

TALON[®] Metal Affinity Resins

Superior for purifying polyhistidine-tagged proteins

- Enhanced selectivity
- Highest purity
- Choice of purification conditions and resin formats

TALON Resin is a durable, versatile immobilized metal ion affinity chromatography (IMAC) resin (1) designed for purifying polyhistidine-tagged proteins using Clontech's novel, patented TALON technology.

Advantages

Higher specificity: The TALON ligand contains a cobalt core that binds polyhistidine-tagged proteins more specifically than nickel-based IMAC resins. Only adjacent or specially positioned, neighboring histidines are able to bind this reactive core (Figure 1).

Low metal ion leakage: TALON resins exhibit less metal ion leakage than Ni-NTA resins, since cobalt forms more uniform complexes with our chelating ligand than nickel.

Binding characteristics: TALON resins exhibit significantly lower binding of non-tagged host proteins than nickel-based resins (2, 3). These characteristics offer two practical advantages. First, virtually no background proteins bind to TALON Resin, so cumbersome washing procedures are not generally required before protein elution. Second, polyhistidine-tagged proteins elute from TALON Resin under slightly less stringent conditions than from nickel IMAC resins.

Elute with imidazole or pH gradient: Elute TALON Resin under relatively mild physiological conditions or simply add imidazole to the elution buffer.

Purify protein under either native or denaturing conditions: Although TALON Resin works in the presence of denaturants such as guanidinium-HCl or 8 M urea, it can also be used to purify

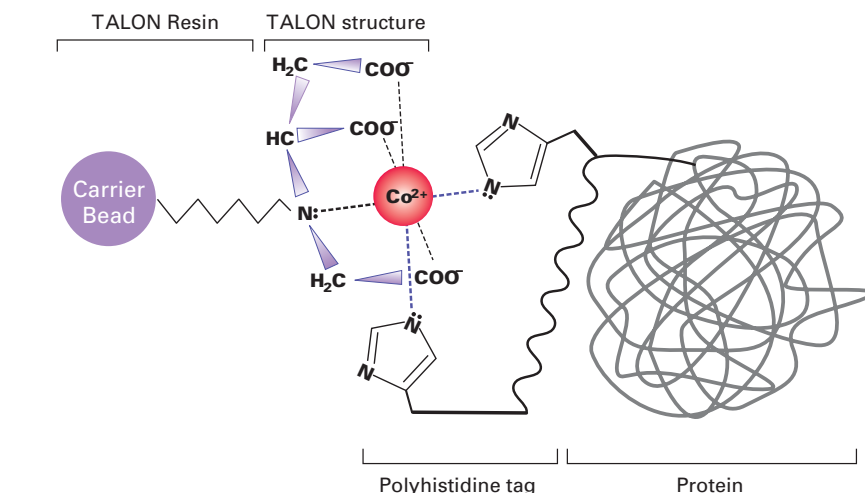


Figure 1. Molecular mechanism of polyhistidine binding to TALON Resin. Our patented tetradentate chelator binds the cobalt ion with strong affinity, resulting in improved binding to polyhistidine tags.

Table I: TALON Resin formats and their applications

TALON Metal Affinity Resin	Purify most cytosolic and secreted polyhistidine-tagged proteins by small-scale or batch/gravity flow under native or denaturing conditions.
TALON Superflow Resin	Use for FPLC, medium-pressure chromatography, or scale-up for production applications.
TALON CellThru Resin	For high-throughput purification of polyhistidine-tagged proteins from crude extracts
TALONspin™ Columns	For small-scale single-use applications
TALON HT 96-Well Plate	Purify up to 96 different proteins in 30 min at up to 1 mg target protein per well.
TALON Purification Kit	A convenient starter kit for purifying polyhistidine-tagged proteins
TALON Disposable Gravity Columns	Disposable single-use columns to be packed by user with TALON Resin.
TALON Buffer Kit	Convenient premade buffers for any TALON Resin application
TALON xTractor Buffer	For efficient extraction of polyhistidine-tagged proteins from bacteria to enable purification using TALON resin
TALON Magnetic Beads	Combine TALON chemistry with magnetic bead separation for small volume applications.
TALON Magnetic Beads Buffer Kit	Convenient premade buffers for use with TALON Magnetic Beads.

proteins under native conditions that retain protein activity (Figure 2).

A variety of formats are offered for your specific needs: TALON Resin is provided in several different formats designed for specific applications—available separately or together with optimized

buffers (Table I). For example, TALON Superflow Resin (4), which can be used at increased flow rates, purifies polyhistidine-tagged GFPuv over 3X as rapidly as the corresponding Ni-NTA Superflow resin (Table II).

Clontech Laboratories, Inc.
A Takara Bio Company
www.clontech.com

United States/Canada: 800.662.2566 • Europe: 33.(0)01.39.04.68.80 • Asia Pacific: 81.77.543.7247
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TALON® Metal Affinity Resins continued

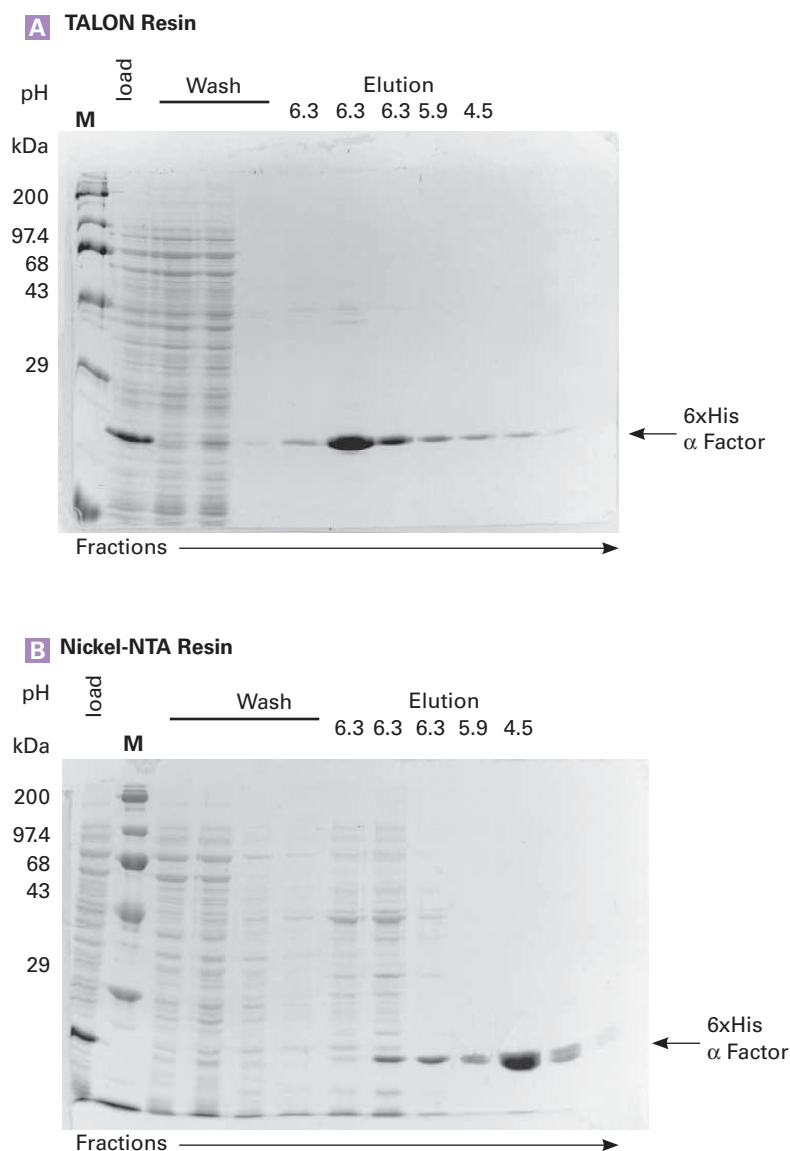


Figure 2. Purification of polyhistidine-tagged proteins under native conditions compared to purification using Ni-NTA. In comparison with Ni-NTA resin, TALON is more specific for polyhistidine-tagged proteins. These proteins can be eluted from TALON at more neutral conditions (pH = 6.3) than from Ni-NTA resins (pH = 4.5). 6xHis-tagged prepro- α -factor was expressed in *E. coli*, lysed and loaded onto each gravity flow column, and eluted by a step-wise pH gradient. Purified fractions were analyzed by SDS-PAGE. M=molecular weight markers.

Table II: Faster purification with TALON Resin

Resin	Extraction/ Loading pH	Extracted Protein	Nonadsorbed Protein	Eluted Protein	Runtime
TALON Superflow	7.0	22.9 mg	12.5 mg	10.4 mg	20 min
Ni-NTA Superflow	8.0	18.4 mg	9.3 mg	7.7 mg	64 min

* polyhistidine-tagged GFPuv

Product	Size	Cat. No.	Price
TALON Metal Affinity Resin	10 ml	635501	\$92.00
	25 ml	635502	\$206.00
	100 ml	635503	\$697.00
TALON xTractor Buffer	500 ml	635625	\$276.00

Prices are subject to change without notice.

Related Products

- TALON® 2-ml Disposable Gravity Column (Cat. No. 635606)
- TALON® CellThru 10-ml Disposable Columns (Cat. No. 635513)
- TALON® Purification Kit (Cat. No. 635515)
- TALON® Buffer Kit (Cat. No. 635514)
- TALON® xTractor Buffer Kit (Cat. No. 635623)
- TALONspin™ Columns (Cat. Nos. 635601, 635602 & 635603)
- TALON® Superflow Metal Affinity Resin (Cat. Nos. 635506 & 635507)
- TALON® HT 96-Well Purification Plate (Cat. No. 635622)
- TALON® CellThru Resin (Cat. Nos. 635509 & 635510)
- TALON® Magnetic Beads (Cat. Nos. 635636 & 635637)
- TALON® Magnetic Beads Buffer Kit (Cat. No. 635638)
- TALON® PMAC Magnetic Phospho Enrichment Kit (Cat. No. 635641)
- Glutathione-Superflow Resin (Cat. Nos. 635607 & 635608)
- Glutathione-Uniflow Resin (Cat. Nos. 635610 & 635611)
- Glutathione Purification Kit (Cat. No. 635619)

Notice to Purchaser

Please see the TALON® Products licensing statement at www.clontech.com/support/licenses.asp.

References

1. Porath, J., *et al.* (1975) *Nature* **258**:598–599.
2. Janssen, D. (2002) *Genomics & Proteomics* **2**:48–51.
3. Sulkowski, E. (1989) *Bioessays* **10**:170–175.
4. Tchaga, G. S., *et al.* (April 2000) *Clontechiques* **XV**(2):31–32.