abcam

ab51254

Anti-Superoxide Dismutase 1 antibody [EP1727Y]

Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254) is a rabbit monoclonal antibody detecting Superoxide Dismutase 1 in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 40 publications
- Trusted since 2007

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.05% Sodium azide Constituents: 50% Tissue culture supernatant, 40% Glycerol (glycerin, glycerine), 9.85% Tris glycine, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EP1727Y
Purification technique	Affinity purification Protein A
Concentration	0.15 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
Dilution info	1/50000
Notes	-

Species	Rat
Dilution info	1/50000
Notes	-

Species	Human
Dilution info	1/50000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/100 - 1/250
Notes	-

Species	Rat
Dilution info	1/100 - 1/250
Notes	-

Species	Human
Dilution info	1/100 - 1/250
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

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	Conditional Ambient
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 is this antibody validated in?
Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of Superoxide Dismutase 1?
Anti-Superoxide Dismutase 1 [EP1727Y] (ab51254) specifically detects a band for Superoxide Dismutase 1 (UniProt: P00441) at a molecular weight of 16kDa.

Trusted by the scientific community
Anti-Superoxide Dismutase 1 [EP1727Y] (ab51254) was first used in a scientific publication in 2007 and has been cited over 40 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254) has been confirmed by Western blot testing in SOD1 Knockout HeLa cells.

Other related products
We have a range of other formats of antibody clone [EP1727Y] also available for your convenience: ab51254, HRP - ab199453, Alexa Fluor® 488 - ab199733, Carrier free - ab238954, Carrier free - ab302497, Biotin - ab302528, APC - ab310865, PE - ab310929, Alexa Fluor® 594 - ab311701, Alexa Fluor® 555 - ab314510, Alexa Fluor® 647 - ab314511

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

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.

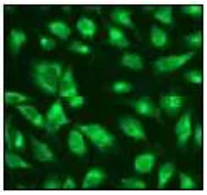
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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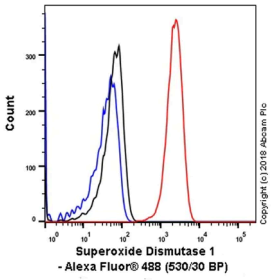
10 product images



Immunocytochemistry/ Immunofluorescence - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

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

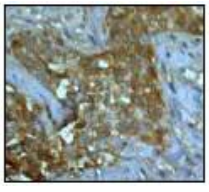
Immunofluorescent staining of HeLa cells using ab51254 (1:100).



Flow Cytometry (Intracellular) - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

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

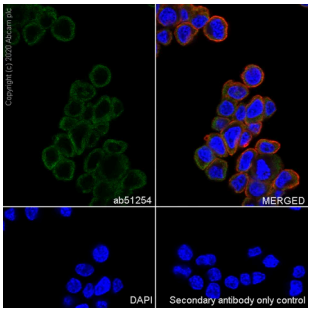
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Superoxide Dismutase 1 with ab51254 at 1/20 dilution (1µg) (Red). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody. Cells were fixed with4% paraformaldehyde. Rabbit monoclonal IgG (ab172730) was used as isotype control (Black). Unlabelled control: Cells without incubation with primary antibody and secondary antibody (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

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

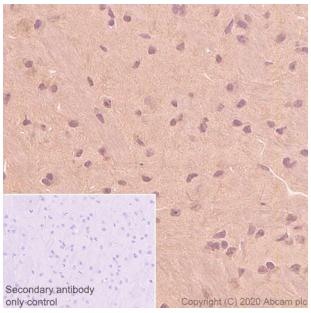
ab51254 (1:100) staining human Superoxide Dismutase 1 in human breast carcinoma tissue by immunohistochemistry using paraffin embedded tissue.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

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

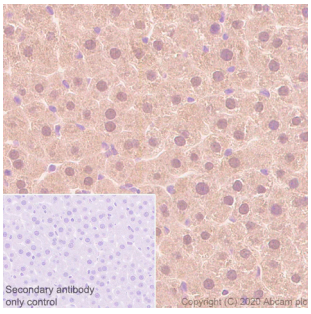
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized PC-12 cells labelling Superoxide Dismutase 1 with ab51254 at 1/100 dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing cytoplasmic 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] (ab51254)

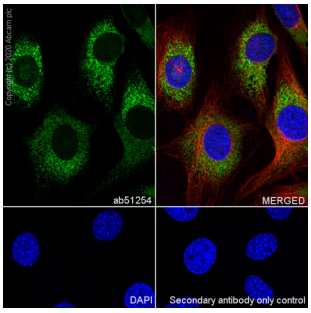
Superoxide Dismutase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Superoxide Dismutase 1 antibody

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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

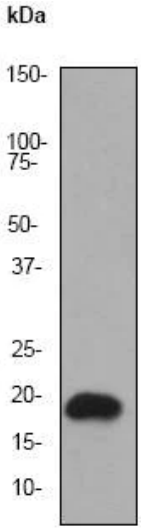
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat liver tissue sections labeling Superoxide Dismutase 1 with purified ab51254 at 1/1000 dilution (0.15 µg/ml).
Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 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.



Immunocytochemistry/ Immunofluorescence - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

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

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.



Western blot - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

All lanes:
Western blot - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254) at 1/50000 dilution

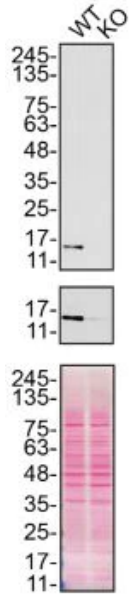
All lanes:
Jurkat cell lysate at 10 µg

Secondary

All lanes:
Goat anti-rabbit HRP labeled at 1/2000 dilution

Predicted band size: 15 kDa

Observed band size: 18 kDa

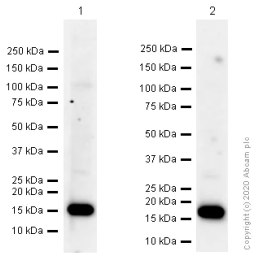


Western blot - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

Superoxide Dismutase 1 Western blot staining using rabbit Anti-Superoxide Dismutase 1 antibody

ab51254 was shown to react with SOD1 in wild-type HeLa cells in Western blot with loss of signal observed in a SOD1 knockout cell line. Wild-type HeLa and SOD1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab51254 overnight at 4 °C at a 1/15000 dilution. Blots were incubated with goat anti-rabbit HRP secondary antibodies at 0.2 µg/ml before imaging. These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

Predicted band size: 15 kDa



Western blot - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254)

Blocking/diluting Buffer and concentration: 5% NFDM /TBST
All lanes:
Western blot - Anti-Superoxide Dismutase 1 antibody [EP1727Y] (ab51254) at 0.015 µg/mL

Lane 1:
Mouse brain tissue lysate at 20 µg

Lane 2:
Rat brain tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 0.05 µg/mL

Predicted band size: 15 kDa

Observed band size: 18 kDa

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