

IDA Magnetic Beads

Introduction

BcMag™ IDA magnetic beads (Fig.1) are 1µm and 5µm in diameter and highly uniform magnetic microspheres covalently immobilized with a high density of IDA (Iminodiacetic Acid) ligand designed for capture and purification of proteins from various sample types. The microspheres combine all the advantages of Immobilized metal ion affinity chromatography (IMAC) protein purification such phosphoproteins, phosphopeptides or his-tagged protein (low costs, simplicity, high specificity, and capacity) and magnetic properties to perform efficient manual or automatic quick high-throughput purification.

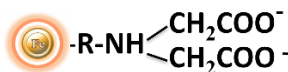


Fig.1

Specification		
Composition	Magnetic beads immobilized with IDA group on the surface	
Number of Beads	~ 1.68 x 10 ⁹ beads/mg (1µm beads) ~ 5 x 10 ⁷ beads /mg (5µm beads)	
Stability	Short Term (<1 hour): pH 3-11; Long-Term: pH 4-10 Temperature: 4°C -140°C; Most organic solvents	
Magnetization	~40-45 EMU/g	
Type of Magnetization	Superparamagnetic	
Binding capacity	1µm Magnetic Beads	~40 µMol NiSO ₄ / Gram of Beads
	5µm Magnetic Beads	~32 µMol NiSO ₄ / Gram of Beads
Storage	Store at 4°C upon receipt. Do not freeze	

Workflow

BcMag™ IDA Magnetic Beads work perfectly as solid resin for various affinity purifications to refine molecules, cells, and parts of cells into purified fractions. Add the beads to a solution containing the target molecules, then mix, incubate, wash, and elute the target molecules (Fig.2)

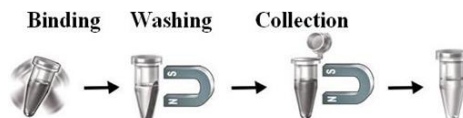


Fig.2 Workflow of IDA magnetic beads for affinity purification

Features and Advantages:

- Easy to use.
- More efficient and low nonspecific binding
- Stable covalent bond with minimal ligand leakage
- Produces reusable matrices.
- Low nonspecific binding

Applications:

To purify phosphoproteins and phosphopeptides, you can easily replace your current Al³⁺, Ga³⁺, or Fe³⁺ chelated resin or cartridge without needing to change your protocol or optimize the process. This method works for purification under both native and denaturing conditions and is effective for proteins of various sizes and with low expression rates.



Phosphopeptides are often found in complex proteolytic digest mixtures containing both phosphorylated and nonphosphorylated components, and immobilized Al^{3+} , Ga^{3+} , and Fe^{3+} ions are commonly used to selectively enrich them. NTA and IDA are popular ligands used in this process, and different ligand-metal ion combinations can yield varying purification results depending on the protein's identity, impurity profile, and purification conditions.

How to choose different ligands in IMAC?

When selecting ligands for IMAC, NTA and IDA are the two most used options. NTA has a coordination number of 4 and is a tetravalent ligand, resulting in strong coordination of metal ions. In contrast, IDA has a coordination number of 3 and is a trivalent ligand. NTA typically provides higher binding specificity and lower metal ion leaching, while IDA has more non-specific binding and greater metal ion leaching. IDA can handle higher metal ion loading density and often requires a lower imidazole concentration in the eluent.

Related Products	
Amine-Terminated Magnetic Beads	Iodoacetyl-Activated Magnetic Beads
DADPA-Activated Magnetic Beads	Peptide conjugation buffer Kit-I
Carboxyl-Terminated Magnetic Beads	Peptide conjugation buffer Kit-II
Epoxy-Activated Magnetic Beads	DVS-Activated Magnetic Beads
Hydrazide-Terminated Magnetic Beads	NHS-Activated Magnetic Beads
Glycoprotein and Antibody Conjugation Kit-I	Hydroxyl-Terminated Magnetic Beads
Glycoprotein and Antibody Conjugation Kit-II	Sulfhydryl-Terminated Magnetic Beads
Aldehyde-Activated Magnetic Beads	Tosyl-Activated Magnetic Beads
Silica-Modified Magnetic Beads	CDI-Activated Magnetic Beads
Alkyne-Activated Magnetic Beads	Thiol-Activated Magnetic Beads
Azide-Activated Magnetic Beads	Cleavable NHS-Activated Magnetic Beads
Cleavable Amine-Terminated Magnetic Beads	Cleavable Azide-Activated Magnetic Beads
Cleavable Carboxyl-Terminated Magnetic Beads	Cleavable Alkyne-Activated Magnetic Beads
Cleavable Epoxy-Activated Magnetic Beads	Cleavable Iodoacetyl-Activated Magnetic Beads
Cleavable Hydrazide-Terminated Magnetic Beads	Cleavable Tosyl-Activated-Magnetic Beads
Cleavable Aldehyde-Activated Magnetic Beads	Streptavidin Magnetic Beads
Boronate Affinity Magnetic Beads	Cleavable Streptavidin Magnetic Beads
Monomer Avidin Magnetic Beads	IDA Magnetic Beads