Tris-NTA Amine

LOT: See product label

EXPIRY DATE: See product label

ORDERING INFORMATION

CAT. NO.	SIZE	PACKAGE CONTENT
BR1001101	100 µg	100 µl Tris-NTA Amine
BR1001102	1 mg	1 ml Tris-NTA Amine

COMPONENT	COMPOSITION
Tris-NTA Amine	Tris-NTA Amine (1 mg/ml) in PBS

STORAGE 4°C (until expiry date – see product label)

FEATURES

- A complex of three Ni-NTA groups ensures high-affinity binding of His-tags
- Binding affinity is approximately four orders of magnitude higher than monovalent metal ion chelators
- Protein binding is stoichiometric

APPLICATIONS

- Reversible labeling of proteins or cell surfaces
- Detection and analysis of target molecules
- Immobilization of proteins, lipids and cells on surfaces
- Purification and sample preparation of proteins
- Coupling with microscopic or spectroscopic probes

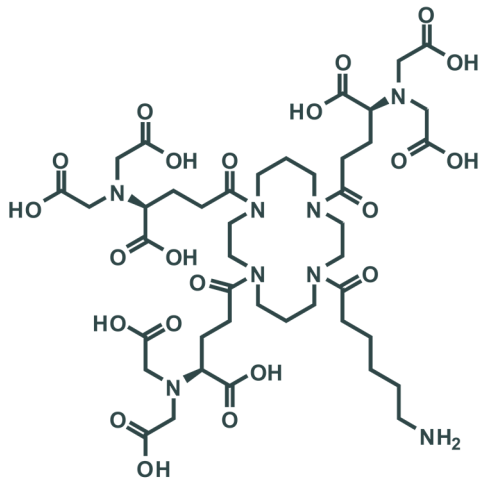
DESCRIPTION

His-tags are one of the most commonly used tags for protein expression analysis. Conventional metal ion chelators, such as nitrilotriacetic acid (NTA) and iminodiacetic acid (IDA), bind His-tags with low affinities in the range of 10 µM. The biotechrabbit Tris-NTA complexes three NTA groups that together bind a 6×His-tag with an affinity that is four orders of magnitude higher (1 nM) than is possible with conventional chelators (10 µM). The binding of His-tags is stoichiometric and single-molecule detection is possible. Binding is reversible: bound His-tags can be released with imidazole or ethylenediaminetetraacetic acid (EDTA).
biotechrabbit™ Tris-NTA is available with a free amine group or conjugated to biotin. It can be used in a large range of applications, including protein detection and labeling, coupling proteins, lipids or cells to surfaces, protein purification and reversible protein modification.

SPECIFICATIONS

CHEMICAL NAME	Tris-NTA (trifluoracetic acid salt)
STABILITY	24 months
STOGARE CONDITIONS	Store at 4°C
METHOD FOR DETERMINING IDENTITY	Mass spec analysis
METHOD FOR DETERMINING PURITY	HPLC
CAS NUMBER	Free base: 862778-60-7
MOLECULAR FORMULAR	Free base: C43H68N8O22
MOLECULAR WEIGHT	Free base: 1049.04
SOURCE	Synthetic
PURITY	>95% (HPLC)
FORM	1 mg/ml solution in PBS or powder

CHEMICAL STRUCTURE



APPLICATION EXAMPLES

Tris-NTA is not pre-loaded with a metal ion.

Please, choose the metal ion (i.e. Nickel or Cobalt) and loading method that fit best to your application.

As an example, please, refer to Figure 5 in "Reichel et al., Anal Chem., 2007, 79, 8590–600": Ni2+ loading by injection of 10 mM NiCl2 when using Tris-NTA with a biosensor surface.

Publications

High-Affinity Adaptors for Switchable Recognition of Histidine-Tagged Proteins.
Lata et al., J. Am. Chem. Soc., 2005, 127, 10205–10215

Specific and Stable Fluorescence Labeling of Histidine-Tagged Proteins for Dissecting Multi-Protein Complex Formation.
Lata et. al., J. Am. Chem. Soc., 2006, 128, 2365–2372

Noncovalent, Site-Specific Biotinylation ofHistidine-Tagged Proteins.
Reichel et al., Anal Chem., 2007, 79, 8590–600

Identifying Modulators of Protein-Protein Interactions Using Photonic Crystal Biosensors.
Heeres et al., J Am Chem Soc. 2009, 131: 18202–18203

Tris-Nitrilotriacetic Acids of Sub-nanomolar Affinity Toward Hexahistidine Tagged Molecules.
Huang et al., Bioconjug Chem., 2009, 20: 1667–1672

Four-color single-molecule fluorescence with noncovalent dye labeling to monitor dynamic multimolecular complexes.
DeRocco et al., BioTechniques 2010, 49: 807-816

In situ assembly of macromolecular complexes triggered by light.
Grunwald et al., PNAS, 2010, 107: 6146-6151

Quantum-Yield-Optimized Fluorophores for Site-Specific Labeling and Super-Resolution Imaging.
Grunwald, et al., J. Am. Chem. Soc., 2011, 133, 8090–8093.

Co- and distinct existence of Tris-NTA and biotin functionalities on individual and adjacent micropatterned surfaces generated by photo-destruction.
Biswas et al., Soft Matter, 2014, 10, 2341–2345

High-affinity gold nanoparticle pin to label and localize histidine tagged protein in macromolecular assemblies.
Anthony et al., Structure, 2014, 22: 628–635

CERTIFICATE OF ANALYSIS

Quality Control

Identity
Identity of the substance was determined by MS analysis. The identity was consistent with the reference substance.

Purity
The purity of Tris-NTA Amine was determined by HPLC. Purity was >95%.

Quality confirmed by: Head of Quality Control

SAFETY INSTRUCTIONS
For safety instructions please see Safety Data Sheets (SDS)/Sicherheitshinweise finden Sie in den SDS unter: http://www.biotechrabbit.com/support/documentation.html.

USEFUL HINTS
- Visit Applications at www.biotechrabbit.com for more products and product selection guides.
- Most biotechrabbit products are available in custom formulations and bulk amounts.

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