

PureCube NTA Cartridge 1 mL & 5 mL

Product	Catalog No.	Package size
PureCube NTA Cartridge (1 x 1 mL)	31901	1 x 1 mL prepacked column
PureCube NTA Cartridge (5 x 1 mL)	31903	5 x 1 mL prepacked columns
PureCube NTA Cartridge (1 x 5 mL)	31905	1 x 5 mL prepacked column
PureCube NTA Cartridge (5 x 5 mL)	31907	5 x 5 mL prepacked columns

Product Description

The PureCube NTA Cartridge is a chromatography column prepacked with PureCube NTA Agarose. The column is stored in buffer containing 20% ethanol to prevent microbial growth. The PureCube NTA Cartridge is available in two sizes, 1 mL bed volume and 5 mL bed volume (dimensions given in Product Specifications). Both column sizes exhibit excellent chemical resistance to most commonly used reagents and the End Plugs include standard connections compatible with common chromatography instruments (such as ÄKTA). The 5 mL column has two layers of mesh (coarse and fine) at one end to give excellent flow distribution. The void volume in each End Plug is minimal, because the fluid is introduced through a narrow flow path (i.e. 1 mm hole).

Product Specifications

Parameter	PureCube NTA Cartridge, 1 mL	PureCube NTA Cartridge, 5 mL
Technology	IMAC	IMAC
Functional Group	Nitrilotriacetic Acid	Nitrilotriacetic Acid
Format	1 mL	5 mL
Dimensions	6.2 x 50	11 x 80
Column Body Material	Polypropylene	Acrylate
End Plug Material	Polypropylene	Polypropylene
Inlet/Outlet	10-32 UNF female thread	10-32 UNF female thread
Matrix	7.5% highly cross-linked agarose	7.5% highly cross-linked agarose
Particle Diameter	40 µm	40 µm
Protein Binding Capacity*	20 mg	100 mg
Max. Flow Rate	6 mL/min	6 mL/min
Recommended Flow Rate**	0.5-2.0 mL/min	0.5-2.0 mL/min
Recommended Operational Pressure	Up to 5 bar (72 psi)	Up to 3 bar (42 psi)
pH Stability	2-14	2-14

* Protein binding capacity can vary for different proteins

** Dynamic binding capacity strongly correlates with the flow rate and other parameters such as protein size and buffer conditions

Affinity Resin

PureCube NTA Agarose was developed for metal loading and affinity purification of proteins carrying a polyhistidine tag. This affinity chromatography matrix is based on BioWorks Workbeads, consisting of 7.5% cross-linked agarose. The material is highly porous to allow for optimal protein interaction. Cross-linked agarose is also physically very stable, making it suitable for purification processes under low pressure with variable flow rates. Our agarose is very homogeneous in size with a medium particle diameter of 40 µm, yielding a high degree of reproducibility between individual purification runs.

An NTA ligand is coupled to the agarose resin to obtain a matrix with highest binding capacity for histidine residues. The metal ion capacity is >15 µeqv Cu²⁺/mL. Other possible metal ions are Ni²⁺, Zn²⁺, Fe³⁺, Co²⁺, Al³⁺, resulting in different affinities, e.g., for zinc-finger proteins or phosphorylated proteins. If required, the metal ions can be removed from the agarose matrix using five wash steps with 100 mM EDTA, and the matrix can be recharged with a different metal ion. Alternatively, please contact us for metal-loaded NTA agarose; NTA matrices charged with other metals are available upon request.

Protein Binding Capacity

PureCube NTA Cartridges have a binding capacity of 20 mg/mL as determined by purification of 6xHis-tagged GFP protein from *E.coli* cleared lysates, and quantified via spectrophotometry. It should be considered that the dynamic binding capacity strongly correlates with flow rate and other parameters such as protein size and buffer conditions. It is recommended to use the lowest flow rate possible to achieve highest binding capacity.

Compatibility

NTA Agarose resin is very stable and can resist the following conditions in most situations: pH 2-14, 100% methanol, 100% ethanol, 8 M urea, 6 M guanidinium hydrochloride, 30% (v/v) acetonitrile.

Shipping and Storage

Parameter	PureCube NTA Cartridge, 1 mL	PureCube NTA Cartridge, 5 mL
Long-term Stability	3 years after shipment	3 years after shipment
Shipment Temperature	Ambient temperature	Ambient temperature
Storage Buffer	20% ethanol, pH 6.5	20% ethanol, pH 6.5
Storage Temperature	2-8 °C	2-8 °C

Additional Information

For protein purification protocols, including protocols for packing chromatography columns or regenerating NTA agarose, please visit our webpage at www.cube-biotech.com/protocols. For purification of his-tagged proteins from dilute solutions, we recommend using PureCube Co-NTA or Ni-NTA MagBeads. For affinity purification of GST-tagged, rho1D4-tagged or strep[®]-tagged proteins, Cube Biotech offers dedicated agarose resins, magnetic beads and prepacked cartridges. Also available are a range of ultrapure detergents and buffers for extraction and purification of proteins. See www.cube-biotech.com/products for details.

Disclaimer: Our products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

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