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PIM1 Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7932d

Product Information

Application	WB, IHC-P, E
Primary Accession	P11309
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB15686
Calculated MW	35686

Additional Information

Gene ID	5292
Other Names	Serine/threonine-protein kinase pim-1, PIM1
Target/Specificity	This PIM1 antibody is generated from rabbits immunized with PIM1 recombinant protein.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation 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	PIM1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PIM1
Function	Proto-oncogene with serine/threonine kinase activity involved in cell survival and cell proliferation and thus providing a selective advantage in tumorigenesis (PubMed:15528381, PubMed:1825810, PubMed:31548394). Exerts its oncogenic activity through: the regulation of MYC transcriptional activity, the regulation of cell cycle progression and by phosphorylation and inhibition of proapoptotic proteins (BAD, MAP3K5, FOXO3) (PubMed:18593906). Phosphorylation of MYC leads to an increase of MYC

	protein stability and thereby an increase of transcriptional activity (By similarity). The stabilization of MYC exerted by PIM1 might explain partly the strong synergism between these two oncogenes in tumorigenesis (By similarity). Mediates survival signaling through phosphorylation of BAD, which induces release of the anti-apoptotic protein Bcl-X(L)/BCL2L1 (By similarity). Phosphorylation of MAP3K5, another proapoptotic protein, by PIM1, significantly decreases MAP3K5 kinase activity and inhibits MAP3K5-mediated phosphorylation of JNK and JNK/p38MAPK subsequently reducing caspase-3 activation and cell apoptosis (PubMed:19749799). Stimulates cell cycle progression at the G1-S and G2-M transitions by phosphorylation of CDC25A and CDC25C (PubMed:16356754). Phosphorylation of CDKN1A, a regulator of cell cycle progression at G1, results in the relocation of CDKN1A to the cytoplasm and enhanced CDKN1A protein stability (PubMed:12431783). Promotes cell cycle progression and tumorigenesis by down-regulating expression of a regulator of cell cycle progression, CDKN1B, at both transcriptional and post-translational levels (PubMed:18593906). Phosphorylation of CDKN1B, induces 14-3-3 proteins binding, nuclear export and proteasome-dependent degradation (PubMed:18593906). May affect the structure or silencing of chromatin by phosphorylating HP1 gamma/CBX3 (PubMed:10664448). Also acts as a regulator of homing and migration of bone marrow cells involving functional interaction with the CXCL12-CXCR4 signaling axis (By similarity). Acts as a positive regulator of mTORC1 signaling by mediating phosphorylation and inhibition of DEPDC5 component of the GATOR1 complex (PubMed:31548394). Acts as a negative regulator of innate immunity by mediating phosphorylation and inactivation of GBP1 in absence of infection: phosphorylation of GBP1 induces interaction with 14-3-3 protein sigma (SFN) and retention in the cytosol (PubMed:37797010). Also phosphorylates and activates the ATP-binding cassette transporter ABCG2, allowing resistance to drugs through their excretion from cells (PubMed:18056989). Promotes brown adipocyte differentiation (By similarity).
Cellular Location	[Isoform 1]: Cytoplasm. Nucleus.
Tissue Location	Expressed primarily in cells of the hematopoietic and germline lineages. Isoform 1 and isoform 2 are both expressed in prostate cancer cell lines.

Background

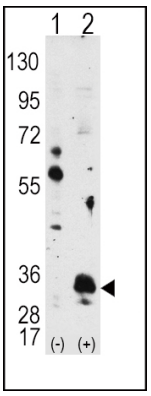
PIM1, which belongs to the Serine/Threonine protein kinase family, is thought to play a role in signal transduction in blood cells. The protooncogene PIM1 encodes a protein kinase upregulated in prostate cancer. It may affect the structure or silencing of chromatin by phosphorylating HP1 gamma/CBX3. PIM1 is expressed primarily in cells of the hematopoietic and germ line lineages.

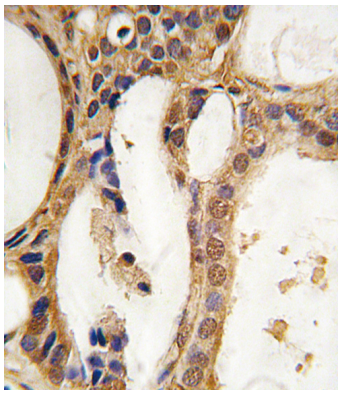
References

Strausberg, R.L., et al., Proc. Natl. Acad. Sci. U.S.A. 99(26):16899-16903 (2002). Pasqualucci, L., et al., Nature 412(6844):341-346 (2001). Koike, N., et al., FEBS Lett. 467(1):17-21 (2000). Reeves, R., et al., Gene 90(2):303-307 (1990). Telerman, A., et al., Mol. Cell. Biol. 8(4):1498-1503 (1988).

Images

Western blot analysis of PIM1 (arrow) using PIM1 Antibody (Cat.#AP7932d). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the PIM1 gene (Lane 2) (Origene Technologies).





Formalin-fixed and paraffin-embedded human prostata carcinoma tissue reacted with PIM1 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.

Citations

- Progression Risk Score Estimation Based on Immunostaining Data in Oral Cancer Using Unsupervised Hierarchical Clustering Analysis: A Retrospective Study in Taiwan
- PIM-1 contributes to the malignancy of pancreatic cancer and displays diagnostic and prognostic value.
- PIM1 gene cooperates with human BCL6 gene to promote the development of lymphomas.