

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human EphB4 in direct ELISAs and Western blots. In direct ELISAs and Western blots, no cross-reactivity with recombinant human EphA1, A2, A5, A6, A10, B2, B3, B6, recombinant mouse EphA3, A4, or recombinant rat EphB1 is observed.
Source	Monoclonal Rat IgG ₁ Clone # 395810
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human EphB4 Ala16-Ala539 Accession # AAH52804
Conjugate	Alexa Fluor 594 Excitation Wavelength: 590 nm Emission Wavelength: 617 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Flow Cytometry	0.25-1 µg/10 ⁶ cells	MCF-7 human breast cancer cell line

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. <ul style="list-style-type: none"> 12 months from date of receipt, 2 to 8 °C as supplied.

BACKGROUND

EphB4, also known as Htk, Myk1, Tyro11, and Mdk2, is a member of the Eph receptor tyrosine kinase family and binds Ephrin-B2. The A and B class Eph proteins have a common structural organization (1-4). The human EphB4 cDNA encodes a 987 amino acid precursor that includes a 15 amino acid (aa) signal sequence, a 524 aa extracellular domain (ECD), a 21 aa transmembrane segment, and a 427 aa cytoplasmic domain (5). The ECD contains an N-terminal globular domain, a cysteine-rich domain, and two fibronectin type III domains. The cytoplasmic domain contains a juxtamembrane motif with two tyrosine residues which are the major autophosphorylation sites, a kinase domain, and a conserved sterile alpha motif (SAM) (5). Activation of kinase activity occurs after membrane-bound or clustered ligand recognition and binding. The ECD of human EphB4 shares 89% aa sequence identity with mouse EphB4 and 42-45% aa sequence identity with human EphB1, 2, and 3. EphB4 is expressed preferentially on venous endothelial cells (EC) and inhibits cell-cell adhesion, chemotaxis, and angiogenesis. Opposing effects are induced by signaling through Ephrin-B2 expressed on arterial EC: adhesion, endothelial cell migration, and vessel sprouting (6). EphB4 signaling contributes to new vascularization by guiding venous EC away from Ephrin-B2 expressing EC. Ephrin-B2 signaling induces arterial EC to migrate towards nascent EphB4 expressing vessels (6). The combination of forward signaling through EphB4 and reverse signaling through Ephrin-B2 promotes *in vivo* mammary tumor growth and tumor-associated angiogenesis (7). EphB4 promotes the differentiation of megakaryocytic and erythroid progenitors but not granulocytic or monocytic progenitors (8, 9).

References:

1. Poliakov, A. *et al.* (2004) *Dev. Cell* **7**:465.
2. Surawska, H. *et al.* (2004) *Cytokine Growth Factor Rev.* **15**:419.
3. Pasquale, E.B. (2005) *Nat. Rev. Mol. Cell Biol.* **6**:462.
4. Davy, A. and P. Soriano (2005) *Dev. Dyn.* **232**:1.
5. Bennett, B.D. *et al.* (1994) *J. Biol. Chem.* **269**:14211.
6. Fuller, T. *et al.* (2003) *J. Cell Sci.* **116**:2461.
7. Noren, N.K. *et al.* (2004) *Proc. Natl. Acad. Sci.* **101**:5583.
8. Wang, Z. *et al.* (2002) *Blood* **99**:2740.
9. Inada, T. *et al.* (1997) *Blood* **89**:2757.

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