IBA
BioTAGnology

www.strep-tag.com

IBA Protein TAGnologies Newsletter

Issue 9

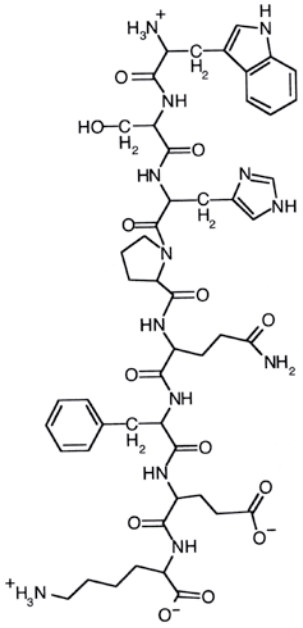
Pioneering recombinant protein production

Strep-tag® - unsurpassed purity and bioactivity

NEW!

High capacity *Strep*-Tactin® Superflow® resin

(See page 4)



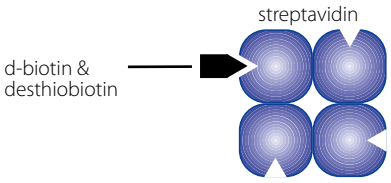
Strep-tag® II
NH_2-WSHPQFEK-COOH

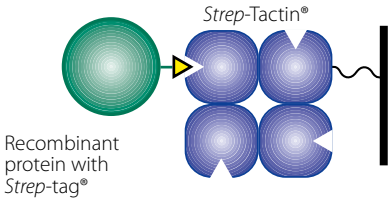
Strep-tag® Protein Purification System

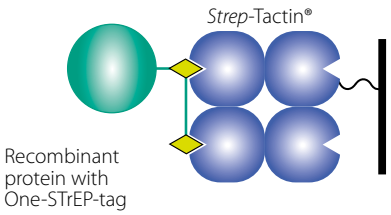
One of the most widely used affinity chromatography systems

- **Short tag not influencing the protein**
- **Rapid one-step purification under physiological conditions**
- **Unsurpassed purity and bioactivity**

The *Strep*-tag® purification system is based on the **highly selective** and easily controllable interaction between the *Strep*-tag®II peptide and the biotin binding site of a specially engineered streptavidin called *Strep*-Tactin®. *Strep*-tag®II binds *Strep*-Tactin® nearly 100 times tighter than streptavidin, but elutes under **gentle, physiological conditions**. Rapid, one-step affinity purification results in active fusion proteins of **highest purity**. Physiological buffers like PBS in combination with a wide range of detergents, chelators, salt, and redox conditions can be used (see www.strep-tag.com). The competitive elution with desthiobiotin, an inexpensive, reversibly binding and stable analog of biotin, enables **unparalleled purification factors**. The system is safe and easy to use; column regeneration and activity status are visualized by a color change on the purification column (see page 3).





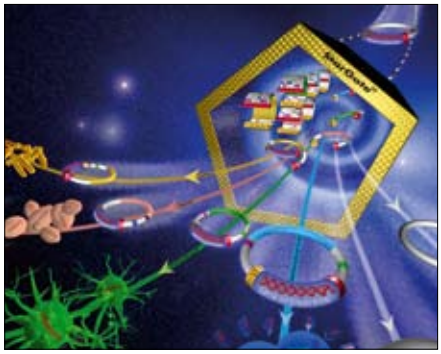


Strep-tag®II and *Strep*-Tactin® – an advantageous combination

A particular benefit of *Strep*-tag®II is its neutral amino acid composition that does not hamper protein folding or secretion, nor does it interfere with protein function. *Strep*-tag® enables purification of recombinant proteins to over 99% purity in a single step from crude lysates. The extraordinary purification factors are based on i) very low tendency of *Strep*-Tactin® to bind other proteins non-specifically, ii) highly specifc *Strep*-tag®II:*Strep*-Tactin® interaction and iii) specific competitive elution with minute amounts of desthiobiotin. Moreover, extreme stability of *Strep*-Tactin® is the basis of robust affinity resins.

High affinity One-STrEP-tag - the tag for demanding protein purifications

The development of a tandem arrangement of two *Strep*-tag®II sequences, the so-called One-STrEP-tag, even improved performance by increasing purification yields of poorly expressed proteins due to a higher affinity to *Strep*-Tactin®. It is especially suited for batch purification and isolation of protein complexes (see page 8). Furthermore, it sustains elevated detergent concentrations to reduce background.



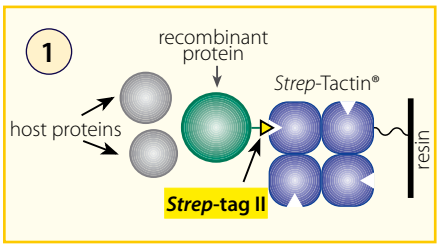
For cloning with StarGate visit www.stargate-cloning.com

Technology/Topic	IBA products	Details
Cloning & expression	StarGate® cloning with different tags (*Strep*-,One-STrEP-, GST-, FLAG-)	See www.stargate-cloning.com and IBA Newsletters issues 5 & 6
Protein purification	*Strep*-Tactin® resins, buffers, columns/cartridges, plates & double-tags	See pages 4 - 6
Protein detection	*Strep*MAB-Classic antibody & Strep-Tactin® conjugates	See page 7
Protein:protein interaction	One-STrEP-tag, One-TAP, Two-TAP, SPINE	See page 8 and IBA Newsletter issue 7
Protein immobilization	*Strep*MAB-Immo antibody, *Strep*-Tactin® plates	See pages 8 & 9
Starter Kits	Kits with *Strep*-Tactin® columns or cartridges	See page 10

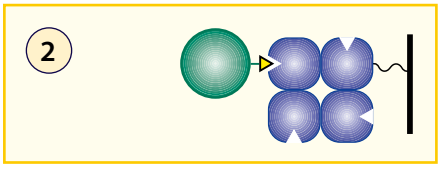
The *Strep*-tag® protein purification cycle

Purification procedure under physiological conditions

The purification of *Strep*-tag®II fusion proteins is **easy, straightforward and user-friendly**. The complete procedure can be performed under nearly physiological conditions, e.g. in PBS buffer and for elution in PBS/2.5 mM desthiobiotin buffer:

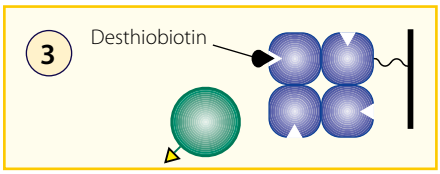


Steps 1 + 2: The cell lysate is added to the column. Once the tagged protein has **bound specifically to *Strep*-Tactin®** the host proteins are washed away rapidly with small amounts of physiological wash buffer.

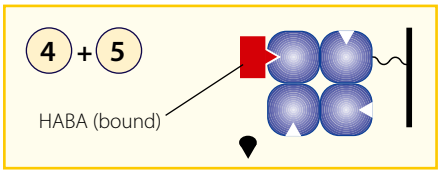


Step 3: Then, bound *Strep*-tag®II protein is **gently eluted** by adding wash buffer containing additionally 2.5 mM desthiobiotin which specifically competes for the biotin binding pocket.

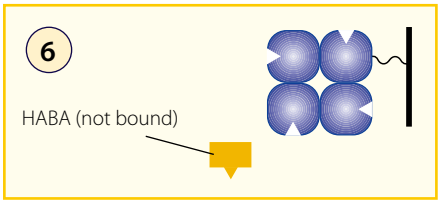
Since the **buffer conditions** during elution essentially **remain unchanged**, potentially unspecifically binding proteins (without *Strep*-tag®) will not be eluted and, thus, will not contaminate the protein of interest. Next to the specific binding of *Strep*-tag® to *Strep*-Tactin®, this is the second specificity conferring step of this purification procedure, yielding extremely high protein purity.



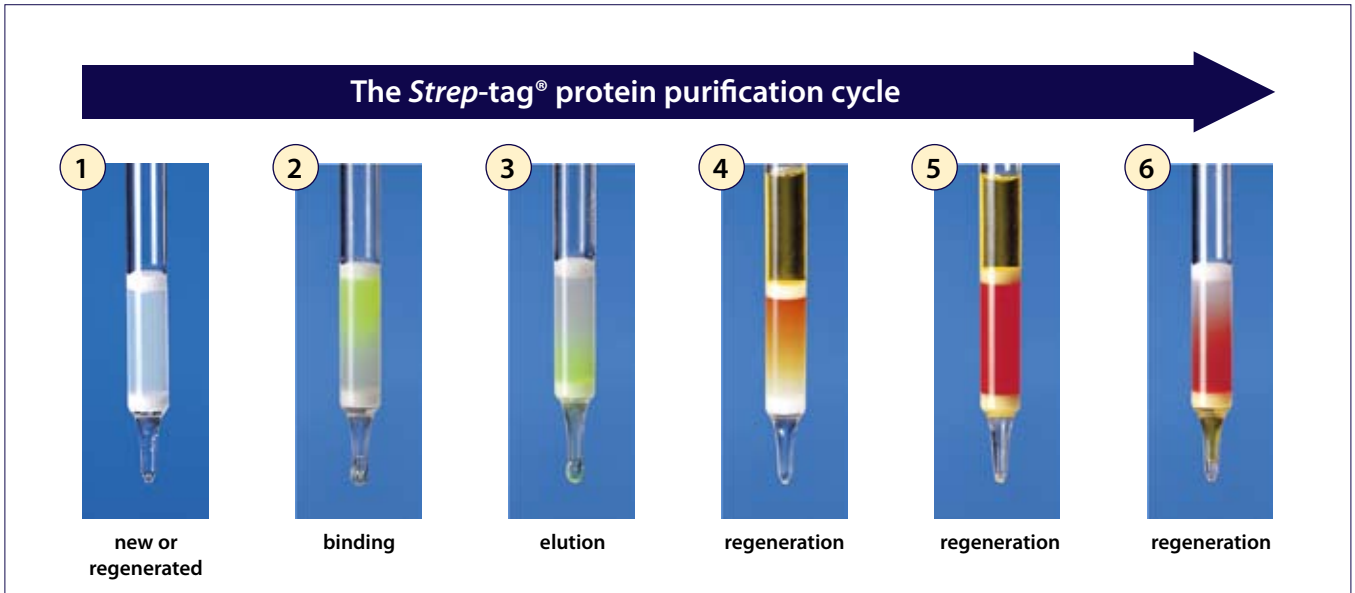
Steps 4 + 5: To regenerate the column the yellow azo dye HABA (2- [4'-hydroxy-benzeneazo] benzoic acid) is added in excess to displace desthiobiotin from the binding pocket. Once HABA binds to the binding site, the color turns to red conveniently **indicating the regeneration and activity status** of the column.



Step 6: HABA can be removed simply by adding wash buffer. Once the red color has disappeared the column can be re-used. *Strep*-Tactin® resin can be regenerated and re-used 3 to 5 times without loss in performance.



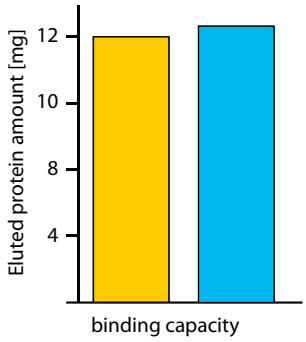
Purification of a GFP-*Strep*-tag®II fusion protein, which has been overexpressed in *E. coli*.

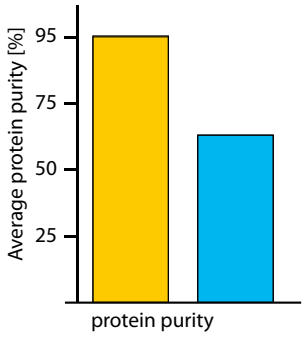


Pictures left to right: 1, new or regenerated column; 2, specific binding of GFP-*Strep*-tag®II fusion protein to *Strep*-Tactin® Sepharose® column while host proteins are rapidly washed away with small amounts of physiological buffer; 3, *Strep*-tag® protein is eluted due to addition of the specific competitor "desthiobiotin"; 4 to 6, column regeneration: desthiobiotin is displaced by the yellow solution containing HABA, which turns red once complexed with *Strep*-Tactin®. HABA is then removed by washing buffer and the column is ready for the next purification run. For buffers and reagents see page 4.

Now with *Strep*-Tactin® Superflow® high capacity resin!

Get more protein with optimal purity!





Strep-Tactin® Superflow® high capacity
Ni-NTA Superflow®

Strep-tag® Starter Kits for newcomers on page 10

Ni-NTA purification resins for 6xHistidine-tag purification and anti-6xHistidine-tag antibody at www.iba-bioTAGnology.com.

Strep-Tactin® columns regenerated with HABA (see also *Strep*-tag® purification cycle on page 3): *Strep*-Tactin® MacroPrep®, Superflow® and Sepharose® (left to right). Since MacroPrep® is not as transparent as Sepharose® or Superflow®, the color shift to red is less visible.

Strep-Tactin® resins

For *Strep*-tag® affinity purification

Several *Strep*-Tactin® resin versions are available which differ in their properties and applications. While *Strep*-Tactin® Sepharose® is preferentially used for **gravity flow chromatography**, *Strep*-Tactin® Superflow®, the new *Strep*-Tactin® Superflow® high capacity and *Strep*-Tactin® MacroPrep® can also be used for **low pressure, FPLC and HPLC** applications, and *Strep*-Tactin® POROS® (20 and 50) for **FPLC and HPLC** chromatography. In addition, Superflow is especially suited for increased flow rates and for the purification of large protein complexes (see www.strep-tag.com). Please note, that we recommend **column chromatography for *Strep*-tag®II** while the **One-STrEP-tag** is also suited for **batch purification**. Our pre-packed columns are described on page 5.

Resin/beads	Application with *Strep*-tag®	Application with One-STrEP-tag (NEW!)	Capacity for *Strep*-tag®/ One-STrEP-tag protein	Flow rate*	Exclusion limit [Da]	Cat. no. for 20 ml sizes (50% suspension)**
***Strep*-Tactin® Sepharose®**	Gravity flow	Gravity flow, batch	50 - 100 nmol/ml	Up to 30 cm/h	3×10^7	2-1201-010
***Strep*-Tactin® Superflow®**	Gravity flow, low pressure or FPLC/HPLC	Gravity flow, low pressure or FPLC/ HPLC, batch	50 - 100 nmol/ml	Up to 300 cm/h	6×10^6	2-1206-010
NEW! *Strep*-Tactin® Superflow®, high capacity	Gravity flow, low pressure or FPLC/HPLC	Gravity flow, low pressure or FPLC/ HPLC, batch	150 - 500 nmol/ml	Up to 300 cm/h	6×10^6	2-1208-010
***Strep*-Tactin® MacroPrep®**	Gravity flow, low pressure or FPLC/HPLC	Gravity flow, low pressure or FPLC/ HPLC, batch	50 - 100 nmol/ml	Up to 300 cm/h	1×10^6	2-1505-010
***Strep*-Tactin® POROS® 20/50**	FPLC or HPLC	FPLC or HPLC, batch	40 - 80 nmol/ml	300 - 500 cm/h	n.d.	2-1203-010/ 2-1205-010
Mag*Strep* Magnetic Beads	Batch	Batch	Type 1: 100 pmol/ mg beads Type 2: 200 pmol/ mg beads	n.a.	n.a	See www. strep-tag.com

* Linear flow rate recommended for protein purification.
**For other package sizes please refer to price list.

Buffers & Reagents

For *Strep*-tag®

Description	Amount	Cat. no.*
Avidin (to block biotin)	50 mg	2-0204-050
Anhydrotetracycline (inducer for tet promoter)	25 mg	2-0401-002
Biotin Blocking Buffer	2 ml	2-0501-002
D-Desthiobiotin	1 g	2-1000-002
D-Desthiobiotin (10x Buffer E)	25 ml	2-1000-025
Strep-tag® protein purification buffer set	100 ml 10x Buffer W 25 ml 10x Buffer E 100 ml 10x Buffer R	2-1002-001
Strep-tag® regeneration buffer with HABA (10x Buffer R)	100 ml	2-1002-100
Strep-tag® washing buffer (10x Buffer W)	100 ml	2-1003-100
IBA-lyse Bacterial Lysis Buffer	50 ml	2-1017-050
Strep-tag®II Peptide	1.8 mg	2-1018-002
Buffer BE (10x; with biotin)	25 ml	2-1019-025
Buffer L (5x; for mammalia)	100 ml	2-1020-100

*For other package sizes please refer to price list.

Column, cartridge and plate formats

For *Strep*-Tactin® resins

(resins see page 4; catalog numbers in blue*)

No	Description	Application	Volume applied**	*Strep*-Tactin® Sepharose®	*Strep*-Tactin® Superflow®	*Strep*-Tactin® Superflow® high capacity	*Strep*-Tactin® MacroPrep®	*Strep*-Tactin® POROS 20 and 50
1	**0.2 ml gravity flow columns** (5 columns)	Gravity flow	0.1 - 2 ml	2-1202-550	2-1207-550	2-1209-550	2-1506-550	–
2	**1 ml gravity flow column**	Gravity flow	0.5 - 10 ml	2-1202-001	2-1207-001	2-1209-001	2-1506-001	–
3	**5 ml gravity flow column**	Gravity flow	2.5 - 50 ml	2-1202-051	2-1207-051	2-1209-051	2-1506-051	–
3	**10 ml gravity flow column**	Gravity flow	5 - 100 ml	2-1202-101	2-1207-101	2-1209-101	2-1506-101	–
4	**1.7 ml HPLC column**	HPLC	0.85 - 17 ml	–	–	–	––	20: 2-1203-017 50: 2-1205-017
5	**NEW! 1 ml H-PR cartridge**	FPLC/HPLC	0.5 - 10 ml	–	2-1231-001	2-1233-001	2-1531-001	–
5	**NEW! 5 ml H-PR cartridge**	FPLC/HPLC	2.5 - 50 ml	–	2-1232-001	2-1234-001	2-1532-001	–
6	**Spin Columns** (50 columns, for 150 µg protein each)	Spinning	Up to 500 µl	–	–	–	2-1850-050 (Kit: 2-1800-000)	–
7	***Strep*-Well HT 25 plates** (10 x 96well plates, for 100 µg protein/ well)	High throughput/ Vacuum based	50 µl - 1 ml	–	–	–	2-1725-010 (Kit: 2-1700-000	–
7	***Strep*-Well HT 50 plates** (10 x 96well plates, for 200 µg protein/ well)	High throughput/ Vacuum based	50 µl - 1 ml	–	–	–	2-1750-011 (Kit: 2-1701-000)	–

*For other package sizes please refer to price list.
**Adjust protein extract volume according to binding capacity of the column (see resins page 4).

NEW! H-PR ("highly pressure resistant") cartridges (No. 5)

The H-PR cartridges are primarily designed for use with chromatography workstations using 10-32 fittings (e.g. HPLC and ÄKTA™). They can, however, also be operated with other workstations, syringes or peristaltic pumps by use of common adapters. Since column housings are highly pressure resistant (up to 20 bar), H-PR cartridges can be used with a flow restrictor. Cartridges can be connected in series to enlarge capacity.

Adapters for H-PR cartridges

Syringe adapter set (Luer-lock)

Cat. no. 2-1021-001

M6 adapter set for GE Healthcare FPLC other than ÄKTA™

Cat. no. 2-1022-001

1/4-28 adapter set for FPLC other than GE Healthcare

Cat. no. 2-1023-001

1/16 inch adapter set for peristaltic pump tubing

Cat. no. 2-1025-001

Coupling adapter set for connecting up to three H-PR cartridges

Cat. no. 2-1026-001

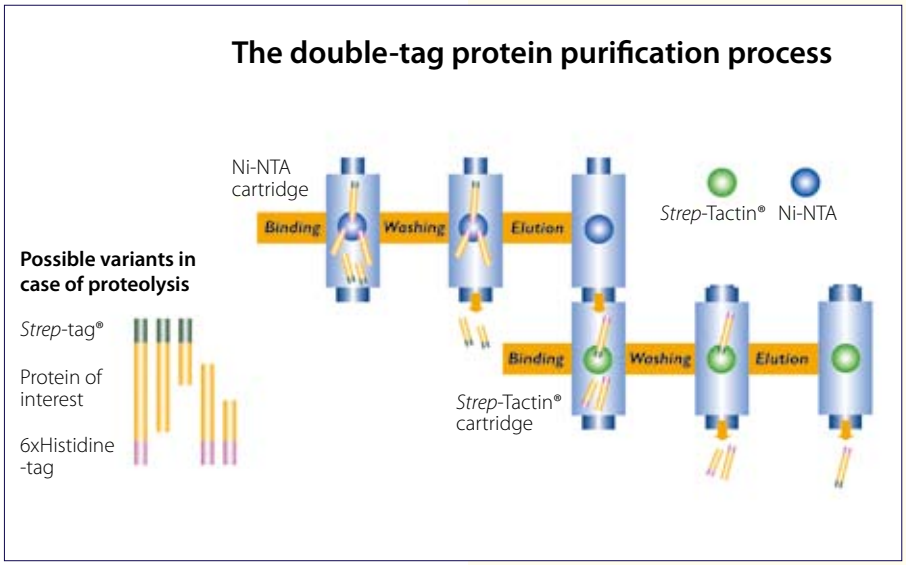
Further options for protein purification

Double-tag - multiple performance

For double-tag cloning and expression vectors refer to www.stargate-cloning.com.

Purification of highly pure full-length proteins

Protein expression is a complex topic with many variables. Therefore, it is e.g. hard to predict whether a recombinant protein is expressed soluble or forms inclusion bodies or is partially degraded. To be prepared for the most common difficulties the attachment of two different tags at each terminus of the recombinant protein provides the flexibility to obtain a highly pure and homogenous protein preparation.



Important reasons for two different affinity tags on one protein are

- Purification of 100% full length proteins
- Highest purification factors
- Using denaturing OR physiological purification conditions
- Optimizing purification protocols directly from the culture medium

A smart double-tag pair is the combination of *Strep*-tag® and 6xHistidine-tag. Generally, it is recommended to attach one tag to the N-terminus and the other to the C-terminus. Details see www.strep-tag.com.

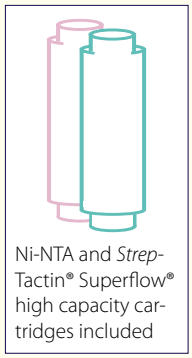
Strep/6xHistidine Starter Kit

Strep/6xHistidine-tag Starter Kit

NEW! Now with *Strep*-Tactin® Superflow® high capacity

This unique Starter Kit contains all reagents essential for the native purification of a double-tag protein containing *Strep*-tag® and 6xHistidine-tag. The first purification is performed on a Ni-NTA Superflow® cartridge H-PR while the second purification uses a *Strep*-Tactin® Superflow® high capacity cartridge H-PR, selecting for 6xHistidine-tag and *Strep*-tag®, respectively.

Cat. no. 2-1117-000



Ni-NTA and *Strep*-Tactin® Superflow® high capacity cartridges included

Ni-NTA purification resins for 6xHistidine-tag purification and anti-6xHistidine-tag antibodies at www.iba-bioTAGnology.com.

1 ml Gravity flow *Strep*MAB-Classic MacroPrep Column

Gravity flow *Strep*MAB-Classic MacroPrep® Column

An antibody-based option for *Strep*-tag® protein purification

This new antibody-based purification column with *Strep*MAB-Classic immobilized to MacroPrep® provides an alternative for purification of *Strep*-tag® proteins. Using this column as second step following purification via *Strep*-Tactin® protein purity can be increased to over 99% while only one tag – the *Strep*-tag® – is used.

In protein:protein interaction analysis e.g. this column is used in the so-called One-TAP system (described on page 8) enabling a second, completely independent purification step with respect to resin (MacroPrep® vs Superflow®) and affinity receptor (mAB vs *Strep*-Tactin®).

Cat. nos. 2-1526-001 (1 ml); 2-1526-505 (5 x 0.2 ml)

Strep-tag® Protein Detection System

Highly selective, fast and sensitive

The *Strep*-tag® protein detection system provides a means for a broad variety of assays, including:

- Colony blot, dot blot, Western blot and ELISA procedures
- Screening for positive expression clones
- Monitoring expression levels and stability of *Strep*-tag® proteins
- Immunocytochemistry and immunohistochemistry
- Protein localization and targeting studies

Two different detection systems are available to detect *Strep*-tag®II as well as One-STrEP-tag at the N-terminus, C-terminus or internally:

a) Labeled or unlabeled monoclonal antibodies

b) Labeled *Strep*-Tactin® proteins

Detection system	a) Monoclonal antibodies		b) *Strep*-Tactin® proteins	
	***Strep*MAB-Classic**	***Strep*MAB-Classic HRP conjugate**	***Strep*-Tactin® HRP conjugate**	***Strep*-Tactin® AP conjugate**
Description	*Strep*-tag® II- and One-STrEP-tag-specific monoclonal antibody, unlabeled	*Strep*-tag® II- and One-STrEP-tag-specific monoclonal antibody, labeled with horse radish peroxidase	*Strep*-Tactin® protein, labeled with horse radish peroxidase	*Strep*-Tactin® protein, labeled with alkaline phosphtase
Features	- Highly selective - Low background	- Highly selective - Low background	- Sensitive - Fast detection protocols	- Very sensitive - Fast detection protocols
Secondary antibody required (cat. no. 2-1591-001)	Yes, secondary anti-mouse IgG, HRP-conjugated, required	No, direct detection via HRP	No, direct detection via HRP	No, direct detection via AP
Western blot, chromogenic detection	Suited, but not recommended	Recommended	Recommended	Recommended
Western blot, chemiluminescent detection (ECL)	Not recommended	Recommended	Recommended	Not determined
Immunofluorescence, ELISA, FACS*	Recommended	For ELISA only	For ELISA only	For ELISA only
Detects also biotinylated proteins**	–	–	+	+
Cat. no.	2-1507-001 (100 µg)	2-1509-001 (75 µg for 25 - 30 Western blots)	2-1502-001 (0.5 ml)	2-1503-001 (0.5 ml)
Available as complete kit with all reagents required	–	–	2-1502-000	2-1503-000

For detailed information see www.strep-tag.com.

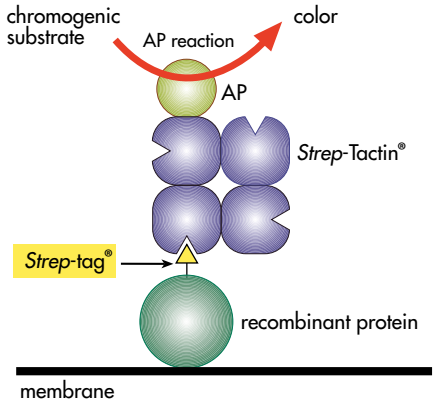
*IBA provides protocols for Western blots only. Further applications such as electron and fluorescence microscopy, immunohistochemistry and FACS have been successfully performed by customers according to their reports. The concentrations for these applications have to be determined empirically by titration. **Background can be reduced by addition of avidin, or the IBA Biotin Blocking Buffer (see page 4).

The *Strep*-tag® Protein Ladder

Simplifying the comparison of Coomassie stained gels with Western blots

The *Strep*-tag® Protein Ladder is a mixture of six recombinant, highly purified *Strep*-tag® proteins employed for precise sizing of proteins by SDS-PAGE. The proteins resolve into clearly identifiable sharp and evenly stained bands from 15 to 100 kDa when analyzed on an SDS gel and stained with Coomassie Blue. As each protein contains the *Strep*-tag®II sequence which is detected by *Strep*-Tactin® conjugates or *Strep*-tag® specific antibodies, the ladder can also be used for MW determinations on Western blots and serves as a positive control for the various detection systems.

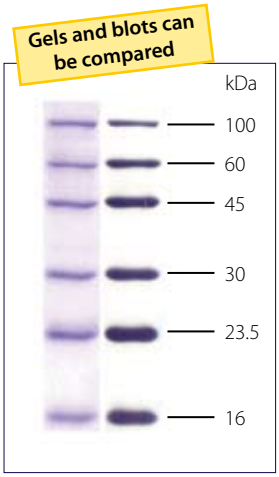
Cat. no. 2-1011-100



Principle of chromogenic detection of *Strep*-tag®II protein with *Strep*-Tactin® AP conjugate in Western blot

The *Strep*-tag® AP Detection Kit

For FACS also *Strep*-Tactin® PE or APC are available. Please refer to www.streptamer.com



Strep-tag® Protein Ladder

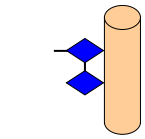
See www.strep-tag.com for details or request IBA Newsletter issue 7 at info@iba-go.com.

Protein:protein interaction

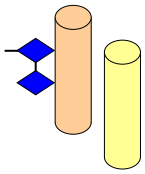
Isolating protein complexes at high purity

Both, *Strep*-tag® and One-STrEP-tag, are efficient tools to meet the challenge of isolating protein complexes at high purity without losing transient binders. Owing to the complexity of this research area, no general solution can be provided. IBA`s four approaches described below provide, however, a comprehensive basis for efficiently finding an optimal strategy for investigating a given protein complex. Request IBA Newsletter issue 7 for details.

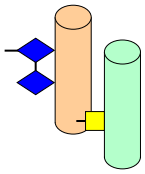
In brief:



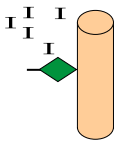
The **One-STrEP** system (one-step purification with One-STrEP-tag on *Strep*-Tactin®) is recommended for getting started. It needs one tag and one purification step only and is validated for eukaryotes and prokaryotes. Due to its excellent performance, this method yields a favorable signal-to-noise ratio in most cases. Mild elution and fast washing allow the isolation of even weekly interacting preys.



In case the One-STrEP system provides suboptimal data the "**One-TAP**" system (One-tag Tandem Affinity Purification with **One-STrEP-tag** on ***Strep*-Tactin® and *Strep*MAB-Classic**; the latter see page 6) extends the options of the One-STrEP system since it adds a second independent purification step yet with the same tag. Two different purification steps may better discriminate specific from non-specific binding but bear the risk of losing weakly interacting partners.



Two different tags increase the risk of non-specific binding or interference with the native conformation of the bait necessary for an effective binding of associated proteins. Although a successful approach has already been published (*Glöckner et al., 2007, Proteomics 7, 4228-4234*), we recommend the "**Two-TAP**" system (Two-tag Tandem Affinity Purification with **One-STrEP-tag on *Strep*-Tactin®** and **FLAG®-tag on M2 mAb**) only as an option in case of unsatisfying data with the One-STrEP or "One-TAP" approach and not as first choice starting point.



In addition to these non-covalent capture methods of potential preys, **SPINE** (*Strep*-Protein Interaction Experiment with *Strep*-tag®II) adds the possibility to **covalently link** the preys to its bait by **formaldehyde cross-linking**. This linkage is achieved in the living organism enabling a time resolved snapshot of interacting proteins. SPINE is currently validated in prokaryotes only but its adaptation to mammalian systems is under way.

Especially suited for protein interaction analysis on Biacore systems (see also www.biacore.com)

Protein Immobilization

Via *Strep*MAB-Immo

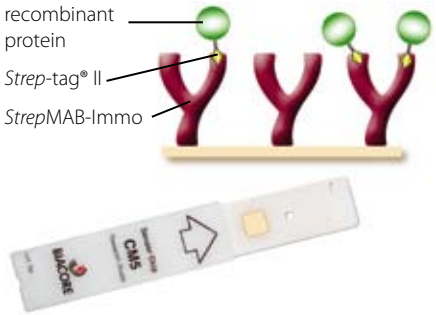
*Strep*MAB-Immo antibody

To efficiently immobilize *Strep*-tag® proteins on solid phases

the *Strep*MAB-Immo antibody is the reagent of choice. *Strep*MAB-Immo is a murine, high-affinity *Strep*-tag®II specific monoclonal antibody which is especially suited for stable, mild and oriented immobilization of *Strep*-tag®II fusion proteins. To realize this, the antibody can be coated on e.g. microplates or columns (see page 9), Biacore CM5 sensor chips or other biochips. The nearly irreversible binding* is achieved both for fusion proteins carrying a C- or N- terminal *Strep*-tag®. The *Strep*-tag® must be N-terminally extended by a SerAla linker (recombinant protein-SA-WSHPQFEK or SA-WSHPQFEK-recombinant protein).

Cat. no. 2-1517-001

Protein Immobilization on chips



Note: The antibody is not recommended for detection of *Strep*-tag®II fusion proteins in Western blots. Use IBA cat. no. 2-1509-001(page 7) for Western blots.
*KD *Strep*MAB-Immo:SerAla-*Strep*-tag®II ~1pM

*Strep*MAB-Immo coated microplates

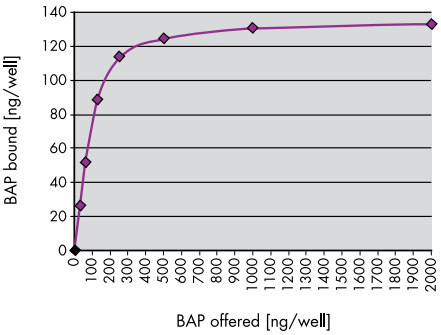
Antibody-based highly efficient immobilization of *Strep*-tag® proteins with high wash stability

*Strep*MAB-Immo coated microplates can be used for efficient, mild and oriented immobilization of SerAla-*Strep*-tag®II fusion proteins for ELISA or other assays for protein analysis. Also small amounts of such proteins are bound with high efficiency to the microplate (see graphic on the right) and will not elute during the assay due to nearly irreversible binding activity of *Strep*MAB-Immo.

Features

- Ready-to-use 96well plates for your own protein assay
- Efficient immobilization of minute amounts of SerAla-*Strep*-tag®II fusion proteins saves your starting material
- High wash stability during the assay (nearly no off-rate!)
- High reproducibility

Cat. no. 2-1521-001



*Strep*MAB-Immo based microplate assay showing efficient binding of minute amounts of SerAla-*Strep*-tag®II fusion protein (BAP) until saturation: BAP = bacterial alkaline phosphatase, C-terminally fused with *Strep*-tag®II via SerAla linker

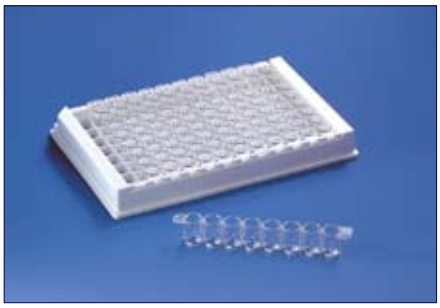
Gravity flow *Strep*MAB-Immo MacroPrep® Column

Stable immobilization of proteins on columns

*Strep*MAB-Immo columns are designed for the stable and oriented immobilization of proteins. Analyzing e.g. the interaction of proteins the column can be a helpful tool, since the interactome can be immobilized via a *Strep*-tagged bait protein. The prey proteins may then be sequentially eluted from the bait using adequate buffers. The bait proteins are presumed to stay bound under a wide range of buffer conditions.

Cat. nos. 2-1536-001 (1 ml); 2-1536-505 (5 x 0.2 ml)

Note: Gravity flow *Strep*MAB-Immo MacroPrep Columns are not recommended for the purification of One-STrEP-tag or *Strep*-tag®II fusion proteins because elution is not possible under physiological conditions.



Microplate consisting of twelve 8-well strips coated with *Strep*MAB-Immo (see above) or *Strep*-Tactin® (see below).

1 ml Gravity flow *Strep*MAB-Immo MacroPrep® column

Via *Strep*-Tactin®

Strep-Tactin® coated microplates

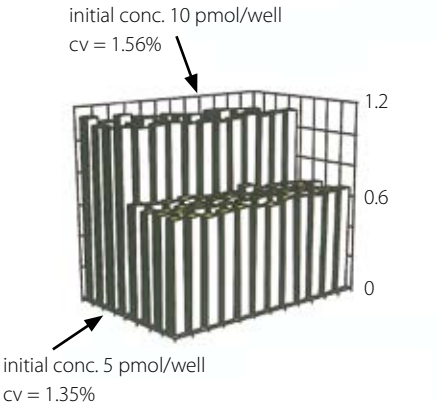
Antibody-free option for immobilization of *Strep*-tag® proteins

The ready-to-use *Strep*-Tactin® coated microplates provide the power of our *Strep*-tag® system in a solid-phase, multi-well format for convenient assays and high-throughput screenings of biomolecules tagged with *Strep*-tag®II. The strips are supplied framed in sets of 12, resulting in a 96-well configuration compatible with standard multichannel pipettes and automated plate washers and plate readers. The biomolecules are presented to interacting partners in a uniform manner which results in reliable and reproducible assay formats.

Features

- Oriented binding of recombinant proteins with N-terminal, C-terminal or internal *Strep*-tag®II
- Minimal non-specific binding
- Minimal coefficients of variation (cv; see right)
- Lower affinity than *Strep*MAB-Immo (above) and, therefore, especially suited for One-STrEP-tag or for multimeric *Strep*-tag®II fusion proteins
- Cost-effective

Cat. no. 2-1501-001



Strep-Tactin® coated microplate is incubated with different amounts of recombinant *E. coli* alkaline phosphatase/*Strep*-tag®II fusion protein, washed and bound AP-activity is colorimetrically determined.

Strep-tag® Starter Kits

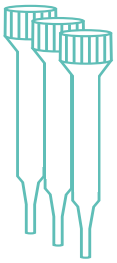
Get started with *Strep*-tag®

Attractive offers for newcomers are our *Strep*-tag® Starter Kits containing all essential reagents required for the first 8 applications of expression in *E. coli*, purification and detection of *Strep*-tag® proteins.

Strep-tag® Starter Kit

Contains one ready-to-use column with *Strep*-Tactin® Sepharose®.

Cat. no. 2-1101-000



Strep-tag® Starter Kit 3C

Includes 3 different columns with *Strep*-Tactin® immobilized to Sepharose®, MacroPrep® and Superflow®, respectively, allowing the evaluation of the optimal resin for your particular protein of interest.

Cat. no. 2-1102-001

Strep-tag® Starter Kit „Cartridge H-PR" Superflow®

For protein purification under low pressure allowing fast and convenient purification of your *Strep*-tag® protein. Equipped with a *Strep*-Tactin® Superflow® cartridge H-PR (1 ml) with 10-32 connection, which can be directly connected to HPLC and ÄKTA™; adapters for connection to other devices or to connect in series to enlarge capacity are included optionally.

Cat. nos. 2-1115-000 (with adapters), 2-1116-000 (without adapters)

Strep-tag® Starter Kit with one purification colmn

In addition to the purification columns, all *Strep*-tag® Starter Kits include:

- Control plasmid with 15 kD protein insert
- Anhydrotetracycline for induction of expression
- Fractionation buffer for the preparation of a periplasmic extract
- Wash buffer for column chromatography or for the preparation of a cytoplasmic extract
- Elution buffer for displacing the *Strep*-tag® protein from the column
- Column regeneration buffer (with HABA)
- *Strep*-Tactin® horse radish peroxidase (HRP) conjugate for Western blot detection
- Comprehensive manual

Overview of columns & cartridges included in the Starter Kits:

(columns: for gravity flow; cartridges: for FPLC/HPLC; see also page 5)

	Strep-Tactin® Sepharose® column	*Strep*-Tactin® Superflow® column	*Strep*-Tactin® MacroPrep® column	*Strep*-Tactin® Superflow® cartridge H-PR	*Strep*-Tactin® Superflow® high capacity cartridge H-PR	Ni-NTA Superflow® cartridge H-PR	Adapters for HPLC/FPLC
Strep-tag® Starter Kit	•						
Strep-tag® Starter Kit 3C	•	•	•				
Strep-tag® Starter Kit „Cartridge H-PR" Superflow® with adapters				•			•
Strep-tag® Starter Kit „Cartridge H-PR" Superflow® without adapters				•			
Strep/6xHistidine Starter Kit (see page 6)					•	•	

10 reasons to buy *Strep*-tag®

The complete system for protein expression, purification, detection, immobilization, assay and interaction

1. **Protein purity** is very high: above 95% under physiological conditions
2. **High specificity** of *Strep*-tag®/*Strep*-Tactin® interaction and competitive elution with desthiobiotin results in low background
3. **Physiological and fast** purification requiring a low washing volume only
4. Allows isolation of **bioactive** proteins, including metalloproteins and protein complexes
5. High-performance tool for **protein:protein interaction** studies
6. **Efficient protein immobilization** via antibodies (*Strep*MAB-Immo) or *Strep*-Tactin® for protein assays
7. **Buffer conditions are variable**; high salts, detergents, metal ions, chelators or reducing agents can be used
8. *Strep*-tag® has a neutral pI. It does **not influence protein folding and function** and does not have to be removed (saves cost and time)
9. **Low immunogenicity**; therefore, antibody production is not disturbed
10. Robust purification resins are **re-usable** and regeneration is color controlled

"The StrepII tag appears to be an **excellent candidate** for affinity purification in general since it is a short tag that produces **high purity** material in **good yields** at a **moderate cost**. / .../ we find that a combination of His-tag and StrepII tag allows **rapid capture** of the tagged protein or protein complex from crude extracts..."

Lichty et al. 2005, Protein Expression and Purification 41: 98-105.

"These experiments demonstrate that the StrepII tag is vastly superior to His6 in terms of **flexibility and purity** and offers **key advantages over the TAP tag** in terms of size, speed of purification and flexibility. We conclude that the StrepII tag is a valuable tool for rapid, easy and high quality protein purification from plant material."

Witte et al. 2004, Plant Molecular Biology 55: 135-147. (Protein interaction studies in plants)

For further references refer to www.strep-tag.com/ref.html.

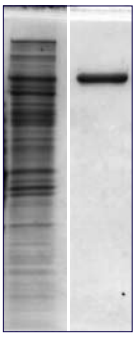
For patent, license and trademark information refer to http://www.strep-tag.com/patents.html.

In contrast to other systems *Strep*-tag® works excellently with metal ion containing proteins!

Metalloenzymes
E. coli alkaline phosphatase

Reference:
Hengsakul M, Cass AEG, 1997: J. Mol. Biol. 266: 621-632. Alkaline phosphatase-Strep-tag fusion protein binding to streptavidin: Resonant mirror studies.

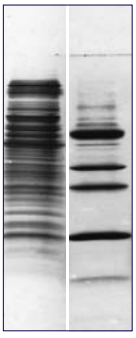
Large proteins



Oat phytochrome A, 124 kDa

Reference:
Murphy J T & Lagarias J C, 1997: Photochem. Photobiol., 65, 750-758. Purification and characterization of recombinant affinity peptidetagged oat phytochrome A.

Membrane protein complex purification reduced to one step instead of five!



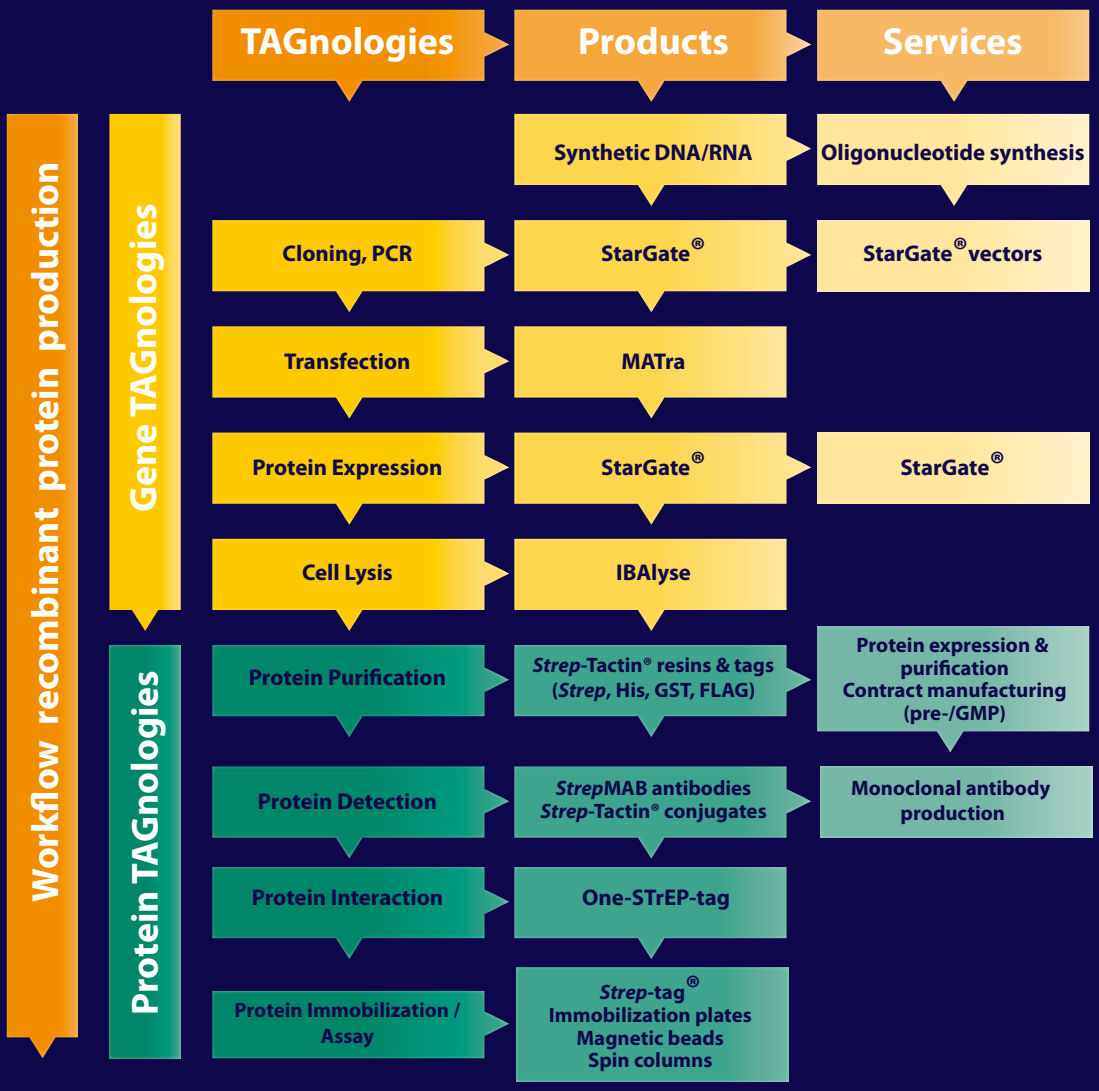
Multimeric membrane protein complexes
P. denitrificans cytochrome c oxidase

Reference:
Kleymann G, Ostermeier C, Ludwig B, Skerra A & Michel H, 1995: Biol Technology 13, 155-160. Engineered Fv fragments as a tool for the onestep purification of integral multisubunit membrane protein complexes.

Ease the way from genes to proteins

An overview of IBA's comprehensive product and service portfolio for recombinant protein production.

Further information at www.iba-bioTAGnology.com.



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