Revision 5

#12550 Store at -20C

Vitamin D3 Receptor (D2K6W) 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, IP, IHC-P, ChIP, ChIP-seq	H M	Endogenous	48, 54	Rabbit IgG	#P11473	7421

Product Usage Information

For optimal ChIP and ChIP-seq results, use 10 µl of antibody and 10 µg of chromatin (approximately 4 x 10^6 cells) per IP. This antibody has been validated using SimpleChIP® Enzymatic Chromatin IP Kits.

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:100
Immunohistochemistry (Paraffin)	1:100 - 1:400
Chromatin IP	1:50
Chromatin IP-seq	1:50

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 #54721.

Specificity / Sensitivity

Vitamin D3 Receptor (D2K6W) Rabbit mAb recognizes endogenous levels of total vitamin D3 receptor protein. This antibody does not cross-react with vitamin D3 receptor-like proteins. Based upon sequence alignment, this antibody is predicted to react with both VDRB1 and VDRB2 isoforms.

Species predicted to react based on 100% sequence homology:

Hamster, Bovine, Pig, Horse

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of human vitamin D3 receptor isoform A protein.

Background

Although originally identified based on their roles in calcium and bone homeostasis, the vitamin D3 receptor (VDR/NR1I1) and its ligand 1-α, 25-dihydroxycholecalciferol [1α, 25$(OH)_2D_3$] are now recognized to exert biological effects in almost every tissue of the human body. Targets for vitamin D signaling include the central nervous system, skin, immune system, endocrine glands, kidney, and colon. At the cellular level, vitamin D signaling affects proliferation, differentiation, and apoptosis of both normal and transformed cells. Within the steroid receptor gene family, VDR belongs to the NR1I subfamily that also includes NR1I2/PXR and NR1I3/CAR. The human *VDR* gene is composed of 11 exons that encode six domains (A-F) of the full length VDR protein, which includes an N-terminal dual zinc finger DNA binding domain, a C-terminal ligand-binding activity domain, and an extensive unstructured region that links the two functional domains together (1). Upon 1α, 25$(OH)_2D_3$ binding to the hormone ligand-binding domain, VDR is stabilized by the phosphorylation of Ser51 in the DNA-binding domain by PKC (2), and Ser208 in the hinge region by casein kinase II (3). VDR associates with the retinoic acid receptor (RXR) through dimerization domains. The 1α, 25$(OH)_2D_3$-VDR-RXR complex binds to the vitamin D response elements (VDREs) in the promoters of target genes through the DNA-binding domain. Ligand-induced conformation changes in VDR results in the dissociation of the co-repressor, silencing-mediator for retinoid and thyroid hormone receptors (SMRT), and allows interaction of the VDR activation function (AF2) transactivation domain with transcriptional coactivators (1).Studies have shown that variable VDR expression is associated with different forms or stages of cancer and likely results from tissue-type variation in 1α, 25$(OH)_2D_3$ signaling. In the case of colon cancer, research indicates that VDR expression is relatively higher in hyperplastic colon polyps and during early tumorigenesis but diminishes in later stage, poorly differentiated tumors. Multiple studies suggest that 1α, 25$(OH)_2D_3$ may be an attractive target for development as a therapeutic anticancer agent (4,5) .

Background References

1. Haussler, M.R. et al. (1998) *J Bone Miner Res* 13, 325-49.
2. Hsieh, J.C. et al. (1991) *Proc Natl Acad Sci U S A* 88, 9315-9.
3. Jurutka, P.W. et al. (1993) *J Biol Chem* 268, 6791-9.
4. Matusiak, D. et al. (2005) *Cancer Epidemiol Biomarkers Prev* 14, 2370-6.
5. Deeb, K.K. et al. (2007) *Nat Rev Cancer* 7, 684-700.

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 **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin) **ChIP:** Chromatin IP **ChIP-seq:** Chromatin IP-seq

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