Product datasheet

Anti-TIE2 antibody ab111074

Overview

Product name
Anti-TIE2 antibody

Description
Rabbit polyclonal to TIE2

Host species
Rabbit

Tested applications
Suitable for: IHC-P

Species reactivity
Reacts with: Human

Predicted to work with: Mouse

Immunogen
Synthesized peptide derived an internal region of Human TIE2.

Positive control
Human brain tissue.

Properties

Form
Liquid

Storage instructions
Shipped at 4°C. Store at -20°C. Stable for 12 months at -20°C.

Storage buffer
pH: 7.40
Preservative: 0.02% Sodium azide
Constituents: 0.88% Sodium chloride, 49.1% PBS, 50% Glycerol
Note: PBS (without Mg2+ and Ca2+)

Purity
Immunogen affinity purified

Purification notes
ab111074 was affinity-purified from Rabbit antiserum by affinity-chromatography using epitope-specific immunogen.

Clonality
Polyclonal

Isotype
IgG

Applications

Our Abpromise guarantee covers the use of ab111074 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.
Function
Tyrosine-protein kinase that acts as 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 proinflammatory 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.

Tissue specificity
Detected in umbilical vein endothelial cells. Proteolytic processing gives rise to a soluble extracellular domain that is detected in blood plasma (at protein level). Predominantly expressed in endothelial cells and their progenitors, the angioblasts. Has been directly found in placenta and lung, with a lower level in umbilical vein endothelial cells, brain and kidney.

Involvement in disease
Dominantly inherited venous malformations
May play a role in a range of diseases with a vascular component, including neovascularization of tumors, psoriasis and inflammation.

Sequence similarities
Belongs to the protein kinase superfamily. Tyr protein kinase family. Tie subfamily.
Contains 3 EGF-like domains.
Contains 3 fibronectin type-III domains.
Contains 2 Ig-like C2-type (immunoglobulin-like) domains.
Contains 1 protein kinase domain.

Domain
The soluble extracellular domain is functionally active in angiopoietin binding and can modulate the activity of the membrane-bound form by competing for angiopoietins.

Post-translational modifications
Proteolytic processing leads to the shedding of the extracellular domain (soluble TIE-2 alias sTIE-2).
Autophosphorylated on tyrosine residues in response to ligand binding. Autophosphorylation occurs in trans, i.e. one subunit of the dimeric receptor phosphorylates tyrosine residues on the other subunit. Autophosphorylation occurs in a sequential manner, where Tyr-992 in the kinase active site is phosphorylated first, followed by Tyr-1049.
activation loop is phosphorylated first, followed by autophosphorylation at Tyr-1108 and at additional tyrosine residues. ANGPT1-induced phosphorylation is impaired during hypoxia, due to increased expression of ANGPT2. Phosphorylation is important for interaction with GRB14, PK3R1 and PTPN11. Phosphorylation at Tyr-1102 is important for interaction with SHC1, GRB2 and GRB7. Phosphorylation at Tyr-1108 is important for interaction with DOK2 and for coupling to downstream signal transduction pathways in endothelial cells. Dephosphorylated by PTPRB. Ubiquitinated. The phosphorylated receptor is ubiquitinated and internalized, leading to its degradation.

**Cellular localization**


**Images**

ab111074 at 1/50 dilution staining TIE2 in paraffin-embedded Human Brain tissue by Immunohistochemistry. The image on the right is treated with the synthesized peptide.

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