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Punt Rabbit pAb

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Catalog # AP57590

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	Q24468
Host	Rabbit
Clonality	Polyclonal
Calculated MW	58648
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from Fruit Fly Punt
Epitope Specificity	421-516/516
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Fruit fly (Drosophila melanogaster) ovaries contains two set of germline stem cells surrounded by a group of highly differentiated somatic cells that express genes for two phenotypes (hedgehog and wingless). The TGF beta super family member, decpentaplegic (dpp) or its homologue BMP2/4 is specifically required for maintenance and promotes its cell division in the female germline. The Signaling by TGF beta related factors requires ligand induced association between type I and type II transmembrane receptors that have endogenous serine/threonine kinases activity. In Drosophila, the type I receptor is encoded by the thick veins (tkv) gene and the type II receptor is encoded by the punt (put) gene. These receptors mediate signaling by decapentaplegic (dpp), a member of the bone morphogenetic protein (BMP) subgroup of TGF beta type factors. Over expression or mutation in dpp suppress germline stem cell differentiation. The Drosophila punt gene encodes a type II serine/threonine kinase TGF beta/Dpp (Decapentaplegic) receptor. Dpp actions are mediated by its receptor Punt and Saxophone. There are 5 down stream component in the dpp signaling cascade required to block the development of various organelles including salivary glands. These are Mothers against dpp (Mad), Medea (Med) and Schnurri (Shn). Punt signaling is also responsible for calcium gradient formation during D. melanogaster development. Punt gene encodes for a homolog of vertebrate type II receptor and Punt, like thick veins (Tkv) is essential for in vivo dpp dependent patterning process. No Dpp dependent signal processing is apparent in the absence of Punt ot Tkv suggesting that both receptors acts in concert to transduce Dpp signaling.

Additional Information

Gene ID	41772

Other Names	Receptor protein serine/threonine kinase put {ECO:0000255|RuleBase:RU361271}, 2.7.11.30 {ECO:0000255|RuleBase:RU361271}, Activin type II receptor, Protein punt {ECO:0000303|PubMed:7697720, ECO:0000312|FlyBase:FBgn0003169}, put {ECO:0000312|FlyBase:FBgn0003169}
Dilution	IHC-P=1:100-500,IHC-F=1:100-500,ICC/IF=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	put {ECO:0000312|FlyBase:FBgn0003169}
Function	Type II transmembrane receptor serine/threonine kinase involved in activin-like TGF-beta signaling and dpp/BMP-like signaling pathways (PubMed:19766717, PubMed:22563507, PubMed:7697719, PubMed:7697720, PubMed:8289834, PubMed:8415726). Forms a complex with type I transmembrane receptor serine/threonine kinases, and upon activation by signaling ligands induces the type I receptor to phosphorylate downstream receptor-regulated SMAD (R-SMAD) transcription factors, inducing their nuclear localization and resulting in regulation of ligand-responsive genes (PubMed:17119022, PubMed:18820452, PubMed:7697720, PubMed:8289834). Receptor for the activin-like TGF-beta ligands daw and Actbeta/activin when in complex with the type I receptor babo (PubMed:10320478, PubMed:17119022, PubMed:18820452, PubMed:8289834). Activation by daw requires babo isoform C (PubMed:19766717). Receptor for the BMP-like ligand dpp when associated with the type I receptors tkv or sax (PubMed:7697719, PubMed:7697720). Activation by activin-like TGF-beta ligands, including daw and Actbeta/activin, results in phosphorylation of the R-SMAD Smox/SMAD2 (PubMed:10320478, PubMed:17119022, PubMed:18820452, PubMed:19766717, PubMed:8289834). Activation by BMP-like ligands, including gbb and dpp, results in phosphorylation of the R-SMAD Mad (PubMed:18820452, PubMed:19766717). Involved in dpp-signaling-dependent dorsoventral patterning of the epidermis during embryogenesis (PubMed:7697719, PubMed:7697720, PubMed:9504926). Involved in axonal and dendritic pruning and neural remodeling of mushroom body gamma neurons during metamorphosis, probably through regulating expression of the ecdysteroid receptor EcR; functions redundantly with wit (PubMed:12581521). Involved in dpp/BMP-like signaling during development of the embryonic gut tracheal system (PubMed:7697719, PubMed:7697720). Required for dpp/BMP-like signaling involved in imaginal disc development (PubMed:9504926). Involved in differentiation of dorsal cluster and ellipsoid body adult-specific neurons prior to metamorphosis (PubMed:16437159). Required in motoneurons for axon guidance or outgrowth of ISNb and SNa axons (PubMed:17119022). Required in somatic cyst cells for regulation of germ cell proliferation in testis (PubMed:9334286). Involved in adult wing development and wing- vein formation (PubMed:7697720).
Cellular Location	Membrane {ECO:0000255|RuleBase:RU361271}; Single- pass type I membrane protein {ECO:0000255|RuleBase:RU361271} Basolateral cell membrane; Single-pass type I membrane protein {ECO:0000255|RuleBase:RU361271}. Apical cell membrane; Single-pass type I membrane protein {ECO:0000255|RuleBase:RU361271}. Note=Localization to different regions of the cell membrane in polarized epithelial cells can differ

by tissue and is distinct from wit/wishful thinking, the other type II receptor involved in BMP-like signaling (PubMed:35594316). Highly restricted to the basolateral cell membrane in wing disc epithelial cells; basolateral localization is dependent on the BLT motif and on the AP-1 adapter protein complex (PubMed:35594316). In larval salivary epithelial cells localization is restricted to the basolateral membrane and excluded from cell junctions (PubMed:35594316). Localizes to both the basolateral and apical membrane in follicle cells of the egg chamber (PubMed:35594316).

Background

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