Revision 7

#12709 Store at -20C

PAX5 (D7H5X) XP® Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IHC-P, IF-IC, FC-FP	H M Mk	Endogenous	45	Rabbit IgG	#Q02548	5079

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunohistochemistry (Paraffin)	1:50
Immunofluorescence (Immunocytochemistry)	1:100 - 1:200
Flow Cytometry (Fixed/Permeabilized)	1:50 - 1:200

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibody.*

For a carrier free (BSA and azide free) version of this product see product #93009.

Specificity / Sensitivity

PAX5 (D7H5X) XP® Rabbit mAb recognizes endogenous levels of total PAX5 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with recombinant protein specific to the carboxy terminus of human PAX5 protein.

Background

Paired box (PAX) proteins are a family of transcription factors that play important and diverse roles in animal development (1). Nine PAX proteins (PAX1-9) have been described in humans and other mammals. They are defined by the presence of an amino-terminal "paired" domain, consisting of two helix-turn-helix motifs, with DNA binding activity (2). PAX proteins are classified into four structurally distinct subgroups (I-IV) based on the absence or presence of a carboxy-terminal homeodomain and a central octapeptide region. Subgroup I (PAX1 and 9) contains the octapeptide but lacks the homeodomain; subgroup II (PAX2, 5, and 8) contains the octapeptide and a truncated homeodomain; subgroup III (PAX3 and 7) contains the octapeptide and a complete homeodomain; and subgroup IV (PAX4 and 6) contains a complete homeodomain but lacks the octapeptide region (2). PAX proteins play critically important roles in development by regulating transcriptional networks responsible for embryonic patterning and organogenesis (3); a subset of PAX proteins also maintain functional importance during postnatal development (4). Research studies have implicated genetic mutations that result in aberrant expression of PAX genes in a number of cancer subtypes (1-3), with members of subgroups II and III identified as potential mediators of tumor progression (2).

PAX5, also known as B cell-specific activator protein (BSAP), was originally identified as a DNA-binding protein with affinity for both immunoglobulin heavy-chain and kappa light-chain loci (5). PAX5 is unique within the PAX family in being the only member with reported expression in the hematopoietic system. PAX5 is required to promote differentiation of common lymphoid progenitors (CLPs) into B cells (5,6); it is also required for the continued maintenance of B cell identity following differentiation (7). Disruptions to the expression of PAX5 have consequently been linked with lymphoid cancer development (8).

Background References

1. Lang, D. et al. (2007) *Biochem Pharmacol* 73, 1-14.
2. Robson, E.J. et al. (2006) *Nat Rev Cancer* 6, 52-62.
3. Wang, Q. et al. (2008) *J Cell Mol Med* 12, 2281-94.
4. Blake, J.A. et al. (2008) *Dev Dyn* 237, 2791-803.
5. Cobaleda, C. et al. (2007) *Nat Immunol* 8, 463-70.
6. Busslinger, M. (2004) *Annu Rev Immunol* 22, 55-79.
7. Carotta, S. and Nutt, S.L. (2008) *Bioessays* 30, 203-7.
8. Heltemes-Harris, L.M. et al. (2011) *J Exp Med* 208, 1135-49.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IHC-P:** Immunohistochemistry (Paraffin)
IF-IC: Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses