

## Introduction

The ChromoTek V5-Trap® Magnetic Particles M-270 Kit consists of an anti-V5-tag Nanobody (VHH), which is covalently bound to Magnetic Particles M-270. V5-Trap Magnetic Particles M-270 Kit is used to immunoprecipitate V5-tagged fusion proteins from cell extracts of various organisms like mammals, plants, bacteria, yeast, insects etc.

## Properties

**Ligand:** Anti-V5-tag single domain antibody fragment (VHH, Nanobody)

**Reactivity:** Specifically binds to V5-tag sequence (GKPIPPELLGLDST). Compatible with N-, C-terminal or internal tagging.

**Binding capacity:** 0.62-1.25 µg of recombinant V5-tagged protein (~30 kDa) per 25 µL bead slurry

**Bead size:** 2.8 µm

**Buffer compatibility:** See *Wash Buffer compatibility table*.

**Storage buffer:** 1x PBS, Preservative: 0.09 % sodium azide

**Storage conditions:** Upon receipt store at +4°C. Do not freeze!

**Stability:** Stable for 1 year upon receipt.

**Shipment:** Shipped at ambient temperature.

**RRID:** AB\_2892994

## Suggested buffer compositions

### Buffers provided in the kit

*NEW: Update of Wash buffer components.*

Buffer	Composition	Quantity
Lysis buffer	10 mM Tris/Cl pH 7.5, 150 mM NaCl, 0.5 mM EDTA, 0.5 % Nonidet™ P40 Substitute, 0.09 % sodium azide	30 mL
RIPA buffer	10 mM Tris/Cl pH 7.5, 150 mM NaCl, 0.5 mM EDTA, 0.1 % SDS, 1 % Triton™ X-100, 1 % deoxycholate, 0.09 % sodium azide	30 mL
Dilution buffer*	10 mM Tris/Cl pH 7.5, 150 mM NaCl, 0.5 mM EDTA, 0.018 % sodium azide	50 mL (after dilution with 40 mL H <sub>2</sub> O)
Wash buffer*	10 mM Tris/Cl pH 7.5, 150 mM NaCl, 0.05 % Nonidet™ P40 Substitute, 0.5 mM EDTA, 0.018 % sodium azide	50 mL (after dilution with 40 mL H <sub>2</sub> O)
Acidic elution buffer	200 mM glycine pH 2.5 (adjust the pH at +4°C)	3x 1 mL

\*Add 40 mL H<sub>2</sub>O to Dilution buffer and Wash buffer before use. The indicated buffer composition refers to the diluted buffer solution.

*Note: Sodium azide is added to buffers as antiseptic and antifungal agent.*

*Note: Use your equivalent cell lysis buffer for other cell types like yeast, plants, insects, bacteria.*

*Note: Consider using a Wash buffer without detergent for co-immunoprecipitation.*

### Required buffer solutions

Buffer	Composition
2x SDS-sample buffer	120 mM Tris/Cl pH 6.8, 20 % glycerol, 4 % SDS, 0.04 % bromophenol blue, 10 % β-mercaptoethanol
Neutralization buffer	1 M Tris pH 10.4 (adjust the pH at +4°C)
Peptide elution buffer	2 mg/mL V5-peptide (v5p-1) reconstituted in PBS

*Note: Use Peptide elution buffer or Acidic elution buffer for elution under native conditions.*

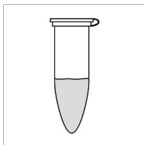
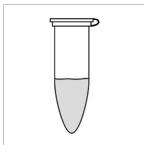
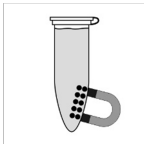
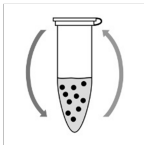
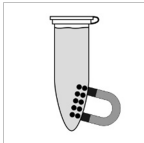

## Wash buffer compatibility table

Buffer ingredients	Max. concentration
DTT	10 mM
NaCl	150 mM
Nonidet <sup>™</sup> P40 Substitute	tested up to 2 %
TCEP	10 mM
Triton <sup>™</sup> X-100	tested up to 2 %
Urea	500 mM

## Product sizes

Product	Product code	Size
V5-Trap <sup>®</sup> Magnetic Particles M-270	v5td-10	10 reactions (250 µL slurry)
	v5td-20	20 reactions (500 µL slurry)
	v5td-100	100 reactions (2.5 mL slurry)
	v5td-200	200 reactions (5 mL slurry)
	v5td-400	400 reactions (10 mL slurry)
V5-Trap <sup>®</sup> Magnetic Particles M-270 Kit	v5tdk-20	20 reactions (500 µL slurry) including buffers

## Protocol at a glance

General		<ul style="list-style-type: none"><li>• Perform all steps at +4°.</li><li>• Use your preferred cell lysis buffer and cell lysis conditions.</li></ul>
Cell Lysis		<ul style="list-style-type: none"><li>• Use 10<sup>6</sup>-10<sup>7</sup> cells and 200 µL Lysis buffer.</li><li>• Perform cell lysis and clear lysate.</li><li>• Mix 200 µL cleared lysate with 300 µL Dilution buffer.</li></ul>
Bead equilibration		<ul style="list-style-type: none"><li>• Transfer 25 µL bead slurry into a 1.5 mL tube.</li><li>• Equilibrate beads 3x with 500 µL Wash Buffer.</li></ul>
Protein binding		<ul style="list-style-type: none"><li>• Add 500 µL diluted lysate to beads.</li><li>• Rotate end-over-end for 1 hour at +4°C.</li></ul>
Washing		<ul style="list-style-type: none"><li>• Wash beads 3x with 500 µL Wash buffer.</li><li>• Transfer beads to a new tube during the last washing step.</li></ul>
Elution with SDS-sample buffer		<ul style="list-style-type: none"><li>• Resuspend beads in 80 µL 2x SDS-sample buffer.</li><li>• Boil beads for 5 min at +95°C.</li><li>• Analyze the supernatant in SDS-PAGE / Western Blot.</li></ul>

## Immunoprecipitation protocol

### Cell material

The following protocol describes the preparation of mammalian cell lysate!

For other type of cells, we recommend using 500 µg of cell extract and start the protocol with step *Bead equilibration*.

### Mammalian cell lysis

Note: Harvesting of cells and cell lysis should be performed with ice-cold buffers. We strongly recommend to add protease inhibitors to the Lysis buffer to prevent degradation of your target protein and its binding partners.

For one immunoprecipitation reaction, we recommend using  $\sim 10^6$ - $10^7$  cells.

1. Choice of lysis buffer:
  - For cytoplasmic proteins, resuspend the cell pellet in 200 µL ice-cold Lysis buffer by pipetting up and down. Supplement Lysis buffer with protease inhibitor cocktail and 1 mM PMSF (not included).
  - For nuclear/chromatin proteins, resuspend cell pellet in 200 µL ice-cold RIPA buffer supplemented with DNaseI (f.c. 75-150 Kunitz U/mL), MgCl<sub>2</sub> (f.c. 2.5 mM), protease inhibitor cocktail and PMSF (f.c. 1 mM) (not included).
2. Place the tube on ice for 30 min and extensively pipette the suspension every 10 min.
3. Centrifuge cell lysate at 17,000x g for 10 min at +4°C. Transfer cleared lysate (supernatant) to a pre-cooled tube and add 300 µL Dilution buffer supplemented with 1 mM PMSF and protease inhibitor cocktail (not included). If required, save 50 µL of diluted lysate for further analysis (input fraction).

### Bead equilibration

1. Resuspend beads by gently pipetting up and down or by inverting the tube. Do not vortex the beads!
2. Transfer 25 µL of bead slurry into a 1.5 mL reaction tube.
3. Add 500 µL ice-cold Wash buffer.
4. Separate the beads with a magnet until the supernatant is clear. Discard the supernatant.

### Protein binding

1. Add diluted lysate to the equilibrated beads.
2. Rotate end-over-end for 1 hour at +4°C.

## Washing

1. Separate the beads with a magnet until the supernatant is clear.
2. If required, save 50  $\mu$ L of supernatant for further analysis (flow-through/non-bound fraction).
3. Discard remaining supernatant.
4. Resuspend beads in 500  $\mu$ L Wash buffer.
5. Separate the beads with a magnet until the supernatant is clear. Discard the remaining supernatant.
6. Repeat this step at least twice.
7. During the last washing step, transfer the beads to a new tube.

*Optional:* To increase stringency of the Wash buffer, add a non-ionic detergent e.g. Triton<sup>™</sup> X-100 (see *Wash buffer compatibility table* for maximal concentrations).

## Elution with 2x SDS-sample buffer (Laemmli)

1. Remove the remaining supernatant.
2. Resuspend beads in 80  $\mu$ L 2x SDS-sample buffer.
3. Boil beads for 5 min at +95°C to dissociate immunocomplexes from beads.
4. Separate the beads with a magnet.
5. Analyze the supernatant in SDS-PAGE / Western Blot.

## Elution with Acidic elution buffer

1. Remove the remaining supernatant.
2. Add 50–100  $\mu$ L Acidic elution buffer and constantly pipette up and down for 30-60 sec at +4°C or room temperature.
3. Separate the beads with a magnet until the supernatant is clear.
4. Transfer the supernatant to a new tube.
5. Immediately neutralize the eluate fraction with 5-10  $\mu$ L Neutralization buffer.
6. Repeat this step at least once to increase elution efficiency.

*Note:* Elution at room temperature is more efficient than elution at +4°C. Prewarm buffers for elution at room temperature.

## Elution with Peptide elution buffer

1. Reconstitute V5-peptide in PBS to a final concentration of 2 mg/mL (1.4 mM). Vortex for a few minutes to dissolve the powder.
2. Dilute V5-peptide stock to 0.72 mg/mL (0.5 mM) in PBS.
3. Remove the remaining supernatant from the beads.
4. Add 100  $\mu$ L of the diluted V5-peptide and mix with a pipette.
5. Mix for 10-20 min at room temperature or for 30-60 min at +4°C.

Product code: v5tdk-20

6. Separate the beads with a magnet until the supernatant is clear.
7. Transfer the supernatant to a new tube.
8. Repeat this step at least once to increase elution efficiency.

*Note:* Elution at room temperature is more efficient than elution at +4°C. Prewarm buffers for elution at room temperature.

## Product overview and related products

V5-tag toolbox	Product code
V5-Trap® Agarose	v5ta-10; -20; -100
V5-Trap® Agarose Kit	v5tak-20
V5-Trap® Magnetic Agarose	v5tma-10; -20; -100
V5-Trap® Magnetic Agarose Kit	v5tmak-20
V5-Trap® Magnetic Particles M-270	v5td-10; -20; -100
V5-Trap® Magnetic Particles M-270 Kit	v5tdk-20
iST V5-Trap® Kit for IP/MS	v5tak-iST-8
Binding Control Agarose	bab-20
Binding Control Magnetic Agarose	bmab-20
Spin columns	sct-10; sct-20; sct-50
V5-peptide	v5p-1
V5 VHH, recombinant binding protein	v5t-250
V5-tag antibody [SV5-P-K], monoclonal mouse IgG1 kappa	v5ab-20; -200
Nano-Secondary® alpaca anti-mouse IgG1, recombinant VHH, Alexa Fluor® 488 [CTK0103, CTK0104]	sms1AF488-1-10; -100
Nano-Secondary® alpaca anti-mouse IgG1, recombinant VHH, Alexa Fluor® 568 [CTK0103, CTK0104]	sms1AF568-1-10; -100
Nano-Secondary® alpaca anti-mouse IgG1, recombinant VHH, Alexa Fluor® 647 [CTK0103, CTK0104]	sms1AF647-1-10; -100

For product details, information, and ordering visit [www.chromotek.com](http://www.chromotek.com).

## Contact

support@chromotek.com

ChromoTek GmbH  
Am Klopferspitz 19  
82152 Planegg-Martinsried  
Germany  
phone: +49 89 124 148 80  
fax: +49 89 124 148 811

ChromoTek Inc.  
62-64 Enter Lane  
Islandia, NY 11749  
USA  
phone: 631 501 1058  
fax: 631 501 1060

## Disclaimer

Only for research applications, not for diagnostic or therapeutic use!

ChromoTek and GFP-Trap, RFP-Trap, Myc-Trap, Spot-Trap, Spot-Tag, Spot-Label, Spot-Cap, Nano-Secondary, F2H Kit, Chromobody, Nano-CaptureLigand and V5-Trap are registered trademarks of ChromoTek GmbH, part of Proteintech Group. Nanobody is a registered trademark of Ablynx, a Sanofi company. Alexa Fluor is a registered trademark of Life Technologies Corporation, a part of Thermo Fisher Scientific Inc. SNAP-tag is a registered trademark and CLIP-tag is a trademark of New England Biolabs, Inc. Octet is a registered trademark of FortéBio, a Sartorius brand. Other suppliers' products may be trademarks or registered trademarks of the corresponding supplier each. Statements on other suppliers' products are given according to our best knowledge.