For life science research only.
Not for use in diagnostic procedures.

Streptavidin Magnetic Particles

Version: 10
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Cat. No. 11 641 778 001	20 mg 2 ml
Cat. No. 11 641 786 001	100 mg 10 ml

Store the product at +2 to +8°C.

1. General Information

1.1. Contents

Vial / bottle	Label	Function / description	Catalog number	Content
1	Streptavidin Magnetic Particles	Supplied in a suspension containing 10 mg particles/ml in 50 mM HEPES, 0.1% bovine serum albumin (BSA), 0.01% methylisothiazolone, pH 7.4.	11 641 778 001	1 bottle, 2 ml
			11 641 786 001	1 bottle, 10 ml

1.2. Storage and Stability

Storage Conditions (Product)

When stored at +2 to +8°C, the product is stable through the expiry date printed on the label.

Vial / bottle	Label	Storage
1	Streptavidin Magnetic Particles	Store at +2 to +8°C, −15 to −25°C, or −60°C or below. ⚠ ***Avoid repeated freezing and thawing.***

1.3. Additional Equipment and Reagent required

Standard laboratory equipment

- Standard magnetic separator

For binding of biotin-labeled nucleic acids

See section, **Working Solution** *for information on preparing solutions.*

- Binding buffer TEN_{100}
- Wash buffer TEN_{1000}
- Elution buffer: 6 M Guanidine-HCl (nucleic acids only)

For affinity purification of proteins, peptides, glycoconjugates, antigens

See section, **Working Solution** *for information on preparing solutions.*

- Buffer A
- Buffer B

1.4. Application

The Streptavidin Magnetic Particles are polydisperse paramagnetic particles that are designed for the fast and simple separation of a variety of biotin-labeled molecules, such as

- Oligonucleotides
- DNA fragments
- Proteins
- Peptides
- Glycoconjugates
- Other antigens

The high binding constant of the biotin/streptavidin complex allows also for the affinity purification of antigens, glycoconjugates, or receptors by binding of biotin-labeled antibodies, lectins, or hormones to the Streptavidin Magnetic Particles.

2. How to Use this Product

2.1. Before you Begin

General Considerations

Binding capacity

Binding capacities per mg streptavidin magnetic particles:
≥1,800 pmol free biotin
>150 pmol biotin-labeled oligonucleotide
>10 pmol biotin-labeled dsDNA fragments
For example, a 1.5 kb dsDNA fragment with a single hapten at one end.

Binding of biotin-labeled nucleic acid to magnetic particles

Nucleic acids can be immobilized to Streptavidin Magnetic Particles for the following applications:

Immobilized Nucleic Acids	Application
5′-biotin oligo(dT)$_{25}$	mRNA purification
Biotin-labeled double-stranded oligonucleotide with transcription factor binding site	Affinity purification of transcription factor.
Biotin-labeled 1st strand cDNA	Subtractive hybridization
5′-biotin polypyrimidine-oligo	Isolation of nucleic acids by triple helix formation.
Biotin-labeled single-stranded nucleic acids	Preparation of single-stranded probes.
5′-biotin sequence-specific oligonucleotides	Isolation of specific nucleic acids fragments.
5′-biotin PCR product	PCR product quantification, template preparation.

The nonspecific binding of nucleic acids may be tested as follows:
1 mg Streptavidin Magnetic Particles is incubated for 30 minutes at +15 to +25°C with 300 pmol [^{32}P] end-labeled oligonucleotide and a [^{32}P] end-labeled 1.5 kb dsDNA fragment.

Safety Information

Laboratory procedures

- Handle all samples as if potentially infectious, using safe laboratory procedures. As the sensitivity and titer of potential pathogens in the sample material varies, the operator must optimize pathogen inactivation by the Lysis / Binding Buffer or take appropriate measures, according to local safety regulations.
- Do not eat, drink or smoke in the laboratory work area.
- Do not pipette by mouth.
- Wear protective disposable gloves, laboratory coats and eye protection, when handling samples and kit reagents.
- Wash hands thoroughly after handling samples and reagents.

Waste handling

- Discard unused reagents and waste in accordance with country, federal, state, and local regulations.
- Safety Data Sheets (SDS) are available online on dialog.roche.com, or upon request from the local Roche office.

Working Solution

Binding of biotin-labeled nucleic acids	
Solution	**Preparation/Composition**
Binding buffer TEN_{100}	10 mM Tris-HCl*, 1 mM EDTA, 100 mM NaCl, pH 7.5
Wash buffer TEN_{1000}	10 mM Tris-HCl*, 1 mM EDTA, 1 M NaCl, pH 7.5
Elution buffer	6 M Guanidine-HCl *For elution of immobilized nucleic acids only.*
Affinity purification of proteins, peptides, glycoconjugates, antigens	
Solution	**Preparation/Composition**
Buffer A	20 mM potassium phosphate buffer, 0.15 M NaCl, pH 7.5
Buffer B	0.1 M glycine-HCl, pH 2.5

2.2. Protocols

Binding of biotin-labeled nucleic acid to magnetic particles

See section, **General Considerations** *for additional application information.*
See section, **Working Solution** *for information on preparing solutions.*

1. Wash Streptavidin Magnetic Particles 3 times with Binding buffer TEN_{100}.

2. Incubate the beads with the biotin-labeled nucleic acids in at least twice the starting volume Binding buffer TEN_{100} for 10 minutes at +15 to +25°C.
   Incubate long dsDNA fragments for 30 minutes. Make sure that the beads do not settle by gently shaking or pipetting several times.

3. After the incubation period, wash the particles 2 times with Wash buffer TEN_{1000}.

4. Equilibrate to the desired reaction buffer by washing 2 times with this buffer.

Affinity purification of proteins, peptides, glycoconjugates, antigens

Two different methods can be used for affinity purification.

Method A: Immobilization of biotin-labeled ligands

See section, **Working Solution** *for information on preparing solutions.*

1. Wash Streptavidin Magnetic Particles with Buffer A at least 3 times.
2. Incubate the beads with the biotin-labeled ligand (antibody, peptide, etc.) in Buffer A for 30 minutes at +15 to +25°C or for 1 hour at +2 to +8°C.
3. After the incubation period, wash the particles 3 times with Buffer A.
4. Incubate with the sample for 30 minutes at +15 to +25°C or for 1 hour at +2 to +8°C.
5. Wash the particles 3 times with Buffer A.
6. Elute the bound sample with a suitable buffer, for example, with Buffer B for antibody/antigen complexes.

Method B: Immobilization of the previously formed antigen/antibody complex

See section, **Working Solution** *for information on preparing solutions.*

1. Wash Streptavidin Magnetic Particles with Buffer A at least 3 times.
2. Incubate the biotin-labeled ligand with the sample for 1 hour at +15 to +25°C or 5 to 10 hours at +2 to +8°C in Buffer A.
3. Incubate the beads with the pre-incubated sample 30 minutes at +15 to +25°C or for 1 hour at +2 to +8°C.
4. Wash the particles 3 times with Buffer A.
5. Elute the bound sample with a suitable buffer, for example, with Buffer B for antibody/antigen complexes.

3. Additional Information on this Product

3.1. Test Principle

① Streptavidin (SA) is coupled via a linker molecule to carboxy-groups on the surface of superparamagnetic polystyrene particles.

② The superparamagnetic properties of the magnetic particles ensure full resuspension even after repetitive magnetic separation.
Agglutination does not occur because of the lack of residual magnetism of the particles.

③ Streptavidin Magnetic Particles are used for binding and separation of biotin-labeled biomolecules.

④ Magnetic separation is achieved by application of a magnetic particle separator (MPS) within a few seconds.

Physical parameters

Parameter	Description
Particle	Polydisperse core-shell polystyrene particles
Particle size	Ø 1 µm mean diameter
Specific gravity	1.1 – 1.4 g/cm^3

3.2. Quality Control

For lot-specific certificates of analysis, see section, **Contact and Support**.

4. Supplementary Information

4.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

Text convention and symbols	
Information Note: Additional information about the current topic or procedure.	
Important Note: Information critical to the success of the current procedure or use of the product.	
① ② ③ etc.	Stages in a process that usually occur in the order listed.
❶ ❷ ❸ etc.	Steps in a procedure that must be performed in the order listed.
* (Asterisk)	The Asterisk denotes a product available from Roche Diagnostics.

4.2. Changes to previous version

Layout changes.
Editorial changes.
Update to include new safety Information to ensure handling according controlled conditions.

4.3. Ordering Information

Product	Pack Size	Cat. No.
Reagents, kits		
Tris hydrochloride	500 g	10 812 846 001

4.4. Trademarks

All product names and trademarks are the property of their respective owners.

4.5. License Disclaimer

For patent license limitations for individual products please refer to:
List of biochemical reagent products.

4.6. Regulatory Disclaimer

For life science research only. Not for use in diagnostic procedures.

4.7. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

4.8. Contact and Support

To ask questions, solve problems, suggest enhancements or report new applications, please visit our **Online Technical Support Site**.

To call, write, fax, or email us, visit **sigma-aldrich.com**, and select your home country. Country-specific contact information will be displayed.

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