abcam

ab238954

Anti-Superoxide Dismutase 1 antibody [EP1727Y] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EP1727Y
Purification technique	Affinity purification Protein A
Concentration	1.03 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Mouse, Rat, Human
Dilution info	-

Notes	-

WB

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Rat
Dilution info	-
Notes	-

Expected

Species	Mouse, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information SOD1

Function	Destroys radicals which are normally produced within the cells and which are toxic to biological systems (PubMed:24140062). Catalyzes the oxidation of hydrogen sulfide (H2S) to sulfate, playing an important role in detoxifying H2S and limiting the accumulation of reactive sulfur species (RSS) such as persulfides and polysulfides (PubMed:36630448).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab238954 is the carrier-free version of ab51254.

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.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	Superoxide Dismutase 1 (SOD1) also known as Cu/Zn SOD or simply dismutase is an enzyme important for the detoxification of superoxide radicals. SOD1 catalyzes the conversion of two superoxide molecules into oxygen and hydrogen peroxide maintaining cellular redox balance. This enzyme typically exhibits a mass of approximately 32 kDa. SOD1 is expressed in the cytoplasm of cells throughout the body including tissues like liver kidney and brain.
Biological function summary	The enzyme functions as a homodimer with each subunit containing a copper and zinc ion. These metal ions are essential for the catalytic activity of SOD1 as the copper ion participates in electron transfer while the zinc ion provides structural stability. The enzyme protects cells from oxidative stress by neutralizing excess reactive oxygen species ensuring cellular health and functioning.
Pathways	SOD1 plays an important role in the cellular antioxidant defense system and is a part of the reactive oxygen species (ROS) metabolic pathway. It works in conjunction with catalase and glutathione peroxidase to limit oxidative damage within cells. The close interaction between these enzymes highlights the interdependence within the antioxidant defense network emphasizing their role in maintaining cellular homeostasis.
Associated diseases and disorders	Mutations in the SOD1 gene are linked to familial Amyotrophic Lateral Sclerosis (ALS) a neurodegenerative condition. In ALS aberrant SOD1 proteins may lead to increased oxidative stress and motor neuron damage. Research also connects SOD1 to the pathogenesis of Alzheimer's disease where oxidative stress is a contributing factor. These associations underline SOD1's significance in

neurodegenerative diseases highlighting potential therapeutic targets for interventions focused on oxidative stress management.

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

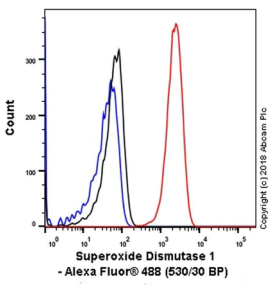
We do not recommend this combination. It is not covered by our product promise.

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.

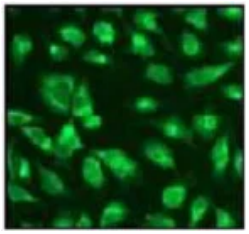
7 product images



Flow Cytometry (Intracellular) - Anti-Superoxide Dismutase 1 antibody [EP1727Y] - BSA and Azide free (ab238954)

Superoxide Dismutase 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Superoxide Dismutase 1 antibody

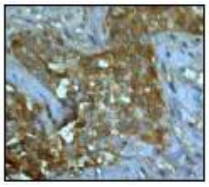
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Superoxide Dismutase 1 with ab51254 at 1/20 dilution (1µg) (Red). Goat anti rabbit IgG (Alexa Fluor®488, ab150077) at 1/2000 dilution was used as the secondary antibody. Cells were fixed with4% paraformaldehyde. Rabbit monoclonal IgG (ab172730) was used as isotype control (Black). Unlabelled control: Cells without incubation with primary antibody and secondary antibody (Blue).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab51254).



Immunocytochemistry/ Immunofluorescence - Anti-Superoxide Dismutase 1 antibody [EP1727Y] - BSA and Azide free (ab238954)

Superoxide Dismutase 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Superoxide Dismutase 1 antibody

Immunofluorescent staining of HeLa (human epithelial cell line from cervix adenocarcinoma) cells using ab51254 (1:100).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab51254).

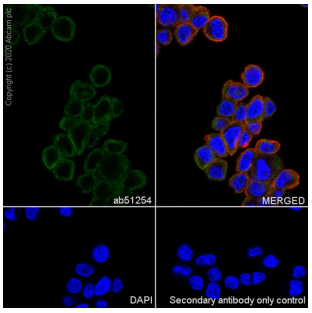


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Superoxide Dismutase 1 antibody [EP1727Y] - BSA and Azide free (ab238954)

Superoxide Dismutase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Superoxide Dismutase 1 antibody

ab51254 (1:100) staining human Superoxide Dismutase 1 in human breast carcinoma tissue by immunohistochemistry using paraffin embedded tissue.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab51254).

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

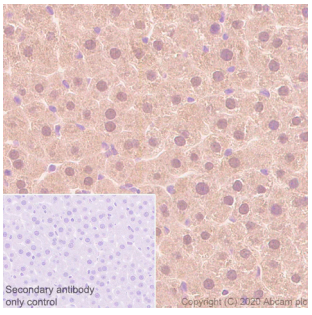


Immunocytochemistry/ Immunofluorescence - Anti-Superoxide Dismutase 1 antibody [EP1727Y] - BSA and Azide free (ab238954)

Superoxide Dismutase 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Superoxide Dismutase 1 antibody

This data was developed using ab51254, the same antibody clone in a different buffer formulation. Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized PC-12 cells labelling Superoxide Dismutase 1 with ab51254 at 1/100 dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing cytoplasmic staining in PC-12 cell line ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 2.5 dilution (Red). The Nuclear counterstain was DAPI (Blue).

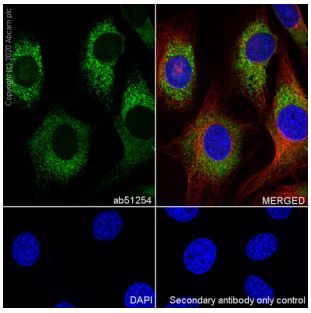
Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1000 2 ug/ml dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Superoxide Dismutase 1 antibody [EP1727Y] - BSA and Azide free (ab238954)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat liver tissue sections labeling Superoxide Dismutase 1 with purified ab51254 at 1/1000 dilution (0.15 µg/ml).
Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, epitope retrieval

solution2) for 20 mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: secondary antibody only control. Hematoxylin was used as a counterstain.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab51254)

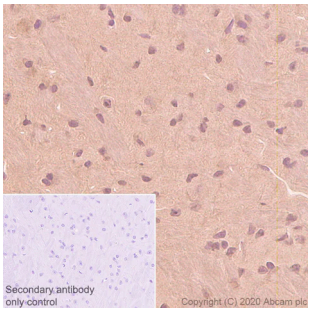


Immunocytochemistry/ Immunofluorescence - Anti-Superoxide Dismutase 1 antibody [EP1727Y] - BSA and Azide free (ab238954)

Superoxide Dismutase 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Superoxide Dismutase 1 antibody

This data was developed using ab51254, the same antibody clone in a different buffer formulation. Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized NIH/3T3 cells labelling Superoxide Dismutase 1 with ab51254 at 1/100 dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing cytoplasmic and weak nuclear staining in NIH/3T3 cell line ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 2.5 dilution (Red). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1000 2 ug/ml dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Superoxide Dismutase 1 antibody [EP1727Y] - BSA and Azide free (ab238954)

Superoxide Dismutase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Superoxide Dismutase 1 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse cerebrum tissue sections labeling Superoxide Dismutase 1 with purified ab51254 at 1/1000 dilution (0.15 µg/ml).
Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: secondary antibody only control. Hematoxylin was used as a counterstain.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab51254)

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