abcam

ab223850

Anti-FOXC1 antibody [EPR20678]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR20678
Purification technique	Affinity purification Protein A
Concentration	0.544 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	IHC not suitable for mouse & rat tissues. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

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

Target data

See full target information FOXC1

Function

DNA-binding transcriptional factor that plays a role in a broad range of cellular and developmental processes such as eye, bones, cardiovascular, kidney and skin development (PubMed:11782474, PubMed:14506133, PubMed:14578375, PubMed:15277473, PubMed:15299087, PubMed:15684392, PubMed:16449236, PubMed:16492674, PubMed:17210863, PubMed:19279310, PubMed:19793056, PubMed:25786029, PubMed:27804176, PubMed:27907090). Acts either as a transcriptional activator or repressor (PubMed:11782474). Binds to the consensus binding site 5'-[G/C][A/T]AAA[T/C]AA[A/C]-3' in promoter of target genes (PubMed:11782474, PubMed:12533514, PubMed:14506133, PubMed:19793056, PubMed:27804176, PubMed:7957066). Upon DNA-binding, promotes DNA bending (PubMed:14506133, PubMed:7957066). Acts as a transcriptional coactivator (PubMed:26565916). Stimulates Indian hedgehog (Ihh)-induced target gene expression mediated by the transcription factor GLI2, and hence regulates endochondral ossification (By similarity). Also acts as a transcriptional coregulator by increasing DNA-binding capacity of GLI2 in breast cancer cells (PubMed:26565916). Regulates FOXO1 through binding to a conserved element, 5'-GTAAACAAA-3' in its promoter region, implicating FOXC1 as an important regulator

of cell viability and resistance to oxidative stress in the eye (PubMed:17993506). Cooperates with transcription factor FOXC2 in regulating expression of genes that maintain podocyte integrity (By similarity). Promotes cell growth inhibition by stopping the cell cycle in the G1 phase through TGFB1-mediated signals (PubMed:12408963). Involved in epithelial-mesenchymal transition (EMT) induction by increasing cell proliferation, migration and invasion (PubMed:20406990, PubMed:22991501). Involved in chemokine CXCL12-induced endothelial cell migration through the control of CXCR4 expression (By similarity). Plays a role in the gene regulatory network essential for epidermal keratinocyte terminal differentiation (PubMed:27907090). Essential developmental transcriptional factor required for mesoderm-derived tissues, such as the somites, skin, bone and cartilage. Positively regulates CXCL12 and stem cell factor expression in bone marrow mesenchymal progenitor cells, and hence plays a role in the development and maintenance of mesenchymal niches for haematopoietic stem and progenitor cells (HSPC). Plays a role in corneal transparency by preventing both blood vessel and lymphatic vessel growth during embryonic development in a VEGF-dependent manner. Involved in chemokine CXCL12-induced endothelial cell migration through the control of CXCR4 expression (By similarity). May function as a tumor suppressor (PubMed:12408963).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
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

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.

Supplementary info

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

Activity summary	FOXC1 also known as Forkhead box C1 is a transcription factor with a molecular mass of approximately 56 kilodaltons. This protein belongs to the forkhead family of transcription factors which are characterized by a distinct forkhead domain. FOXC1 primarily expresses in tissues like the eye brain and kidneys. It plays an important role in regulating gene expression by binding to specific DNA sequences affecting the transcription of genes involved in a variety of cellular processes.
Biological function summary	FOXC1 plays a significant role in the development and differentiation of cells particularly in the anterior segment of the eye and in neural crest-derived tissues. Although it does not usually form part of a larger complex FOXC1 frequently interacts with other transcription factors and co-factors to modulate gene expression. It influences cell proliferation migration and apoptosis ensuring correct tissue and organ formation during development.
Pathways	FOXC1 contributes extensively to the regulation of developmental pathways particularly the Wnt signaling pathway. It also aligns with the Hedgehog signaling pathway which is well-known for its role in developmental processes. FOXC1 often interacts with related proteins such as FOXC2 another forkhead family member that helps orchestrate cellular events during development through these pathways.
Associated diseases and disorders	FOXC1 mutations or dysregulation associate with disorders such as Axenfeld-Rieger syndrome and glaucoma. These conditions highlight the importance of FOXC1 in eye development. FOXC2 often appears in discussions of these conditions due to its shared role in the pathways orchestrating developmental processes. Dysregulation of FOXC1 can also influence factors such as ECM components and signaling molecules leading to pathological changes observed in these disorders.

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

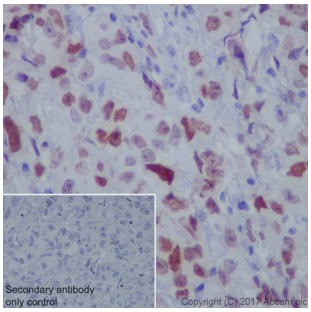
We do not recommend this combination. It is not covered by our product promise.

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.

6 product images

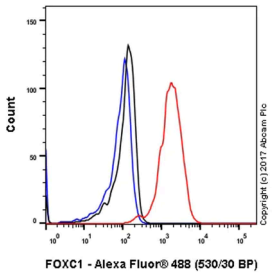


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-FOXC1 antibody [EPR20678] (ab223850)

FOXC1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-FOXC1 antibody

Immunohistochemical analysis of paraffin-embedded human basal-like breast cancer tissue labeling FOXC1 with ab223850 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Nuclear staining in human basal-like breast cancer (PMID:27708239; PMID: 20406990). Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

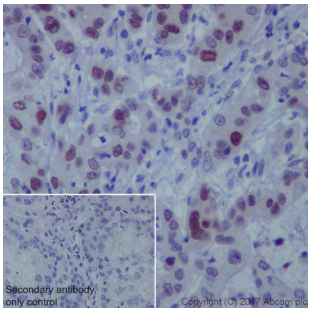
Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-FOXC1 antibody [EPR20678] (ab223850)

FOXC1 Flow Cytometry (Intracellular) staining using rabbit Anti-FOXC1 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized HEK-293T (human epithelial cell line from embryonic kidney transformed with large T antigen) cell line labeling FOXC1 with ab223850 at 1/500 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.



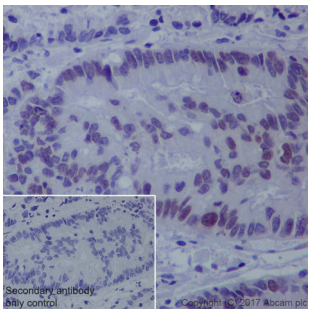
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-FOXC1 antibody [EPR20678] (ab223850)

FOXC1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-FOXC1 antibody

Immunohistochemical analysis of paraffin-embedded human pancreatic cancer tissue labeling FOXC1 with ab223850 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Nuclear staining in human pancreatic cancer is observed(PMID:23242609). Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

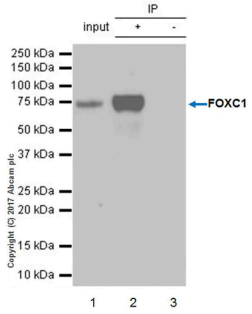
Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-FOXC1 antibody [EPR20678] (ab223850)

Immunohistochemical analysis of paraffin-embedded human gastric cancer tissue labeling FOXC1 with ab223850 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Nuclear staining in human gastric cancer is observed(PMID:24329718). Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunoprecipitation - Anti-FOXC1 antibody [EPR20678] (ab223850)

FOXC1 was immunoprecipitated from 0.35 mg of HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab223850 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab223850 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.
Lane 1: HeLa whole cell lysate 10 µg (Input).

Lane 2: ab223850 IP in HeLa whole cell lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab223850 in HeLa whole cell lysate.

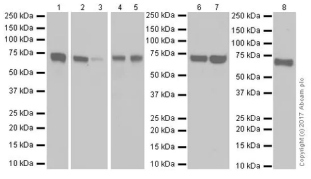
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 minutes.

The molecular mass is consistent with what has been described in the literature (PMID: 22493429).

All lanes:
Immunoprecipitation - Anti-FOXC1 antibody [EPR20678] (ab223850)

Predicted band size: 57 kDa



Western blot - Anti-FOXC1 antibody [EPR20678] (ab223850)

Exposure time : Lane 1: 15 seconds; Lanes 2-3 & 6-8: 3 minutes; Lanes 4-5: 1 minute.

Blocking/Dilution buffer: 5% NFDM/TBST.

The molecular mass is consistent with what has been described in the literature (PMID: 27708239).

All lanes:
Western blot - Anti-FOXC1 antibody [EPR20678] (ab223850) at 1/1000 dilution

Lane 1:

HEK-293T (human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate at 20 µg

Lane 2:
HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 3:
4T1 (mouse mammary gland carcinoma epithelial cell line) whole cell lysate at 10 µg

Lane 4:
MDA-MB-231 (human breast adenocarcinoma cell line) whole cell lysate at 20 µg

Lane 5:
MDA-MB-435S (human ductal carcinoma cell line) whole cell lysate at 20 µg

Lane 6:
PC-12 (rat adrenal gland pheochromocytoma cell line) whole cell lysate at 10 µg

Lane 7:
NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate at 10 µg

Lane 8:
Human fetal spleen lysate at 10 µg

Secondary

Lanes 1 - 7:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Lane 8:
Western blot - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/4000 dilution

Predicted band size: 57 kDa

Observed band size: 70 kDa

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