_2HPO_4, 0.15 M NaCl, 0.05% Tween-20, pH 7.4	Bead washing
Elution Buffer	0.1 M glycine, 0.15 M NaCl, pH 3.0	Acidic protein elution
Neutralization Buffer	1 M Tris-HCl, pH 8.0	Neutralization of acidic eluate
1× SDS Loading Buffer	Compatible with SDS-PAGE	Direct denaturing elution

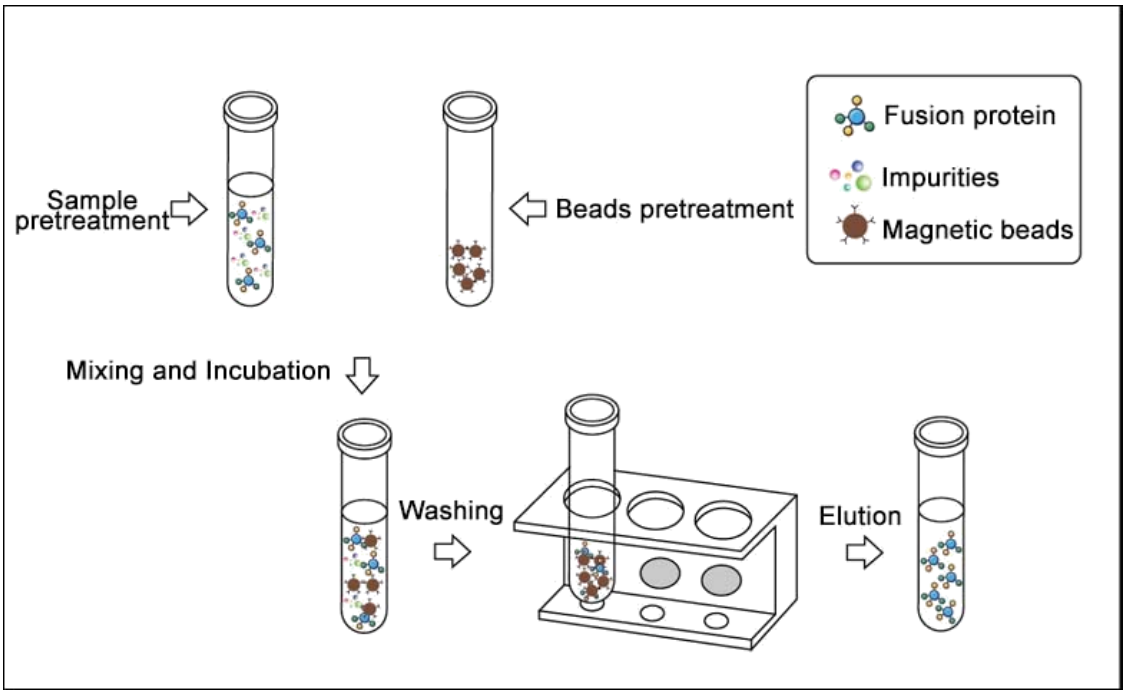
Item	Recommended Specification	Purpose
Cell lysate or protein sample	Prepared without high reducing-agent concentration	Source of His-tagged protein

Preparation Before Use

1. Bring the bead suspension to 2-8 °C or room temperature and resuspend thoroughly by gentle inversion before use.
2. Prepare fresh Wash Buffer, Elution Buffer, and Neutralization Buffer as described in the protocol.
3. Clarify cell lysate before incubation to minimize particulate carryover.
4. Avoid vortexing the bead suspension after target protein binding to reduce protein detachment.

Protocol

This protocol is primarily designed for protein interaction experiments. Each reaction uses 20 µL of UltraBio™ Anti-His Magnetic Beads. The workflow can be referenced in Figure 1.



Step 1 — Recommended Buffers

Prepare buffers using high-purity water and filter or clarify if particulate matter is present.

Buffer Name	Preparation
Wash Buffer	20 mM Na_2HPO_4, 0.15 M NaCl, 0.05% (v/v) Tween-20, pH 7.4
Elution Buffer	0.1 M glycine, 0.15 M NaCl, pH 3.0
Neutralization Buffer	1 M Tris-HCl, pH 8.0

Step 2 — Bead Washing

1. Transfer 20 µL of thoroughly resuspended magnetic beads to a 1.5 mL microcentrifuge tube.
2. Add 500 µL Wash Buffer and gently invert the tube 5-10 times to mix. Avoid vortexing.
3. Place the tube on a magnetic stand. After beads are fully captured (about 30 sec to 1 min), carefully remove and discard the supernatant without disturbing the bead pellet.
4. Repeat the wash four additional times for a total of five washes. After the final wash, remove as much supernatant as possible.

Step 3 — Sample Incubation

1. Add 500-1000 µL clarified cell lysate or protein sample to the washed beads.
2. Incubate at room temperature or 4 °C for 60 min with gentle rotation or mixing.
3. Place the tube on the magnetic stand. Once beads are captured, transfer the supernatant to a new tube for optional analysis.
4. Wash the beads five times with 500 µL Wash Buffer using gentle inversion and magnetic separation.

Note: *Recommended incubation conditions are room temperature for 0.5-2 h or 4 °C for 1-4 h. Overnight incubation is generally not recommended because it may increase non-specific binding.*

Step 4 — Protein Elution

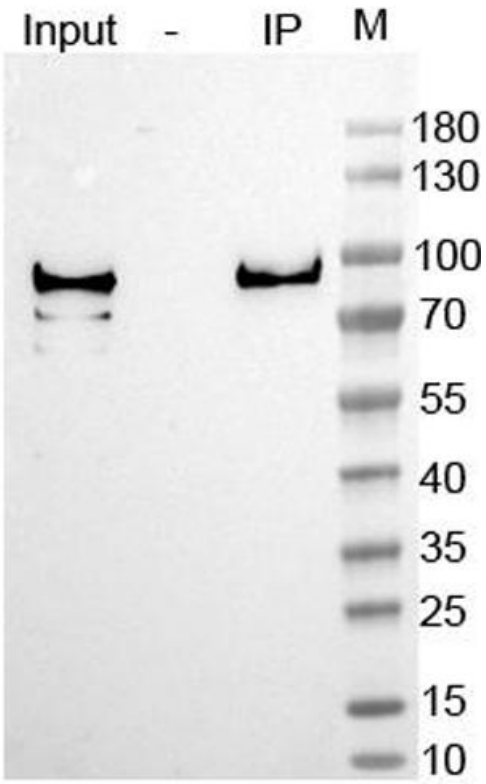
Elution Buffer method: Add 40 µL Elution Buffer per 20 µL original bead volume. Incubate at room temperature or 4 °C for 5-10 min while gently mixing 3-5 times. Magnetically separate and transfer the eluate to a fresh tube. Add Neutralization Buffer to adjust the pH to neutral before downstream analysis.

SDS-PAGE loading buffer method: Add 60 µL 1× SDS Loading Buffer per 20 µL original bead volume. Mix gently and heat at 95-100 °C for 5-10 min. Magnetically separate briefly and collect the supernatant for SDS-PAGE or Western blot analysis.

Step 5 — Application Example

1. For His-tag IP, use lysate from cells expressing a His-tagged fusion protein.
2. Wash 0.5 mL suspension cells (approximately 1.5×10^6 cells) three times with 1× PBS (pH 7.4), then lyse and centrifuge quickly.
3. Add 20 µL pre-washed beads to the clarified supernatant and incubate with shaking for 30 min.

4. Magnetically separate beads, remove the supernatant, wash five times with Wash Buffer, then elute with 1× SDS Loading Buffer at 99 °C for 10 min before Western blot analysis.
5. The detection antibody used was Anti-Flag-HRP mAb. The negative control (-) used blank polymer magnetic beads (not conjugated with Anti-His antibody) incubated with the sample. Results are shown in Figure 2.



Handling & Precautions

- Store at 2-8 °C and do not freeze. Freezing may irreversibly damage bead performance.
- Do not use lysates containing high concentrations of reducing agents such as DTT or β-mercaptoethanol because antibody ligand detachment may occur.
- The product tolerates urea concentrations up to 2 M. Higher concentrations may cause ligand detachment.
- Avoid aspirating beads during washing or elution. After elution, the eluate may be placed on a magnetic stand again to remove any accidentally transferred beads.
- Read the current SDS before use and wear suitable laboratory personal protective equipment.

Quality Control

QC Item	Method	Acceptable Range
Component completeness	Visual inspection on receipt	Product label, volume, lot number, and expiry information match order information
Bead concentration and particle size	Approved product specification	10 mg/mL bead suspension; particle size 1 µm
Magnetic response	Magnetic stand separation test	Beads are captured rapidly and resuspend uniformly after gentle mixing
Functional capture	His-tagged protein pull-down or IP	Specific target enrichment with low non-specific binding
Storage verification	Receipt and storage record review	Received on wet ice and stored at 2-8 °C; not frozen

Troubleshooting

Issue	Possible Causes	Corrective Action
Target protein does not bind	• Target protein expression is low • His tag is sterically hindered • Incubation time or mixing is insufficient • Bead volume is too low	• Check expression by Western blot before IP • Move tag to the N- or C-terminus or add a flexible linker • Optimize incubation for 0.5-2 h at room temperature or 1-4 h at 4 °C • Increase bead volume according to total protein input
High background or non-specific bands	• Lysate contains sticky proteins or particulates • Wash stringency is insufficient • Incubation is too long	• Clarify lysate thoroughly • Increase wash number or optimize salt/detergent concentration • Avoid overnight incubation unless validated
Beads are lost during washing	• Pellet is disturbed during aspiration • Magnetic separation time is too short	• Keep pipette tip away from bead pellet • Wait until beads are fully captured before removing supernatant

Issue	Possible Causes	Corrective Action
Poor elution recovery	• Elution time too short • Protein binds strongly to antibody-bead complex • Acidic eluate not neutralized promptly	• Extend elution to 10 min with gentle mixing • Use SDS loading buffer for denaturing elution • Neutralize acidic eluate before downstream analysis

Recommended Applications

IP · Co-IP · Pull-down assays · His-tagged fusion protein enrichment · Western blot sample preparation

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