

Protein Purification and Cell Lysis Systems

**Distinctive choices for
your multiple purification
demands.**

- **Total integration**
- **Precise measurement**
- **Full support**

Benefits

- **Saves time:** Ensure rapid purification utilizing either manual or automated formats.
- **Versatile:** Meet all your purification requirements (small-, medium- or large-scale). Systems suitable for purification of *E. coli*, mammalian and insect proteins are available.
- **Reliable:** Achieve optimal purification by using complete and validated systems.
- **Productive:** Collect more data by utilizing new applications.

Description

Promega offers several protein purification systems based on different tags in a variety of formats (Table 1). This diverse product portfolio enables purification of several individual proteins for high-throughput analysis (e.g., protein:protein interactions), or to prepare quantities necessary for structural analysis (e.g., X-ray crystallography/NMR).

Based on your tag and amount you require, Promega has a system for you.

Table 1. Choice of Protein Purification Systems and Reagents by Application.

	MagneHis™ System Cat. # V8500, V8550	HisLink™ Resin V8821	HisLink™ 96 System V3680, V3681	HisLink™ Spin System V1320	MagZ™ Protein Purification System V8830	MagneGST™ System V8600, V8603	FastBreak™ Reagent V8571, V8572, V8573
Small- to medium-scale purification of polyhistidine- or HQ-tagged proteins	●	■	●	●	■	■	■
Large-scale purification of polyhistidine- or HQ-tagged proteins	■	●	■	■	■	■	■
Purification of polyhistidine- or HQ-tagged proteins from TnT® reactions	■	■	■	■	●	■	■
Small-scale purification of GST-tagged proteins	■	■	■	■	■	●	■
High-throughput /automated purification	●	■	●	■	●	●	■
Lyse <i>E. coli</i> directly in media	■	■	■	■	■	■	●
Protocols for small- to medium-scale purification of polyhistidine- or HQ-tagged proteins from mammalian or insect cells	●	■	●	●	■	■	■

Key: ● Recommended, ■ Not Recommended

MagneHis™ Protein Purification System

Obtain pure proteins in only 20 minutes

The MagneHis Protein Purification System^(a-c) provides a simple, rapid and reliable method for purification of polyhistidine- or HQ-tagged fusion proteins (Figure 1). Paramagnetic, precharged nickel particles are used to isolate polyhistidine- or HQ-tagged proteins directly from a crude cell lysate using either manual or automated procedures.

HisLink™ Protein Purification Resin

Direct purification from crude cell lysates, no centrifugation required

HisLink Protein Purification Resin^(a,c) is designed to efficiently capture and purify large amounts of polyhistidine or HQ fusion proteins expressed in bacterial cells. The HisLink Resin is adaptable for either column or batch formats. In batch format, HisLink Resin may be easily separated from cell lysates without filtration or centrifugation, allowing processing of large quantities of lysate and purification of protein directly from crude cell lysate (Figure 2).

HisLink™ Spin Protein Purification System

Optimize performance by using a complete kit

The HisLink Spin Protein Purification System^(a-c) provides a simple, quick and robust method of purifying multiple polyhistidine- or HQ-tagged expressed proteins from *E. coli* using either a centrifuge- or vacuum-based method. The HisLink Spin System purifies expressed polyhistidine- or HQ-tagged proteins directly from a 700µl sample of cell culture.

Protein can be purified directly from culture medium containing bacterial cells expressing a polyhistidine- or HQ-tagged protein. The bacterial cells are lysed using FastBreak™ Cell Lysis Reagent, followed immediately by addition of HisLink Protein Purification Resin to the culture. Addition of these reagents results in simultaneous bacterial lysis and binding of the polyhistidine- or HQ-tagged proteins. The samples are then transferred to a HisLink Spin Column where unbound protein is washed away and the target protein is recovered by elution.

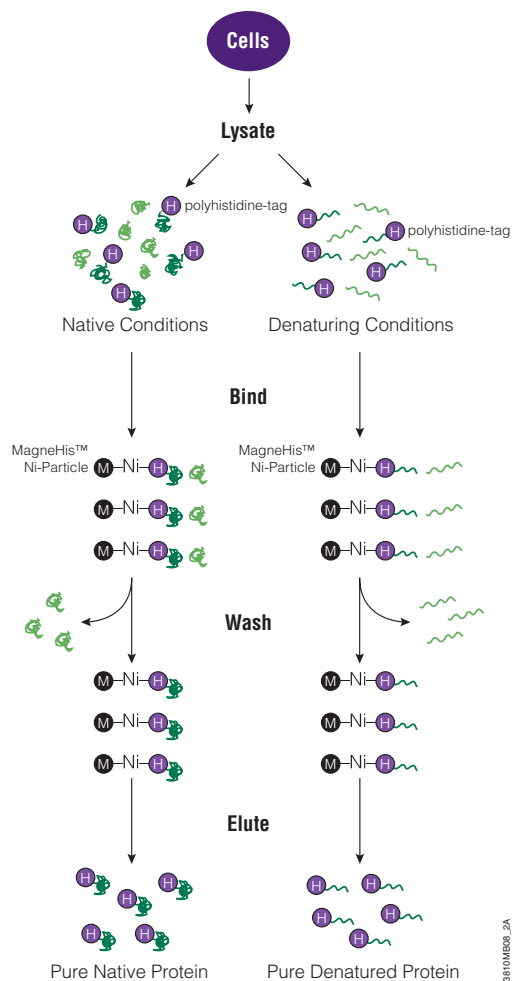


Figure 1. Diagram of the MagneHis™ Protein Purification System protocol.

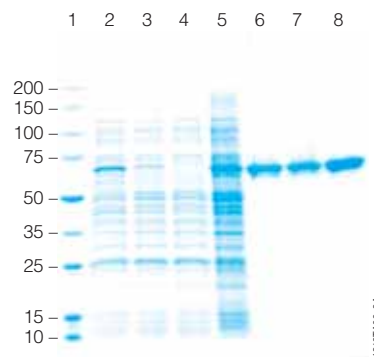


Figure 2. Purification of polyhistidine fusion protein using HisLink™ Resin in a column and batch format with both cleared and crude lysate. Lane 1, Protein Marker; lane 2, bacterial lysate expressing a 61kDa polyhistidine-tagged protein; lane 3, flowthrough of lysate (column, cleared); lane 4, flowthrough of lysate (batch, cleared); lane 5, flowthrough of lysate (batch, crude); lane 6, eluted polyhistidine-tagged protein (column, cleared); lane 7, eluted polyhistidine-tagged protein (batch, clear); lane 8, eluted polyhistidine-tagged protein (batch, crude).

MagneGST™ Protein Purification System

Efficient and rapid purification of GST-tagged fusion proteins

The MagneGST Protein Purification System^(a-d) provides a simple, rapid and reliable method for the purification of glutathione-S-transferase (GST) fusion proteins (Figure 5). The use of non-magnetic GST purification matrices for small-scale batch purification can be time-consuming and difficult. Magnetic-based GST binding particles provide a one-step purification, which eliminates several centrifugation steps, the need for multiple tubes and minimizes sample loss (Figure 6).

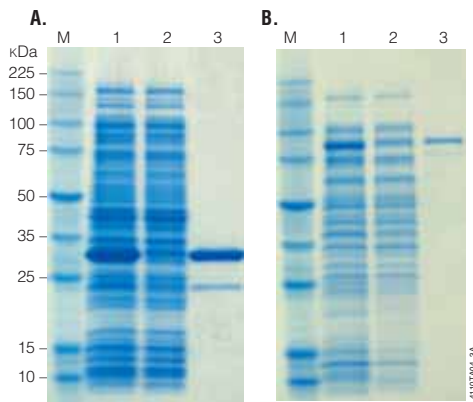


Figure 6. Purification of GST fusion proteins using MagneGST™ Protein Purification System. Panel A, Lane M, Protein Molecular Weight Marker (Cat.# V8491); lane 1, bacterial lysate expressing GST-tagged ubiquitin; lane 2, flowthrough of lysate; lane 3, eluted GST-tagged ubiquitin. Panel B, Lane M, Protein Molecular Weight Marker; lane 1, bacterial lysate expressing GST-tagged firefly luciferase; lane 2, flowthrough; lane 3, eluted GST-tagged firefly luciferase.

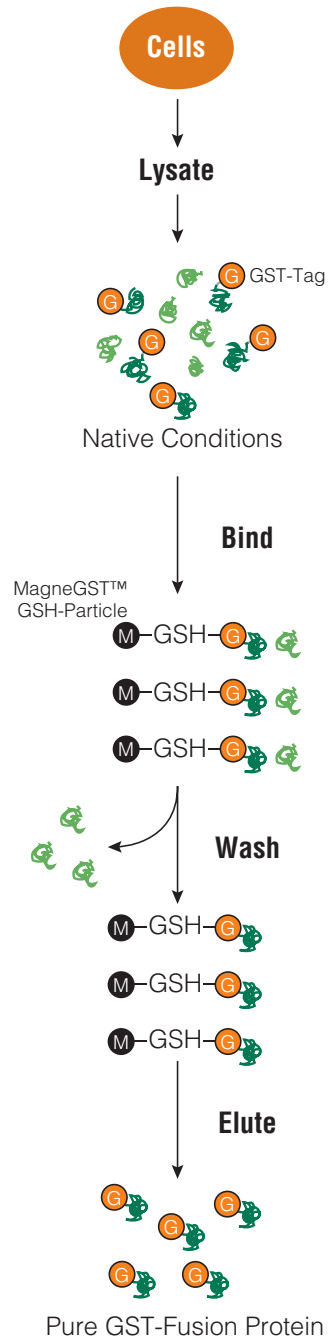


Figure 5. Diagram of the MagneGST™ Protein Purification System protocol.

GSH = Glutathione

G = GST tag

Note: This page is only 8" wide to allow for three hole punch.

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HisLink™ 96 Protein Purification System

Consistent purification across multiple wells

The HisLink 96 Protein Purification System^(a-c) provides a simple, quick and robust vacuum-based method for purifying multiple polyhistidine- or HQ-tagged expressed proteins from *E. coli*. Bacterial cultures are grown in a deep-well, 96-well plate and lysed directly in culture using the provided FastBreak Cell Lysis Reagent. The HisLink Resin is added directly to the lysate and the polyhistidine- or HQ-tagged proteins bind in a matter of minutes. The samples are then transferred to a filtration plate. Unbound proteins are washed away, and the target protein is recovered by elution with imidazole (Figure 3).

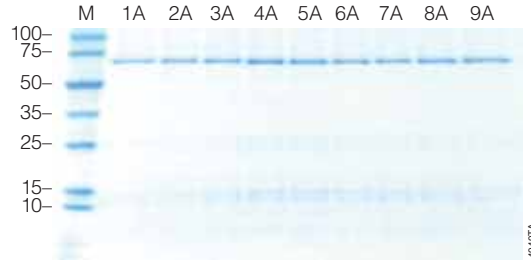


Figure 3. Reproducibility of purification from multiple samples. Lanes denote well number of 96-well plate in which sample cultures expressing 6X polyhistidine-tagged luciferase were lysed using the FastBreak™ Cell Lysis Reagent (Cat.# V8571) and then purified following the manual procedure provided in the HisLink™ 96 Protein Purification System Technical Manual #TM065. **Lane M**, Broad Range Protein Molecular Weight Markers (Cat.# V8491).

MagZ™ Protein Purification System

Purify proteins from rabbit reticulocyte that are 99% hemoglobin free

The MagZ Protein Purification System^(a) provides a simple and reliable method for the purification of expressed polyhistidine- or HQ-tagged proteins that are 99% free of hemoglobin contamination from rabbit reticulocyte lysate (Figure 4). Based on proprietary paramagnetic pre-charged particles, the MagZ System allows purification of polyhistidine- or HQ-expressed proteins from 50–500µl of TnT[®] coupled transcription/translation reactions. Unbound proteins are washed away and the target protein is recovered by elution with imidazole.

FastBreak™ Cell Lysis Reagent, 10X

Quickly lyse cells directly in media

FastBreak Cell Lysis Reagent, 10X^(a-c) is designed for the efficient, gentle lysis of *E. coli* cultures without centrifugation or mechanical disruption. The reagent, which is added directly to the bacterial culture, is provided as a 10X concentration. Following a brief incubation, the cells are disrupted and the protein of interest is released. Recombinant proteins can be directly purified by the addition of the appropriate affinity matrix such as the MagneHis™ Protein Purification System or HisLink Protein Purification Resin (Figure 3).

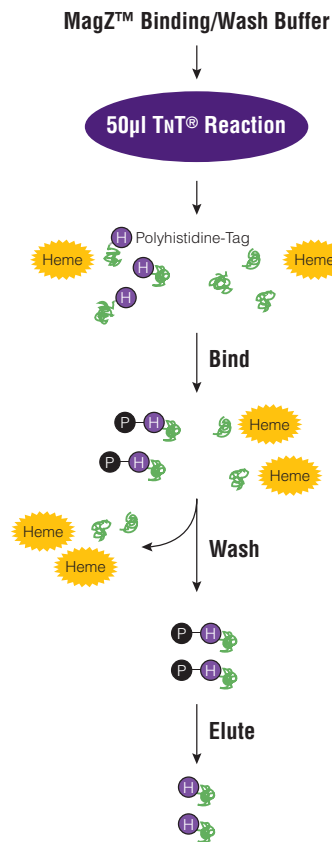


Figure 4. MagZ™ Protein Purification System procedure.

Ordering Information

Product	Size	Cat.#
MagneHis™ Protein Purification System ^{(a-c)*}	65 purifications	V8500

*Each system contains sufficient reagents for 65 manual purifications each using 1ml of culture volume.

MagneHis™ Protein Purification System*	325 purifications	V8550
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*Each system contains sufficient reagents for 325 manual purifications each using 1ml of culture volume.

MagneHis™ Ni-Particles ^(a)	2ml	V8560
	10ml	V8565

HisLink™ Protein Purification Resin (50% slurry) ^(a-c)	50ml	V8821
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HisLink™ Spin Protein Purification System*	25 purifications	V1320
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*Each system contains sufficient reagents for 25 manual purifications each using 700µl of culture volume.

HisLink™ 96 Protein Purification System	1 × 96	V3680
	5 × 96	V3681

MagZ™ Protein Purification System*	30 purifications	V8830
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*Each system contains sufficient reagents for purification from 30 50µl TnT[®] reactions.

FastBreak™ Cell Lysis Reagent, 10X ^(a-c)	15ml	V8571
	60ml	V8572
	100ml	V8573

MagneGST™ Protein Purification System ^{(a-d)*}	40 purifications	V8600
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*Each system contains sufficient reagents for 40 manual purifications each using 1ml of culture volume.

MagneGST™ Protein Purification System*	200 purifications	V8603
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*Each system contains sufficient reagents for 200 manual purifications each using 1ml of culture volume.

MagneGST™ Glutathione Particles ^(d)	4ml	V8611
	2 × 10ml	V8612

Related Products

Product	Size	Cat.#
MagneSphere® Technology		
Magnetic Separation Stand (12-position)	1.5ml tubes	Z5342
MagneSil® Magnetic Separation Unit	1 each	A2231
Broad Range Protein Molecular Weight Markers	100 lanes	V8491
Gel Drying Kit, 17.5 × 20cm capacity	1 kit	V7120

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Promega Corporation • 2800 Woods Hollow Road • Madison, WI 53711-5399 USA • Telephone 608-274-4330 • Fax 608-277-2601
www.promega.com

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