Background: Although originally identified based on their roles in calcium and bone homeostasis, the vitamin D receptor (VDR/NR1I1) and its ligand 1α,25-dihydroxycholecalciferol (1α,25(OH)2D3), 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 retinoid X receptor α (RXRα) and its ligand 1α,25(OH)2D3 binding to the vitamin D response elements (VDREs) in the promoters of target genes through the DNA-binding domain. Ligand-induced conformation changes in VDR result in interaction of the VDR activation function (AF2) transactivation domain with transcriptional coactivators (1).

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 D receptor-like proteins. Based upon sequence alignment, this antibody is predicted to react with both VDRB1 and VDRB2 isoforms.

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

Background References:
Western blot analysis of kidney tissue extracts from Vdr (+/+; left) and Vdr (-/-; right) mice using Vitamin D3 Receptor (D2K6W) Rabbit mAb #5174 (upper) and GAPDH (D16H11) XP® Rabbit mAb #5174 (lower). (Vdr (+/+) and Vdr (-/-) kidneys were kindly provided by Dr. Marie Demay, Massachusetts General Hospital).

Immunohistochemical analysis of paraffin-embedded human colon carcinoma using Vitamin D3 Receptor (D2K6W) Rabbit mAb.

Immunohistochemical analysis of paraffin-embedded human breast carcinoma using Vitamin D3 Receptor (D2K6W) Rabbit mAb.

Immunohistochemical analysis of paraffin-embedded mouse kidney, Vdr (+/+: left) or Vdr (-/-: right), using Vitamin D3 Receptor (D2K6W) Rabbit mAb (Tissues courtesy of Dr. Marie Demay, Massachusetts General Hospital).

Chromatin immunoprecipitations were performed with cross-linked chromatin from 4 x 10^6 LS180 cells treated with calcitriol (10nM, 3 hours) and either 10 μl of Vitamin D3 Receptor (D2K6W) Rabbit mAb or 2 μl of Normal Rabbit IgG #2729 using SimpleChIP® Enzymatic Chromatin IP Kit (Magnetic Beads) #9003. The enriched DNA was quantified by real-time PCR using SimpleChIP® Human c-Fos Upstream Primers #25661, human UCA1 promoter primers, and SimpleChIP® Human α Satellite Repeat Primers #4466. The amount of immunoprecipitated DNA in each sample is represented as signal relative to the total amount of input chromatin, which is equivalent to one.

Immunoprecipitation of vitamin D3 receptor from T-47D cell extracts, using Rabbit (DA1E) mAb IgG XP® Isotype Control #3900 (lane 2) or Vitamin D3 Receptor (D2K6W) Rabbit mAb (lane 3). Lane 1 is 10% input. Western blot analysis was performed using Vitamin D3 Receptor (D2K6W) Rabbit mAb.