Pure Attraction

Selectivity that's simply captivating — Bio-Rad's Profinity™ IMAC Ni-charged resin provides optimal purification of recombinant His-tagged proteins.

- Optimal ligand density for higher purity of target protein
- Compatibility with denaturants, detergents, and reducing agents allows excellent purification over an expanded range of conditions
- Stability in pH 1–14 for storage in a variety of solutions
- Profinity polymer bead allows purification at fast flow rates
- Easy-to-pack resin may be used in medium-pressure, gravity-flow, and spin columns
- Also available uncharged

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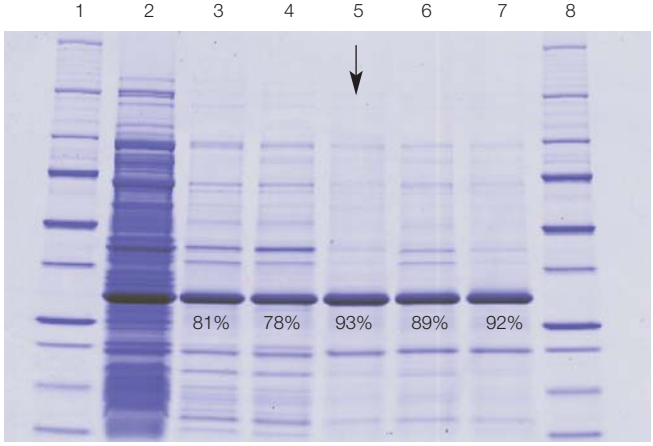
Profinity IMAC Ni-Charged Resin

Profinity IMAC Ni-charged resin provides purification of recombinant His-tagged proteins for a wide molecular weight range. The Profinity IMAC bead is a porous 60 µm particle derivatized with iminodiacetic acid (IDA), which functions as the chelating ligand. The chemical structure of IDA, when charged with Ni^{2+} or other transition metal ions, allows highly selective binding of recombinant His-tagged proteins over naturally occurring His-containing proteins. The polymeric nature, optimized IDA ligand density, and open pore structure of the Profinity IMAC bead result in superb mechanical strength, high selectivity for target proteins, low nonspecific binding, and the ability to perform purifications at faster flow rates.

Profinity IMAC resin is stable across the full pH range (1–14) and is compatible with reagents traditionally used in the purification of His-tagged proteins. Available either charged with nickel or uncharged in small and large volumes, the resin is easy to pack in Bio-Scale™ medium-pressure, Econo-Column® gravity-flow, and Bio-Spin® columns.



Purification of a putative aminopeptidase protein using different IMAC resins. An insoluble 32 kD protein obtained from *Anabaena* sp. strain PCC 7120 (courtesy of Dr Ray Stevens, University of California, Berkeley, CA, USA) was expressed in *E. coli* and purified under denaturing conditions. *E. coli* lysate was loaded onto Micro Bio-Spin™ columns containing individual IMAC resins and purified. The binding buffer was 50 mM potassium phosphate, 300 mM NaCl, 8 M urea (pH 8.0), and the elution buffer was binding buffer plus 250 mM imidazole. To determine purity of the target protein, 3 µg of sample eluate from each column was loaded and separated on a Criterion™ gel, stained with Coomassie Blue, then quantitated using Quantity One® software. Lanes 1 and 8, 10 µl Precision Plus Protein™ standards; lane 2, 3 µl crude lysate; lane 3, Ni-charged, high-binding-capacity agarose-based resin from supplier A (IDA ligand); lane 4, uncharged agarose-based resin from supplier A (IDA ligand), charged with Ni^{2+}; lane 5, Profinity IMAC Ni-charged resin; lane 6, Ni-charged agarose-based resin from supplier B (NTA ligand); lane 7, Co^{2+}-charged tetradentate agarose from supplier C. The purity obtained for each resin is indicated; arrow highlights result obtained with Profinity IMAC resin.

Specifications

Functional ligand	IDA
Base bead	UNOsphere™ base matrix
Form	50% suspension in 20% EtOH, precharged with Ni^{2+} or uncharged
Particle size	45–90 µm
Mean particle size	60 µm
Metal ion capacity	12–30 µmol Cu^{2+}/ml
Dynamic binding capacity*	≥15 mg/ml
Recommended linear flow rate	≤600 cm/hr at 25°C
Maximum operating pressure	7.5 bar (109 psi)
pH stability, uncharged resin	1–14 (up to 200 hr)
Chemical compatibilities	See bulletin 3193 for complete list
Storage	4°C to ambient temperature
Shelf life in 20% EtOH	>1 year at ambient temperature
Operational temperature	4–40°C
Autoclaving conditions	0.1 M sodium acetate at 120°C for 30 min

* Binding capacity was determined by $Q_{10\%}$ determination under the following conditions (dynamic binding capacity will vary from protein to protein):

Column volume	1 ml (7 mm ID x 2.6 cm) column
Sample	1.8 mg/ml pure 32 kD His-tagged protein
Flow rate	1 ml/min loading 2 ml/min wash and elution
Loading buffer	50 mM sodium phosphate, 300 mM NaCl, 5 mM imidazole (pH 8.0)
Wash buffer	Same as loading except 10 mM imidazole
Elution buffer	Same as loading except 250 mM imidazole

Ordering Information

Catalog #	Description
Nickel-Charged	
156-0131	Profinity IMAC Ni-Charged Resin, 10 ml
156-0133	Profinity IMAC Ni-Charged Resin, 25 ml
156-0135	Profinity IMAC Ni-Charged Resin, 100 ml
156-0137	Profinity IMAC Ni-Charged Resin, 500 ml
Uncharged	
156-0121	Profinity IMAC Resin, 10 ml
156-0123	Profinity IMAC Resin, 50 ml
156-0125	Profinity IMAC Resin, 500 ml
156-0127	Profinity IMAC Resin, 1 L

Profinity IMAC resin is based on UNOsphere bead technology. UNOsphere technology is covered by US patent 6,423,666.

For more information on Profinity IMAC resins, request bulletin 3193.

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Web site *www.bio-rad.com* ***USA*** *(800) 4BIORAD* ***Australia*** *02 9914 2800* ***Austria*** *(01)-877 89 01* ***Belgium*** *09-385 55 11* ***Brazil*** *55 21 2527 3454* ***Canada*** *(905) 712-2771* ***China*** *(86 21) 6426 0808* ***Czech Republic*** *+ 420 2 41 43 05 32* ***Denmark*** *44 52 10 00* ***Finland*** *09 804 22 00* ***France*** *01 47 95 69 65* ***Germany*** *089 318 84-0* ***Greece*** *30 210 777 4396* ***Hong Kong*** *(852) 2789 3300* ***Hungary*** *36 1 455 8800* ***India*** *(91-124)-2398112/3/4, 5018111, 6450092/93* ***Israel*** *03 951 4127* ***Italy*** *39 02 216091* ***Japan*** *03-5811-6270* ***Korea*** *82-2-3473-4460* ***Latin America*** *305-894-5950* ***Mexico*** *55-52-00-05-20* ***The Netherlands*** *0318-540666* ***New Zealand*** *64 9 415 2280* ***Norway*** *23 38 41 30* ***Poland*** *+ 48 22 331 99 99* ***Portugal*** *351-21-472-7700* ***Russia*** *7 095 721 1404* ***Singapore*** *65-64153188* ***South Africa*** *00 27 11 4428508* ***Spain*** *34 91 590 52 00* ***Sweden*** *08 555 12700* ***Switzerland*** *061 717 95 55* ***Taiwan*** *(886 2) 2578 7189/2578 7241* ***United Kingdom*** *020 8328 2000*