SYSY | HistoSure

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: sysy-histosure.com

HNK-1 (CD57)

Cat.No. HS-531 008; Recombinant rabbit antibody, 50 µg recombinant IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg purified recombinant IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 50 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	**WB**: not tested yet **IP**: not tested yet **ICC**: not tested yet **IHC-P**: 1 : 400 up to 1 : 1000 **ELISA**: not tested yet
Clone	Rb-HNK-1
Subtype	IgG1 (κ light chain)
Immunogen	Membrane extract of human lymphoblastoid cell line HSB-2 (UniProt Id: Q9P2W7)
Reactivity	Reacts with: human (Q9P2W7). No signal: mouse, rat. Other species not tested yet.
Remarks	This antibody is a chimeric antibody based on the monoclonal mouse antibody clone HNK-1. The constant regions of the heavy and light chains have been replaced with rabbit specific sequences. The antibody can therefore be used with standard anti-rabbit secondary reagents. The antibody has been expressed in mammalian cells.

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Background

The human natural killer-1 (HNK-1) glyco-epitope, also known as LEU-7 or CD57, was first identified by a monoclonal antibody that recognizes a subset of human natural killer (NK) cells (1). This epitope features a unique trisaccharide structure, consisting of a 3-O-sulfated glucuronic acid linked to N-acetyl-lactosamine (HSO_3-3GlcAß1-3Galß1-4GlcNAc-) and is primarily expressed on glycolipids and glycoproteins within the nervous system. Notable carriers are NCAM, L1, MAG, tenascin-R and tenascin-C (2). Studies in mice lacking HNK-1 expression reveal abnormal brain function, including impaired synaptic plasticity, deficits in dendritic spine maturation and disrupted spatial learning (2-4). In humans, HNK-1 is implicated in various central nervous system (CNS) disorders. For instance, autoantibodies targeting HNK-1 have been detected in certain neuropathies (5). Beyond its role in neural development, HNK-1 also appears to function as tumor suppressor. Elevated HNK-1 expression has been associated with improved survival outcomes in patients with prostate cancer or astrocytic tumors (6,7). In the field of immunology, HNK-1 is most commonly referred to as CD57. It is expressed on a subset of immune cells, particularly T cells and natural killer (NK) cells, and is associated with terminal differentiation and cellular senescence (8).

Selected General References

A differentiation antigen of human NK and K cells identified by a monoclonal antibody (HNK-1).
Abo T et al. J Immunol (1981) PubMed:6790607

Relevance of anti-HNK1 antibodies in the management of anti-MAG neuropathies.
Delmont E et al. J Neurol (2019) PubMed:31089861

The role of human natural killer-1 (HNK-1) carbohydrate in neuronal plasticity and disease.
Morise J et al. Biochim Biophys Acta Gen Subj (2017) PubMed:28709864

CD57 in human natural killer cells and T-lymphocytes.
Kared H et al. Cancer Immunol Immunother (2016) PubMed:26850637

HNK-1 glycan functions as a tumor suppressor for astrocytic tumor.
Suzuki-Anekoji M et al. J Biol Chem (2011) PubMed:21784847

HNK-1 (human natural killer-1) glyco-epitope is essential for normal spine morphogenesis in developing hippocampal neurons.
Morita I et al. Neuroscience (2009) PubMed:19796667

Mice deficient in nervous system-specific carbohydrate epitope HNK-1 exhibit impaired synaptic plasticity and spatial learning.
Yamamoto S et al. J Biol Chem (2002) PubMed:12032138

Immunohistochemical study of HNK-1 (Leu-7) antigen in prostate cancer and its clinical significance.
Liu X et al. Chin Med J (Engl) (1995) PubMed:7555270

Access the online factsheet including applicable protocols at https://sysy-histosure.com/product/HS-531008 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at 4°C before reconstitution. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera**: With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies**: Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein.
  For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.