abcam

ab278053

Anti-CD133 antibody [RM1002] - Stem Cell Marker

Lab Essentials | Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Multiclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	RM1002
Purification technique	Affinity purification Protein A
Concentration	0.549 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-Fr

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information PROM1

Function	May play a role in cell differentiation, proliferation and apoptosis (PubMed:24556617). Binds cholesterol in cholesterol-containing plasma membrane microdomains and may play a role in the organization of the apical plasma membrane in epithelial cells. During early retinal development acts as a key regulator of disk morphogenesis. Involved in regulation of MAPK and Akt signaling pathways. In neuroblastoma cells suppresses cell differentiation such as neurite outgrowth in a RET-dependent manner (PubMed:20818439).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What are recombinant multiclonals?
Recombinant multiclonals are a mixture of recombinant antibodies co-expressed from a library of heavy and light chains. They offer several advantages including:

- The sensitivity of polyclonal antibodies by recognising multiple epitopes
- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

View our range of recombinant multiclonal antibodies.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	CD133 also known as Prominin-1 is a transmembrane glycoprotein with a molecular weight of approximately 120 kDa. This protein stands out due to its expression in various stem and progenitor cells including those of the neural hematopoietic and epithelial lineages. CD133 is recognized for its distinct five transmembrane domains and two large extracellular loops. Researchers commonly use CD133 as a cell surface marker to identify stem and progenitor cells. The significance of CD133 extends to immunohistochemistry (IHC) and Western blot applications where it is a popular target for detection and analysis.

Biological function summary	CD133 is involved in maintaining the cellular architecture and signaling processes. It plays a role in cellular differentiation and proliferation while acting as a part of larger protein complexes on the cell surface. This protein is notable as it contributes significantly to the regulation of stem cell properties supporting the growth and repair in various tissues. Anti-CD133 antibodies are valuable tools in studying these functions due to their specificity in targeting this marker.
Pathways	CD133 participates in cellular signaling and transport pathways vital for intercellular communication and homeostasis. It interacts within pathways related to cell polarity and asymmetric division both essential for tissue development and maintenance. CD133 is associated with proteins like CD133/1 and CD133/2 which further highlights its involvement in these complex biological networks and on pathways such as the Wnt signaling pathway which regulates gene expression associated with cell proliferation and differentiation.
Associated diseases and disorders	Several studies indicate a strong relationship between CD133 expression and certain cancers such as glioblastoma and colorectal cancer. In these cases CD133 serves not only as a marker but also as an indicator of the presence of cancer stem cells which are capable of tumor initiation and maintenance. Furthermore researchers have identified connections between CD133 and other proteins such as c-Met (cMab) within these pathological contexts suggesting interactions that could contribute to disease progression and offering potential targets for therapeutic intervention.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

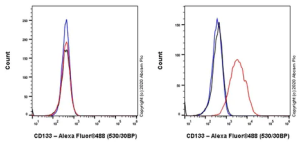
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

9 product images

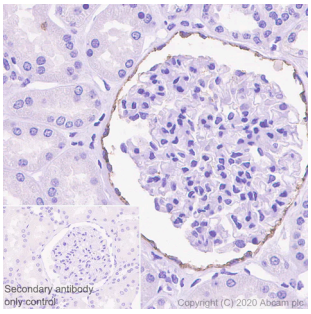


Flow Cytometry - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

CD133 Flow Cytometry staining using rabbit Anti-CD133 antibody

Flow cytometric analysis of HEK-293T (Human embryonic kidney epithelial cell, Left panel) / Caco-2 (Human colorectal adenocarcinoma epithelial cell, Right panel) using ab278053 at 1/500 dilution (0.1µg) (red). The isotype control used was the Rabbit monoclonal IgG (ab172730), black line and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (blue). Secondary antibody used was the Goat anti-rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution.

Negative control: HEK-293T. (PMID 20167130)
Gated on viable cells.

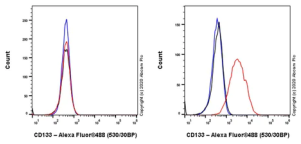


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

CD133 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CD133 antibody

Immunohistochemical analysis of paraffin-embedded human kidney tissue labeling CD133 with ab278053 at 1/1000 (0.5 µg/ml) dilution followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on Bowman's capsule of human kidney (PMID: 19875807). The section was incubated with ab278053 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

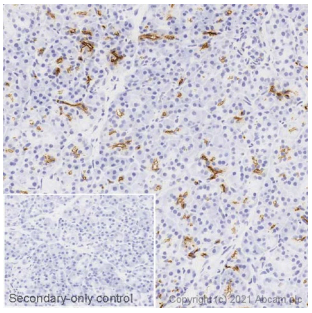
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Flow Cytometry - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

CD133 Flow Cytometry staining using rabbit Anti-CD133 antibody

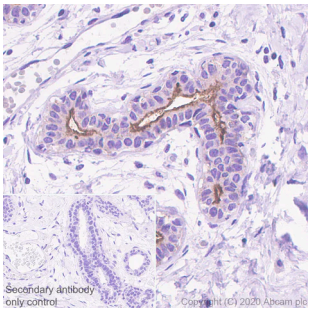
Flow cytometric analysis of HEK-293T (Human embryonic kidney epithelial cell, Left panel) / Caco-2 (Human colorectal adenocarcinoma epithelial cell, Right panel) using ab278053 at 1/500 dilution (0.1µg) (Red). Mouse monoclonal IgG (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti mouse IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.
Negative control: HEK-293T. (PMID 20167130)
Gated on viable cells.



Immunohistochemistry (Frozen sections) - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

CD133 Immunohistochemistry (Frozen sections) staining using rabbit Anti-CD133 antibody

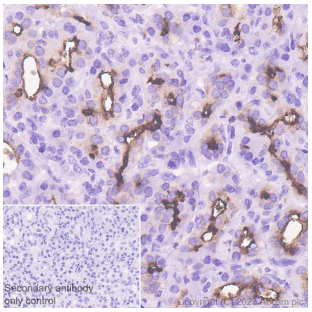
IHC image of CD133 staining in a section of frozen normal human tonsil* performed on a Leica BOND™ system using the standard protocol. The section was fixed in 10% paraformaldehyde (10 min) prior to staining. The section was incubated with ab278053, 1µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX. The inset secondary-only control image is taken from an identical assay without primary antibody. For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.
*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

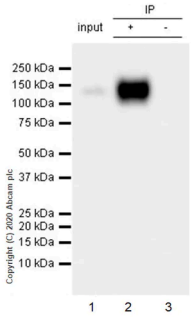
Immunohistochemical analysis of paraffin-embedded human mammary gland tissue labeling CD133 with ab278053 at 1/1000 (0.5 µg/ml) dilution followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Apical staining on human mammary gland (PMID: 18261235). The section was incubated with ab278053 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

Immunohistochemical analysis of paraffin-embedded human pancreatic carcinoma tissue labelling CD133 with ab278053 at 1:1000 dilution (0.5 µg/ml), followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on human pancreatic carcinoma is observed. The section was incubated with ab278053 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counter stained with Hematoxylin. Secondary antibody only control: Used PBS instead of primary antibody, Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).



Immunoprecipitation - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

CD133 was immunoprecipitated from 0.35 mg Caco-2 (Human colorectal adenocarcinoma epithelial cell) whole cell lysate with ab278053 at 1/30 dilution (2µg in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab278053 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP)(ab131366) was used at 1/5000 dilution.
Lane 1: Caco-2 whole cell lysate 10 µg.

Lane 2: ab278053 IP in Caco-2 whole cell lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab278053 in Caco-2 whole cell lysate.

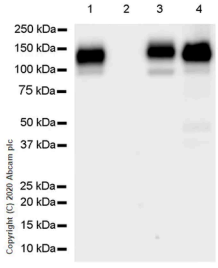
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 seconds.

All lanes:
Immunoprecipitation - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

Predicted band size: 97 kDa

Observed band size: 120 kDa



Western blot - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

Blocking/Dilution buffer: 5% NFDM/TBST.
Negative control: HEK-293T (PMID 20167130).

The MW observed is consistent with the literature (PMID 20717901; PMID 18645205).

All lanes:
Western blot - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053) at 1/1000 dilution

Lane 1:
Caco-2 (Human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
HEK-293T (Human embryonic kidney epithelial cell) whole cell lysate at 20 µg

Lane 3:
NCCIT (Human pluripotent embryonic carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
HT-29 (Human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

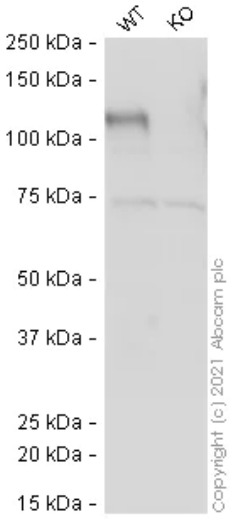
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 97 kDa

Observed band size: 120 kDa

Exposure time: 26s



Western blot - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053)

ab278053 was shown to react with PROM1 in wild-type HAP1 cells in western blot. Loss of signal was observed when PROM1 knockout sample was used. Membranes were blocked in 3 % milk in TBS-T (0.1 % Tween®) before incubation with ab278053 overnight at 4°C at a 1 in 1000 dilution. Blots were incubated with HRP conjugated Goat anti-Rabbit (H+L) secondary antibody at 1/5000 for 1 hour at room temperature before development with Optiblot ECL reagent (ab133456) and imaging.
All lanes:
Western blot - Anti-CD133 antibody [RM1002] - Stem Cell Marker (ab278053) at 1/1000 dilution

Lane 1:
Wild-type HAP1 cell lysate at 40 µg

Lane 2:
PROM1 knockout HAP1 cell lysate at 40 µg

Secondary

All lanes:
HRP conjugated Goat anti-Rabbit (H+L) at 1/5000 dilution

Performed under reducing conditions.

Predicted band size: 97 kDa

Observed band size: 120 kDa

Exposure time: 20s

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.