Revision 1

VHL Antibody

#2738 Store at -20C

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:
W	H M R Mk	Endogenous	24	Rabbit	#P40337	7428

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

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

Specificity/Sensitivity

This antibody detects endogenous levels of total VHL protein (isoforms 1, 2 and 3).

Species predicted to react based on 100% sequence homology

Bovine

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to amino acids from the human VHL protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

The von Hippel-Lindau (VHL) protein is a substrate recognition component of an E3 ubiquitin ligase complex containing elongin BC (TCEB1 and TCEB2), cullin 1 (CUL1), and RING-box protein 1 (RBX1) (1-3). VHL protein has been shown to exist as three distinct isoforms resulting from alternatively spliced transcript variants (4). Loss of VHL protein function results in a dominantly inherited familial cancer syndrome that manifests as angiomas of the retina, hemangioblastomas of the central nervous system, renal clear cell carcinomas, and pheochromocytomas (4). Under normoxic conditions, VHL directs the ubiquitylation and subsequent proteasomal degradation of the hypoxia-inducible factor 1α (HIF-1α), maintaining very low levels of HIF-1α in the cell. Cellular exposure to hypoxic conditions, or loss of VHL protein function, results in increased HIF-1α protein levels and increased expression of HIF-induced gene products, many of which are angiogenesis factors such as vascular endothelial growth factor (VEGF). Thus, loss of VHL protein function is believed to contribute to the formation of highly vascular neoplasias (4). In addition to HIF-1α, VHL is known to regulate the ubiquitylation of several other proteins, including tat-binding protein-1 (TBP-1), the atypical protein kinase C (aPKC) lambda, and two subunits of the multiprotein RNA polymerase II complex (RPB1 and RPB7) (5-8). Interactions with elongin BC, RPB1, RPB7, and the pVHL-associated KRAB-A domain-containing protein (VHLaK) suggest that VHL may also play a more direct role in transcriptional repression.

Background References

1. Kibel, A. et al. (1995) *Science* 269, 1444-6.
2. Pause, A. et al. (1997) *Proc Natl Acad Sci U S A* 94, 2156-61.
3. Kamura, T. et al. (2000) *Proc Natl Acad Sci U S A* 97, 10430-5.
4. Czyzyk-Krzeska, M.F. and Meller, J. (2004) *Trends Mol Med* 10, 146-9.
5. Corn, P.G. et al. (2003) *Nat Genet* 35, 229-37.
6. Na, X. et al. (2003) *EMBO J* 22, 4249-59.
7. Kuznetsova, A.V. et al. (2003) *Proc Natl Acad Sci U S A* 100, 2706-11.
8. Li, Z. et al. (2003) *EMBO J* 22, 1857-67.

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 BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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