abcam

ab271937

Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free

Recombinant | RabMAb | Advanced Validation

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	EPR17929
Purification technique	Affinity purification Protein A
Specificity	Oct4 is highly expressed in undifferentiated embryonic stem cells and cancer stem cell-like cells (PMID: 26013162, 21826175). ab181557 can't detect the target band in undifferentiated cancer cell lines with low expression level of Oct4, such as HeLa, HEK-293, MDA-MB-231, HepG2, Huh7, HCT-116 and PANC-1 (PMID: 21975933, 29789579, 25625591, 26059097, 23928699, 27344963, 25837691, 29254202, 28854261, 27996162), even at the dilution of 1:200.
Concentration	1.017 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ChIP-seq

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Rat, Sheep, Horse, Cow, Pig, Common marmoset
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Rat, Sheep, Horse, Cow, Pig, Common marmoset
Dilution info	-

Notes	-

ChIP

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Rat, Sheep, Horse, Cow, Pig, Common marmoset
Dilution info	-
Notes	-

WB

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Predicted

Species	Rat, Sheep, Horse, Cow, Pig, Common marmoset
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	The mouse recommendation is based on the WB results. We do not guarantee IHC-P for mouse as there is no suitable positive tissue in-house.

Expected

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

Predicted

Species	Rat, Sheep, Horse, Cow, Pig, Common marmoset
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Rat, Sheep, Horse, Cow, Pig, Common marmoset

Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	Purified format.

Expected

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

Predicted

Species	Rat, Sheep, Horse, Cow, Pig, Common marmoset
Dilution info	-
Notes	-

Target data

See full target information POU5F1

Function	Transcription factor that binds to the octamer motif (5'-ATTTGCAT-3'). Forms a trimeric complex with SOX2 or SOX15 on DNA and controls the expression of a number of genes involved in embryonic development such as YES1, FGF4, UTF1 and ZFP206. Critical for early embryogenesis and for embryonic stem cell pluripotency.

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

ab271937 is the carrier-free version of ab181557.

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	Oct4 also known as POU5F1 Oct 4 protein and hecho en Oct 4 is a transcription factor important for maintaining pluripotency in stem cells. Oct4 protein has a molecular weight of approximately 40-45 kDa. Stem and germ cells express Oct4 where it regulates gene expression essential for cell differentiation and self-renewal. In immunohistochemistry (IHC) studies scientists often use Oct4 staining to identify stem cell presence and behavior.
Biological function summary	Oct4 acts in concert with other pluripotency factors like SOX2 and NANOG to form a regulatory network essential for maintaining stem cell identity. As part of this network the Oct4 transcription factor orchestrates the expression of genes that prevent differentiation and maintain the stem cell’s undifferentiated state. The

	protein directly activates the transcription of target genes involved in maintaining the pluripotent state.
Pathways	Oct4 plays an important role in the maintenance of pluripotency and self-renewal in the embryonic stem cell (ESC) and induced pluripotent stem cell (iPSC) pathways. Oct4 partners with proteins such as SOX2 and KLF4 in these pathways to activate and repress a common set of downstream genes which control differentiation and proliferation. Oct4 ensures the blocking of differentiation signals while promoting self-renewal in pluripotent cells.
Associated diseases and disorders	Aberrant Oct4 expression often links to oncogenesis and tumor progression particularly in testicular germ cell tumors and certain types of cancers. Oct4 overexpression may interact with c-MYC a protein linked to cancer cell proliferation advancing tumorigenesis. Additionally researchers investigate Oct4 as a diagnostic marker for cancer and its potential as a therapeutic target to inhibit cancer cell growth.

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

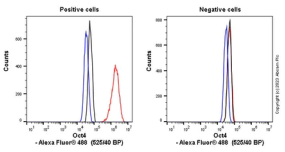
We do not recommend this combination. It is not covered by our product promise.

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.

10 product images



Flow Cytometry (Intracellular) - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Oct4 Flow Cytometry (Intracellular) staining using rabbit Anti-Oct4 antibody

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).

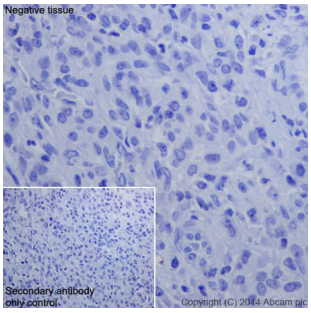
Flow cytometry overlay histogram showing left NCCIT positive cells and right negative HeLa stained with ab181557 (red line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab181557) (1x 106 in 100µl at 0.2µg/ml (1/10300)) for 30min at 22°C.

The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 for 30min at 22°C

Isotype control antibody (black line) was Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.

This antibody gave a positive signal in NCCIT Fixed with 80% methanol (5 min) / permeabilised with 0.1% PBS-Triton X-100 for 15 min under the same conditions.



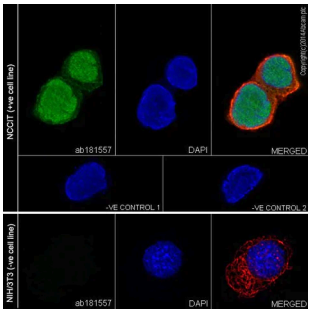
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Oct4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Oct4 antibody

Immunohistochemical analysis of paraffin-embedded human breast cancer tissue labeling Oct4 with ab181557 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution. Negative staining on Human breast cancer. Counter stained with Hematoxylin.
Negative control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

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

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).



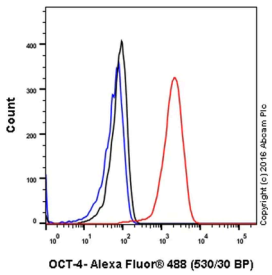
Immunocytochemistry/ Immunofluorescence - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Oct4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Oct4 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized NCCIT (Human pluripotent embryonic carcinoma) cells (positive cell line) or NIH/3T3 (Mouse embyro fibroblast) cells (negative cell line) labeling Oct4 with ab181557 at 1/250 dilution, followed

by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/400 dilution (green). Confocal image showing nuclear and weakly cytoplasmic staining on NCCIT cell line. Negative expression in NIH/3T3 cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/500 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution (red).
The negative controls are as follows:
-ve control 1: ab181557 at 1/250 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/400 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).



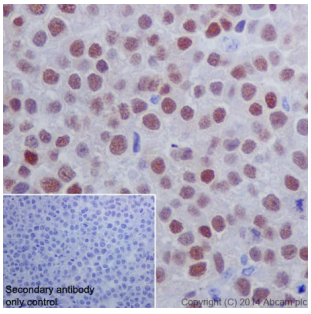
Flow Cytometry (Intracellular) - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Oct4 Flow Cytometry (Intracellular) staining using rabbit Anti-Oct4 antibody

ab181557 staining OCT-4 in the human cell line NCCIT (human pluripotent embryonal carcinoma) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde and the sample was incubated with the primary antibody at a dilution of 1/70. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody (Red).
Isotype control: Rabbit IgG monoclonal [EPR25A] ab172730 (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 (ab181557).



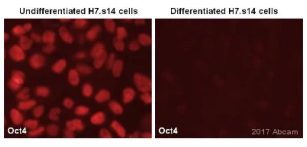
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Oct4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Oct4 antibody

Immunohistochemical analysis of paraffin-embedded human dysgerminoma of ovary tissue labeling Oct4 with ab181557 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution. Nuclear and weak cytoplasmic staining on cancer cells of Human dysgerminoma of ovary is observed. Counter stained with Hematoxylin.
Negative control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

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

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).

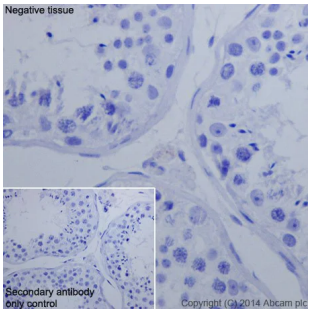


Immunocytochemistry/ Immunofluorescence - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

This image is courtesy of a customer review submitted by Joanne Lacey.

Oct4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Oct4 antibody

ab181557 staining Oct4 in human embryonic stem cells by ICC/IF (Immunocytochemistry/Immunofluorescence). Cells were fixed with formaldehyde , permeabilized with 0.1% Triton in PBS for 1 hour and blocked with 10% Serum for 1 hour at 25°C. Samples were incubated with primary antibody (1/200 in PBS with 0.1% Tween20) for 16 hours at 4°C. A monoclonal Goat Anti-rabbit Alexa Fluor® 594 was used as the secondary antibody at 1/200 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).



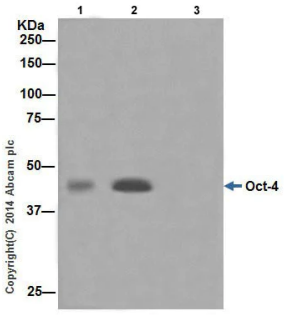
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Oct4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Oct4 antibody

Immunohistochemical analysis of paraffin-embedded Human testis tissue labeling Oct4 with ab181557 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) secondary antibody at 1/500 dilution. Negative staining on adult Human testis. Counter stained with Hematoxylin.
Negative control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

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

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).



Immunoprecipitation - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Oct4 was immunoprecipitated from 1mg of NCCIT (Human pluripotent embryonic carcinoma) whole cell extract with ab181557 at 1/50 dilution. Western blot was performed from the immunoprecipitate using ab181557 at 1/10000 dilution. Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG, was used as secondary antibody at 1/1500 dilution.
Lane 1: NCCIT whole cell extract 10 µg (Input). Lane 2: ab181557 IP in NCCIT whole cell extract. Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab181557 in NCCIT whole cell extract.
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

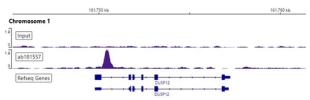
Exposure time: 3 minutes

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).

All lanes:
Immunoprecipitation - Anti-Oct4 antibody [EPR17929] - ChIP Grade (ab181557)

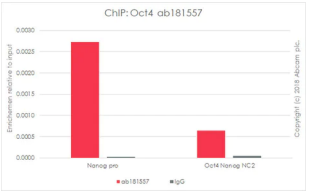
Predicted band size: 38 kDa

Observed band size: 45 kDa



ChIP-sequencing - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Chromatin was prepared from NCCIT (Human pluripotent embryonic carcinoma cell line) cells. ChIP was performed with 10^7 NCCIT cells and 8 µg of ab181557 [EPR17929]. ChIP DNA was sequenced on the Illumina NovaSeq 6000 to a depth of 30 million reads. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).



ChIP - Anti-Oct4 antibody [EPR17929] - ChIP Grade - BSA and Azide free (ab271937)

Chromatin was prepared from F9 (Mouse embyro testicular 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 ab181557 (red, and 20µl of Anti rabbit IgG sepharose beads. 5µg of rabbit normal IgG was added to the beads control (grey). The immunoprecipitated DNA was quantified by real time PCR (Sybr green approach).
"pro" stands for promoter region, while "NC2" stands for negative control which is negative loci at the promoter region.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab181557).

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