abcam

ab24859

Anti-TIE2 antibody [Cl. 16] - BSA and Azide free

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human TEK. The exact immunogen used to generate this antibody is proprietary information. Database link Q02763
Carrier free	Yes
Clone number	Cl. 16
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	1-2 µg for 10^6 Cells
Notes	We tested in-house with methanol-fixed cells, but this may not be necessary since the antibody recognies an extracellular epitope.

ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	1-2 µg/mL
Notes	-

IHC-Fr

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information TEK

Function

Tyrosine-protein kinase that acts as a cell-surface receptor for ANGPT1, ANGPT2 and ANGPT4 and regulates angiogenesis, endothelial cell survival, proliferation, migration, adhesion and cell spreading, reorganization of the actin cytoskeleton, but also maintenance of vascular quiescence. Has anti-inflammatory effects by preventing the leakage of pro-inflammatory plasma proteins and leukocytes from blood vessels. Required for normal angiogenesis and heart development during embryogenesis. Required for post-natal hematopoiesis. After birth, activates or inhibits angiogenesis, depending on the context. Inhibits angiogenesis and promotes vascular stability in quiescent vessels, where endothelial cells have tight contacts. In quiescent vessels, ANGPT1 oligomers recruit TEK to cell-cell contacts, forming complexes with TEK molecules from adjoining cells, and this leads to preferential activation of phosphatidylinositol 3-kinase and the AKT1 signaling cascades. In migrating endothelial cells that lack cell-cell adhesions, ANGT1 recruits TEK to contacts with the extracellular matrix, leading to the formation of focal adhesion complexes, activation of PTK2/FAK and of the downstream kinases MAPK1/ERK2 and MAPK3/ERK1, and ultimately to the stimulation of sprouting angiogenesis. ANGPT1 signaling triggers receptor dimerization and autophosphorylation at specific tyrosine residues that then serve as binding sites for scaffold proteins and effectors. Signaling is modulated by ANGPT2 that has lower affinity for TEK, can promote TEK autophosphorylation in the absence of ANGPT1, but inhibits ANGPT1-mediated signaling by competing for the same binding site. Signaling is also modulated by formation of heterodimers with TIE1,

and by proteolytic processing that gives rise to a soluble TEK extracellular domain. The soluble extracellular domain modulates signaling by functioning as decoy receptor for angiopoietins. TEK phosphorylates DOK2, GRB7, GRB14, PIK3R1; SHC1 and TIE1.

Storage

Shipped at conditions	Blue Ice
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

Supplementary info

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

Activity summary	TIE2 also known as TEK or CD202B is a receptor tyrosine kinase with a mass of approximately 145 kDa. It plays an important role in vascular development and maintenance. TIE2 is mainly expressed in endothelial cells which line the interior surface of blood vessels. It binds angiopoietins predominantly Angiopoietin-1 (Angpt1) influencing vascular stability and permeability. Researchers use TIE2 antibodies including anti-TIE and anti-clone to study its role and functions across various contexts.
Biological function summary	TIE2 plays a central role in angiogenesis and blood vessel maturation. It forms a receptor complex with other components to mediate its effects. This interaction mainly involves Angpt1 which binds to TIE2 stabilizing blood vessels and preserving their integrity. TIE2 also participates in cell survival and migration processes necessary for normal vascular function. Researchers often perform Angpt1 ELISA in bulk to quantify interactions involving TIE2 in experiments.
Pathways	TIE2 is important in the angiopoietin-TIE signaling pathway regulating vascular development. TIE2 is related to proteins such as Angpt1 which are centrally involved in this pathway. It also interacts with various signaling molecules including phosphatidylinositol-3-kinase (PI3K) which contributes to cell survival pathways. Alterations in the TIE2 signaling cascade can lead to aberrant angiogenesis and related pathologies.

Associated diseases and disorders	TIE2 is implicated in several vascular diseases and cancer. Mutations or dysregulation of TIE2 can result in venous malformations and further compromise blood vessel integrity. In cancer TIE2 expression can influence tumor angiogenesis enhancing tumor growth and metastasis. TIE2 interacts with proteins like vascular endothelial growth factor (VEGF) which are involved in neovascularization and cancer progression. Understanding these interactions helps target therapeutic strategies in relevant diseases.

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

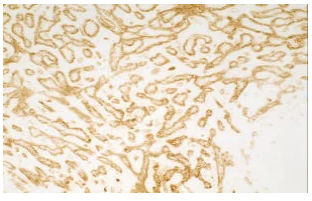
We do not recommend this combination. It is not covered by our product promise.

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:
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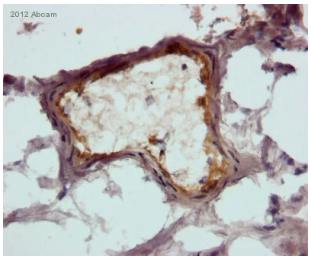
6 product images



Immunohistochemistry (Frozen sections) - Anti-TIE2 antibody [Cl. 16] - BSA and Azide free (ab24859)

TIE2 Immunohistochemistry (Frozen sections) staining using mouse Anti-TIE2 antibody

ab24859 staining TIE2 in Human spleen by Immunohistochemistry (Frozen sections).



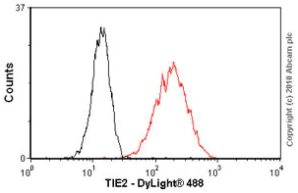
This image is courtesy of an anonymous customer review

Immunohistochemistry (Frozen sections) - Anti-TIE2 antibody [Cl. 16] - BSA and Azide free (ab24859)

TIE2 Immunohistochemistry (Frozen sections) staining using mouse Anti-TIE2 antibody

Immunohistochemical analysis of Human brain tissue, staining TIE2 with ab24859.

Tissue was fixed with paraformaldehyde, permeabilized with 0.25 Triton X-100 and blocked with 2.5% BSA for 30 minutes at 25°C. Samples were incubated with primary antibody (1/200 in 2.5% horse serum) for 18 hours at 4°C. An HRP-conjugated horse anti-rabbit polyclonal IgG was used as the secondary antibody.

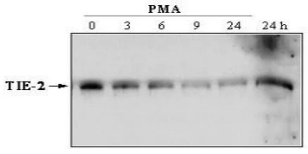


Flow Cytometry - Anti-TIE2 antibody [Cl. 16] - BSA and Azide free (ab24859)

TIE2 Flow Cytometry staining using mouse Anti-TIE2 antibody

Overlay histogram showing JEG-3 cells stained with ab24859 (red line). The cells were fixed with methanol (5 min) and incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab24859, 2µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a decreased signal in JEG-3 cells fixed with 4% paraformaldehyde (10 min) used under the same conditions.

Please note that Abcam does not have data for use of this antibody on non-fixed cells. We welcome any customer feedback.



Western blot - Anti-TIE2 antibody [Cl. 16] - BSA and Azide free (ab24859)

Samples were immunoprecipitated with another TIE2 antibody.
All lanes:
Western blot - Anti-TIE2 antibody [Cl. 16] - BSA and Azide free (ab24859)

Lane 1:
HUVECs left untreated

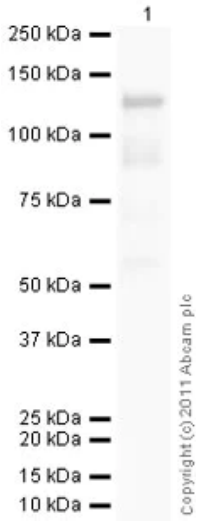
Lane 2:
HUVECs stimulated for 3 hours with PMA at 25 ng/ml

Lane 3:
HUVECs stimulated for 6 hours with PMA at 25 ng/ml

Lane 4:
HUVECs stimulated for 9 hours with PMA at 25 ng/ml

Lane 5:
HUVECs stimulated for 24 hours with PMA at 25 ng/ml

Predicted band size: 125 kDa



Western blot - Anti-TIE2 antibody [Cl. 16] - BSA and Azide free (ab24859)

TIE2 Western blot staining using mouse Anti-TIE2 antibody

All lanes:
Western blot - Anti-TIE2 antibody [Cl. 16] - BSA and Azide free (ab24859) at 1 µg/mL

All lanes:
Western blot - Recombinant Human TIE2 protein (Fc Chimera) (ab54435) at 0.01 µg

Secondary

All lanes:
Western blot - Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 125 kDa

Exposure time: 2min

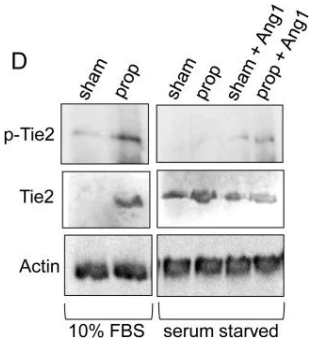


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Western blot - Anti-TIE2 antibody [Cl. 16] - BSA and Azide free (ab24859)

TIE2 Western blot staining using mouse Anti-TIE2 antibody

TIE2 western blot using anti-TIE2 antibody [Cl. 16] - BSA and Azide free ab24859. Publication image and figure legend from Stiles, J. M., Amaya, C., et al., 2013, PLoS One, PubMed 23555867.

ab24859 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab24859 please see the product overview.

Beta blockade induces alterations in key cell cycle regulators and the Tie2 angiogenic regulator.(A) qPCR analysis of a panel of 84 genes involved in cell cycle regulation. Shown are the 25 genes whose mRNA expression levels were statistically altered 1.5 fold or more following 24 hours of 100 µM propranolol in SVR cells. The qPCR data is the average +/- standard deviation for at least three biological replicates. Statistical significant was determined using Students t-test ($p<0.05$). (B) Western blot detecting cell cycle regulatory protein levels in SVR cells subjected to 24 hours of sham or 100 µM propranolol. (C) Immunofluorescent staining for p21 (red) and p27 (green) in SVR cells subjected to 24 hours of sham or 100 µM propranolol. (D) SVR cells were grown in standard growth media (10% FBS) or serum starved overnight, treated as indicated with sham, 100 µM propranolol (24 hours), or 10 ng/ml angiopoietin-1 (2.5 minutes), and Western analysis detected the expression of phosphorylated Tie2, total Tie2, and actin.

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