abcam

ab219724

Anti-Sumo 1 antibody [Y299] - 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	Y299
Purification technique	Affinity purification Protein A
Specificity	This antibody recognises small ubiquitin-related modifier-1 (SUMO-1), also known as SMT3, Sentrin, GMP1 UBL1 and PIC1.
Concentration	0.992 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human

Dilution info	-
Notes	-

Expected

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

IP

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

ChIP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376- 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, Rat, Human
Dilution info	-
Notes	-

Target data

See full target information SUMO1

Function	Ubiquitin-like protein that can be covalently attached to proteins as a monomer or a lysine-linked polymer. Covalent attachment via an isopeptide bond to its substrates requires prior activation by the E1 complex SAE1-SAE2 and linkage to the E2 enzyme UBE2I, and can be promoted by E3 ligases such as PIAS1-4, RANBP2

or CBX4. This post-translational modification on lysine residues of proteins plays a crucial role in a number of cellular processes such as nuclear transport, DNA replication and repair, mitosis and signal transduction. Involved for instance in targeting RANGAP1 to the nuclear pore complex protein RANBP2. Covalently attached to the voltage-gated potassium channel KCNB1; this modulates the gating characteristics of KCNB1 (PubMed:19223394). Polymeric SUMO1 chains are also susceptible to polyubiquitination which functions as a signal for proteasomal degradation of modified proteins. May also regulate a network of genes involved in palate development. Covalently attached to ZFHX3 (PubMed:24651376).

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

ab219724 is the carrier-free version of ab32058.

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	SUMO 1 also known as small ubiquitin-like modifier 1 is part of the protein family involved in post-translational modification. The protein mechanically adds a SUMO group to target proteins through sumoylation a process similar to ubiquitination. SUMO 1 typically has a molecular mass of around 11 kDa. It expresses in various tissues and cells including the nucleus and cytoplasm of eukaryotic cells. In addition it is important in processes like nuclear transport transcriptional regulation and protein stabilization.
Biological function summary	SUMO 1 contributes significantly to maintaining cellular homeostasis. It is an integral part of a SUMOylation complex that modifies other proteins to alter their function localization or interactions. Through its modification actions SUMO 1 affects processes such as DNA repair and the cell cycle. By interacting with components of the nuclear pore complex and transcription factors SUMO 1 modulates essential biological activities at multiple levels within the cell.
Pathways	This protein plays a significant role in the PI3K/Akt pathway and Wnt signaling. SUMO 1 associates with proteins like RanGAP1 and various transcription factors highlighting the complexity of its regulatory actions. These associations are important for the regulation of cell survival proliferation and differentiation. SUMOylation by SUMO 1 has been linked to an interference with phosphorylation showing its potential influence on cell signaling pathways.
Associated diseases and disorders	The dysregulation of SUMO 1 is seen in cancer and neurodegenerative diseases. For instance altered SUMOylation patterns contribute to the progression of certain cancers. Furthermore SUMO 1 interacts with proteins like p53 and these interactions can affect tumor suppression and cell cycle regulation. In neurodegenerative disorders disturbed SUMOylation is associated with protein aggregation and neuronal damage implicating SUMO 1 in diseases like Alzheimer's.

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.

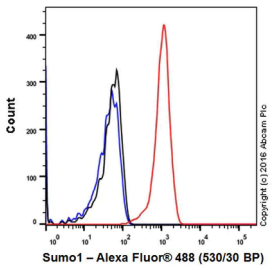
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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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14 product images



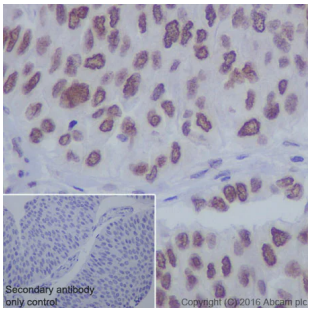
Flow Cytometry (Intracellular) - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

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

ab32058 staining Sumo 1 in HeLa (Human epithelial cell line from cervix adenocarcinoma) cells by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde and the sample was incubated with the primary antibody at a dilution of 1/20. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody.
Isoytype control: Rabbit monoclonal IgG (Black)

Unlabelled control: Cell 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 (ab32058).

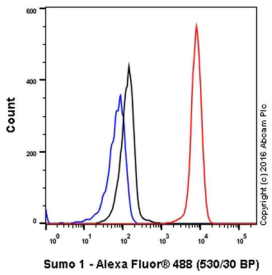


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

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

ab32058 staining Sumo 1 in human bladder carcinoma tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/250. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).



Flow Cytometry (Intracellular) - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

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

Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labelling Sumo 1 with ab32058 at 1/20 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. An Alexa Fluor®488-conjugated goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).

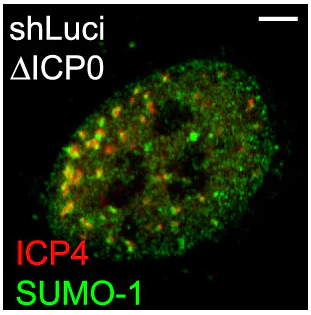
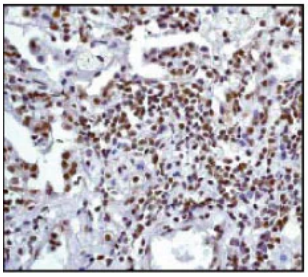


Image from Cuchet-Lourenço D et al. PLoS Pathog. 2011 Jul;7(7):e1002123. Epub 2011 Jul 14. Fig 9.; doi:10.1371/journal.ppat.1002123; July 14 2011 PLoS Pathog 7(7): e1002123.

Immunocytochemistry/ Immunofluorescence - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

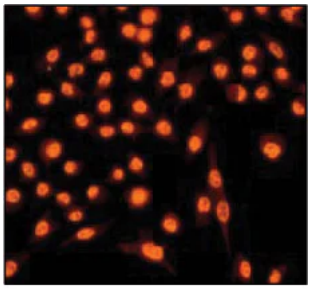
Immunofluorescence analysis of ICP0-null mutant HSV-1 infected HepaRG cells, staining Sumo1 (green) with ab32058. An AlexaFluor®-conjugated goat anti-rabbit IgG was used as the seconday antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

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

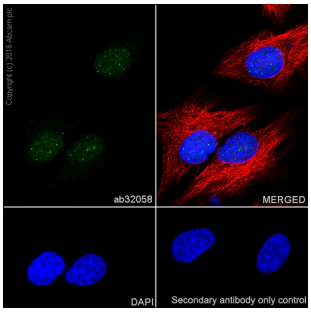
IHC of paraffin-embedded human lung carcinoma using anti-SUMO 1 (ab32058) diluted 1:250This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).



Immunocytochemistry/ Immunofluorescence - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

Sumo 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sumo 1 antibody

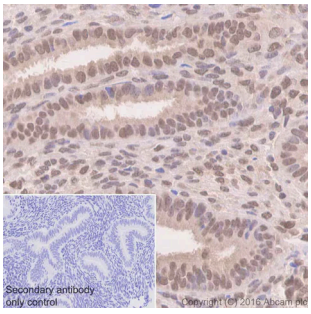
Immunofluorescent staining of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells using anti-SUMO 1 (ab32058) diluted 1/250.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).



Immunocytochemistry/ Immunofluorescence - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

Sumo 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sumo 1 antibody

ab32058 staining Sumo 1 in HeLa (Human epithelial cell line from cervix adenocarcinoma) cells by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with 4% Paraformaldehyde and permeabilized with 0.1% Triton X-100. Samples were incubated with primary antibody at a dilution of 1/500. A goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at a dilution of 1/1000. ab195889 was used as a counterstain for primary antibody ab133645 at 1/200. DAPI was used as a nuclear counterstain and PBS as a negative control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).

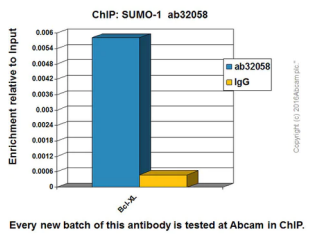


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

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

ab32058 staining Sumo 1 in human endometrium tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/250. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.

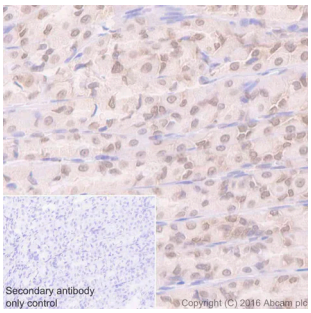
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).



ChIP - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

Chromatin was prepared from SK-OV-3 (Human ovarian cancer cell line) cells according to the Abcam X-ChIP protocol. Cells were fixed with formaldehyde for 10 minutes. The ChIP was performed with 25µg of chromatin, 5µg of ab32058 (blue), and 20µl of Anti rabbit IgG sepharose beads. 5µg of rabbit normal IgG was added to the beads control (yellow). The immunoprecipitated DNA was quantified by real time PCR (Sybr green approach).
ChIP was performed according to the literature (PMID: 23770046).

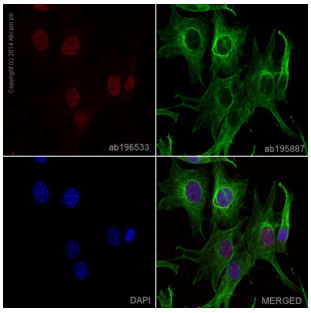
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

ab32058 staining Sumo 1 in rat stomach tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/250. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).



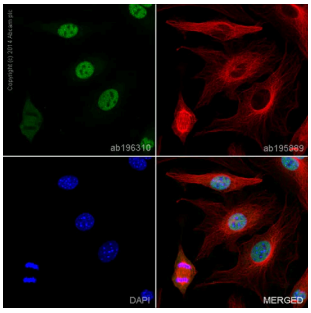
Immunocytochemistry/ Immunofluorescence - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

Sumo 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sumo 1 antibody

Clone Y299 (ab219724) has been successfully conjugated by Abcam. This image was generated using Anti-Sumo 1 antibody [Y299] (Alexa Fluor® 647). Please refer to ab196533 for protocol details.
ab196533 staining Sumo 1 in NIH3T3 cells. The cells were fixed with 4% formaldehyde (10 min), permeabilised in 0.1% Triton X-100 for 5 minutes and then blocked in 1% BSA/10% normal goat serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated with ab196533 at 1/50 dilution (shown in red) and ab195887, Mouse monoclonal [DM1A] to alpha Tubulin (Alexa Fluor® 594, shown in green) at 1/167 dilution overnight at +4°C. Nuclear DNA was labelled in blue with DAPI.

This product gave a positive signal in 100% methanol (5 min) fixed NIH3T3 cells under the same testing conditions.

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



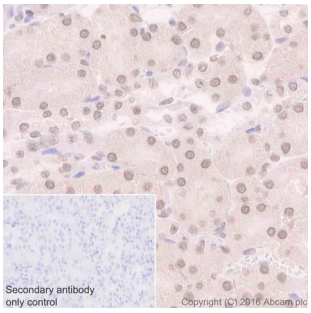
Immunocytochemistry/ Immunofluorescence - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

Sumo 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sumo 1 antibody

Clone Y299 (ab219724) has been successfully conjugated by Abcam. This image was generated using Anti-Sumo 1 antibody [Y299] (Alexa Fluor® 488). Please refer to ab196310 for protocol details.
ab196310 staining Sumo 1 in NIH3T3 cells. The cells were fixed with 4% formaldehyde (10 min), permeabilised in 0.1% Triton X-100 for 5 minutes and then blocked in 1% BSA/10% normal goat serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated with ab196310 at 1/50 dilution (shown in green) and ab195889, Mouse monoclonal [DM1A] to alpha Tubulin (Alexa Fluor® 594, shown in red) at 1/167 dilution overnight at +4°C. Nuclear DNA was labelled in blue with DAPI.

This product gave a positive signal in 100% methanol (5 min) fixed NIH3T3 cells under the same testing conditions.

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

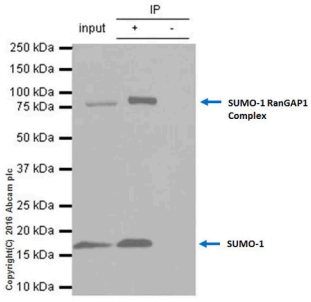


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

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

ab32058 staining Sumo 1 in mouse kidney tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/250. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).



Immunoprecipitation - Anti-Sumo 1 antibody [Y299] - BSA and Azide free (ab219724)

ab32058 immunoprecipitating Sumo 1. 10µg of NIH/3T3 (Mouse embryonic fibroblast) cell lysate was incubated with primary antibody at a dilution of 1/20 and VeriBlot for IP Detection Reagent (HRP) (ab131366) at a dilution of 1/1000.
Lane 1: NIH/3T3 whole cell lysate 10ug
Lane 2: ab32058 IP in NIH/3T3 whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab32058 in NIH/3T3 (Mouse embryonic fibroblast) whole cell lysate

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32058).

All lanes:
Immunoprecipitation - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Predicted band size: 11 kDa

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