abcam

ab166708

Anti-ID2 antibody [4E12G5]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Full Length Protein corresponding to Human ID2. Database link Q02363
Clone number	4E12G5
Purification technique	Affinity purification Protein G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/200 - 1/400
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat, Cow, Pig, Chimpanzee, Cynomolgus monkey, Orangutan
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/500 - 1/2000
Notes	-

Predicted

Species	Mouse, Rat, Cow, Pig, Chimpanzee, Cynomolgus monkey, Orangutan
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

Predicted

Species	Mouse, Rat, Cow, Pig, Chimpanzee, Cynomolgus monkey, Orangutan
Dilution info	-
Notes	-

Target data

See full target information ID2

Function	Transcriptional regulator (lacking a basic DNA binding domain) which negatively regulates the basic helix-loop-helix (bHLH) transcription factors by forming heterodimers and inhibiting their DNA binding and transcriptional activity. Implicated in regulating a variety of cellular processes, including cellular growth, senescence, differentiation, apoptosis, angiogenesis, and neoplastic transformation. Inhibits skeletal muscle and cardiac myocyte differentiation. Regulates the circadian clock by repressing the transcriptional activator activity of the CLOCK-BMAL1 heterodimer. Restricts the CLOCK and BMAL1 localization to the cytoplasm. Plays a role in both the input and output pathways of the circadian clock: in the input component, is involved in modulating the magnitude of photic entrainment and in the output component, contributes to the regulation of a variety of liver clock-controlled genes involved in lipid metabolism.

Storage

Shipped at conditions	Blue Ice
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

Supplementary info

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

Activity summary	ID2 also known as inhibitor of DNA binding 2 is a nuclear protein with a molecular weight approximately 15 kDa. It functions as a dominant negative regulator and lacks a DNA-binding domain but it forms heterodimers with basic helix-loop-helix (bHLH) transcription factors. This interaction with bHLH proteins inhibits their ability to bind DNA and initiate transcription. ID2 expresses in various tissues particularly in places with high cellular proliferation such as the nervous system and developing tissues.
Biological function summary	ID2 plays a role in cellular proliferation differentiation and development by modulating the activity of other transcription factors. It acts as part of a regulatory complex that blocks differentiation pathways allowing cells to maintain a proliferative and less differentiated state. ID2 often interacts with proteins like E2A and MyoD which are important for muscle cell differentiation. By regulating these factors ID2 influences the balance between cell growth and terminal differentiation.
Pathways	ID2 integrates into key signaling pathways particularly the TGF-beta and BMP signaling pathways. Through its interaction with the aforementioned bHLH transcription factors ID2 indirectly influences processes governed by these

	pathways. TGF-beta pathway for instance regulates cell growth and differentiation in a context-dependent manner incorporating ID2's regulatory effect on differentiation-suppressing transcription factors.
Associated diseases and disorders	ID2 has implications in cancer and neurodegenerative diseases. Dysregulation of ID2 expression or function can contribute to tumorigenesis as it affects cell cycle progression and prevents differentiation both important in cancer development. Additionally ID2 has connections to proteins like pRb in retinoblastoma where it influences the pathway that leads to uncontrolled cellular proliferation. In the context of neurodegenerative disorders altered ID2 activity might impact neuronal differentiation providing links to cognitive deficits.

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

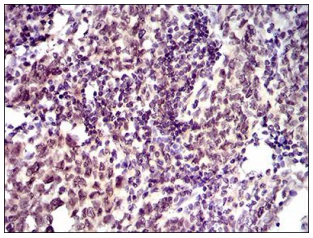
We do not recommend this combination. It is not covered by our product promise.

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.

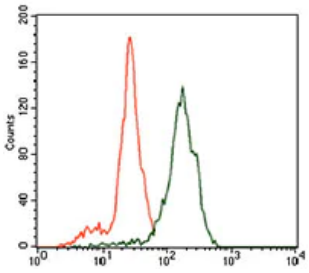
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ID2 antibody [4E12G5] (ab166708)

ID2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ID2 antibody

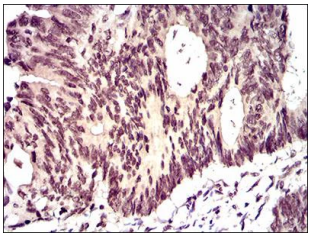
Immunohistochemical analysis of paraffin embedded, DAB-stained Human breast cancer tissue labeling ID2 using ab166708 at a 1/200 dilution.



Flow Cytometry - Anti-ID2 antibody [4E12G5] (ab166708)

ID2 Flow Cytometry staining using mouse Anti-ID2 antibody

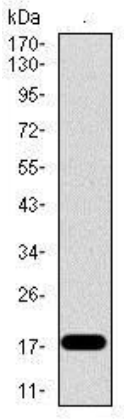
Flow cytometric analysis of ID2-labeled SK N SH cells (green) and negative control cells (red), using ab166708 at a 1/200 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ID2 antibody [4E12G5] (ab166708)

ID2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ID2 antibody

Immunohistochemical analysis of paraffin embedded, DAB-stained Human rectum cancer tissue labeling ID2 using ab166708 at a 1/200 dilution.



Western blot - Anti-ID2 antibody [4E12G5] (ab166708)

All lanes:
Western blot - Anti-ID2 antibody [4E12G5] (ab166708) at 1/500 dilution

All lanes:
recombinant Human ID2 protein at 1 µg

Predicted band size: 14 kDa

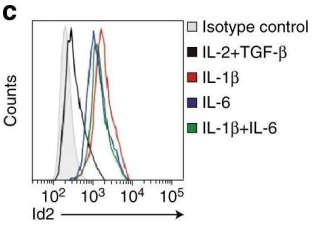


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Flow Cytometry - Anti-ID2 antibody [4E12G5] (ab166708)

ID2 Flow Cytometry staining using mouse Anti-ID2 antibody

ID2 Flow cytometry/Cell sorting using Anti-ID2 antibody [4E12G5], ab166708. Publication image from Im, S. H. et al., 2018, Nat Commun, PubMed: 30413714.

Id2 is induced by IL-1β and IL-6 mediated signaling and downstream transcription factors STAT3, IRF4 and BATF in Treg cells. a Strategy for sorting TNaive, iTreg, and ex-Foxp3 TH17 cells from Foxp3Thy1.1 reporter mice (left). Flow cytometry analysis of IL-1r1 and IL-6rα among the TNaive, iTreg, and ex-Foxp3 TH17 cells (right). b, c FACS-sorted iTreg cells were re-stimulated with cytokines as indicated and analyzed for Id2 and Foxp3 mRNA expression by RT-qPCR (b) as well as for Id2 protein levels by flow cytometry (c). d Cartoon depicting highly putative STAT3, IRF4, and BATF binding motifs upstream of Id2 transcription start site (TSS). e Cartoon depicting Id2 promoter constructs used for luciferase reporter assay. f Id2 promoter-luciferase construct (−582/+36) were co-transfected with the combination of STAT3, IRF4 and BATF expressing vectors in HEK-293 T cells. Lysates were prepared 30 h after transfection, and luciferase activities were measured with the reporter activities normalized to renilla luciferase activity. *P 0.05, **P < 0.005, ***P < 0.001 (Student’ s t-test). All data are representative three independent experiments with similar results (error bars, s.d.)

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