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# EphA4 Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7609a

## Product Information

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| **Application** | WB, IF, FC, IHC-P, E |
| **Primary Accession** | P54764 |
| **Other Accession** | Q03137, Q07496, Q91694, Q91845 |
| **Reactivity** | Human, Mouse |
| **Predicted** | Mouse, Chicken, Xenopus |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | Rabbit IgG |
| **Calculated MW** | 109860 |
| **Antigen Region** | 40-70 |

## Additional Information

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| **Gene ID** | 2043 |
| **Other Names** | Ephrin type-A receptor 4, EPH-like kinase 8, EK8, hEK8, Tyrosine-protein kinase TYRO1, Tyrosine-protein kinase receptor SEK, EPHA4, HEK8, SEK, TYRO1 |
| **Target/Specificity** | This EphA4 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 40-70 amino acids from the N-terminal region of human EphA4. |
| **Dilution** | WB~~1:1000 IF~~1:100 FC~~1:10~50 IHC-P~~1:100~500 E~~Use at an assay dependent concentration. |
| **Format** | Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, followed by dialysis against PBS. |
| **Storage** | Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles. |
| **Precautions** | EphA4 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | EPHA4 |
| **Synonyms** | HEK8, SEK, TYRO1 |

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| **Function** | Receptor tyrosine kinase which binds membrane-bound ephrin family ligands residing on adjacent cells, leading to contact-dependent bidirectional signaling into neighboring cells. The signaling pathway downstream of the receptor is referred to as forward signaling while the signaling pathway downstream of the ephrin ligand is referred to as reverse signaling. Highly promiscuous, it has the unique property among Eph receptors to bind and to be physiologically activated by both GPI- anchored ephrin-A and transmembrane ephrin-B ligands including EFNA1 and EFNB3. Upon activation by ephrin ligands, modulates cell morphology and integrin-dependent cell adhesion through regulation of the Rac, Rap and Rho GTPases activity. Plays an important role in the development of the nervous system controlling different steps of axonal guidance including the establishment of the corticospinal projections. May also control the segregation of motor and sensory axons during neuromuscular circuit development. In addition to its role in axonal guidance plays a role in synaptic plasticity. Activated by EFNA1 phosphorylates CDK5 at 'Tyr-15' which in turn phosphorylates NGEF regulating RHOA and dendritic spine morphogenesis. In the nervous system, also plays a role in repair after injury preventing axonal regeneration and in angiogenesis playing a role in central nervous system vascular formation. Additionally, its promiscuity makes it available to participate in a variety of cell-cell signaling regulating for instance the development of the thymic epithelium. During development of the cochlear organ of Corti, regulates pillar cell separation by forming a ternary complex with ADAM10 and CADH1 which facilitates the cleavage of CADH1 by ADAM10 and disruption of adherens junctions (By similarity). Phosphorylates CAPRIN1, promoting CAPRIN1-dependent formation of a membraneless compartment (By similarity). |
| **Cellular Location** | Cell membrane {ECO:0000250\|UniProtKB:Q03137}; Single-pass type I membrane protein {ECO:0000250\|UniProtKB:Q03137} Cell projection, axon {ECO:0000250\|UniProtKB:Q03137}. Cell projection, dendrite {ECO:0000250\|UniProtKB:Q03137}. Postsynaptic density membrane {ECO:0000250\|UniProtKB:Q03137}. Early endosome {ECO:0000250\|UniProtKB:Q03137}. Cell junction, adherens junction {ECO:0000250\|UniProtKB:Q03137}. Note=Clustered upon activation and targeted to early endosome. {ECO:0000250\|UniProtKB:Q03137} |
| **Tissue Location** | Ubiquitous.. |

## Background

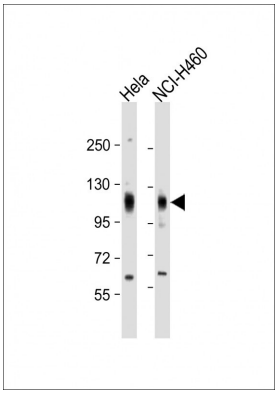
Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the g phosphate of ATP, onto an acceptor amino acid in a substrate protein. By this basic mechanism, protein kinases mediate most of the signal transduction in eukaryotic cells, regulating cellular metabolism, transcription, cell cycle progression, cytoskeletal rearrangement and cell movement, apoptosis, and differentiation. With more than 500 gene products, the protein kinase family is one of the largest families of proteins in eukaryotes. The family has been classified in 8 major groups based on sequence comparison of their tyrosine (PTK) or serine/threonine (STK) kinase catalytic domains. The tyrosine kinase (TK) group is mainly involved in the regulation of cell-cell interactions such as differentiation, adhesion, motility and death. There are currently about 90 TK genes sequenced, 58 are of receptor protein TK (e.g. EGFR, EPH, FGFR, PDGFR, TRK, and VEGFR families), and 32 of cytosolic TK (e.g. ABL, FAK, JAK, and SRC families).

## References

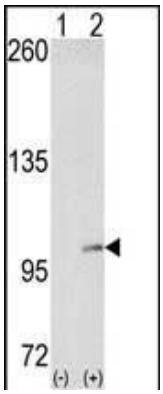
Prevost, N., et al., Proc. Natl. Acad. Sci. U.S.A. 99(14):9219-9224 (2002).
Xu, Q., et al., Philos. Trans. R. Soc. Lond., B, Biol. Sci. 355(1399):993-1002 (2000).
Holder, N., et al., Development 126(10):2033-2044 (1999).
Zhou, R., Pharmacol. Ther. 77(3):151-181 (1998).

Fox, G.M., et al., Oncogene 10(5):897-905 (1995).

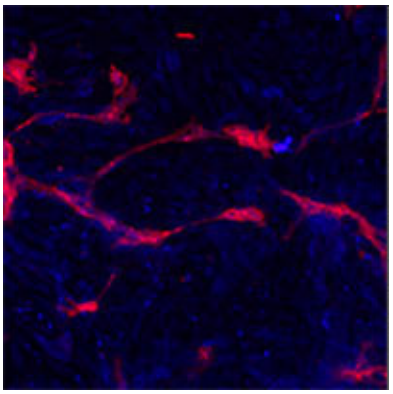
## Images



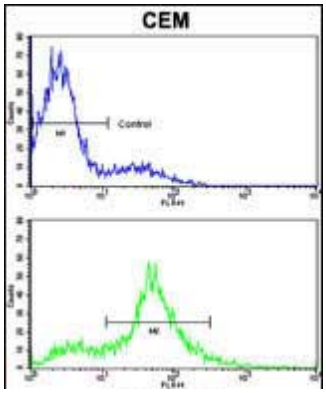

All lanes : Anti-EPHA4 Antibody (E55) at 1:2000 dilution Lane 1: Hela whole cell lysate Lane 2: NCI-H460 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 110 kDa Blocking/Dilution buffer: 5% NFDM/TBST.




Western blot analysis of EphA4 (arrow) using EphA4 Antibody (N-term) (Cat.#AP7609a). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the EphA4 gene (Lane 2) (Origene Technologies).

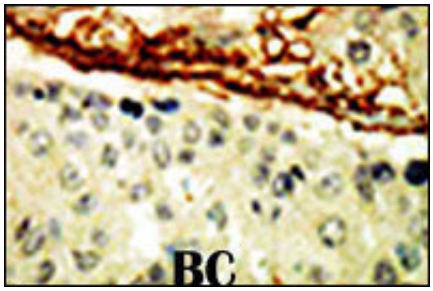


Methanol/Acetone fixed human stem cell is used in IF to detect Eph4A (blue) and endothelial Lectin(red). Data kindly provided by Dr. Weis from Cheresh Lab, UCSD.




Flow cytometric analysis of CEM cells using EphA4 Antibody (N-term) (bottom histogram) compared to a negative control cell (top histogram). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody,




followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.