Product Name: PHD3 (11Y3) Rabbit Monoclonal Antibody
Catalog #: AMRe16061

Summary

Production Name	PHD3 (11Y3) Rabbit Monoclonal Antibody
Description	Rabbit Monoclonal Antibody
Host	Rabbit
Application	WB,ELISA
Reactivity	Human,Mouse,Rat

Performance

Conjugation	Unconjugated
Modification	Unmodified
Isotype	IgG
Clonality	Monoclonal
Form	Liquid
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.
Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% New type preservative N and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.
Purification	Affinity purification

Immunogen

Gene Name	EGLN3 {ECO:0000303|PubMed:16098468, ECO:0000312|HGNC:HGNC:14661}
Alternative Names	Egl nine homolog 3; EGLN3; Factor responsive smooth muscle protein; HIF Prolyl Hydroxylase 3; HIFP4H3; HIFPH3; P4H3; PHD3; SM20;
Gene ID	112399.0
SwissProt ID	Q9H6Z9.

Application

Dilution Ratio	WB 1:500-1:2000
Molecular Weight	27kDa

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Background

Catalyzes the post-translational formation of 4-hydroxyproline in hypoxia-inducible factor (HIF) alpha proteins. Hydroxylates HIF-1 alpha at 'Pro-564', and HIF-2 alpha. Functions as a cellular oxygen sensor and, under normoxic conditions, targets HIF through the hydroxylation for proteasomal degradation via the von Hippel-Lindau ubiquitination complex. Prolyl hydroxylase that mediates hydroxylation of proline residues in target proteins, such as PKM, TELO2, ATF4 and HIF1A (PubMed:19584355, PubMed:21620138, PubMed:21483450, PubMed:22797300, PubMed:20978507, PubMed:21575608). Target proteins are preferentially recognized via a LXXLAP motif. Cellular oxygen sensor that catalyzes, under normoxic conditions, the post-translational formation of 4- hydroxyproline in hypoxia-inducible factor (HIF) alpha proteins (PubMed:11595184, PubMed:12181324). Hydroxylates a specific proline found in each of the oxygen-dependent degradation (ODD) domains (N- terminal, NODD, and C-terminal, CODD) of HIF1A (PubMed:11595184, PubMed:12181324). Also hydroxylates HIF2A (PubMed:11595184, PubMed:12181324). Has a preference for the CODD site for both HIF1A and HIF2A (PubMed:11595184, PubMed:12181324). Hydroxylation on the NODD site by EGLN3 appears to require prior hydroxylation on the CODD site (PubMed:11595184, PubMed:12181324). Hydroxylated HIFs are then targeted for proteasomal degradation via the von Hippel-Lindau ubiquitination complex (PubMed:11595184, PubMed:12181324). Under hypoxic conditions, the hydroxylation reaction is attenuated allowing HIFs to escape degradation resulting in their translocation to the nucleus, heterodimerization with HIF1B, and increased expression of hypoxy- inducible genes (PubMed:11595184, PubMed:12181324). ELGN3 is the most important isozyme in limiting physiological activation of HIFs (particularly HIF2A) in hypoxia. Also hydroxylates PKM in hypoxia, limiting glycolysis (PubMed:21620138, PubMed:<a

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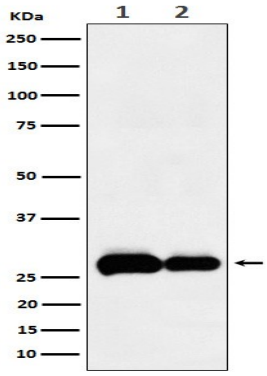
href="http://www.uniprot.org/citations/21483450" target="_blank">21483450). Under normoxia, hydroxylates and regulates the stability of ADRB2 (PubMed:19584355). Regulator of cardiomyocyte and neuronal apoptosis. In cardiomyocytes, inhibits the anti-apoptotic effect of BCL2 by disrupting the BAX-BCL2 complex (PubMed:20849813). In neurons, has a NGF-induced proapoptotic effect, probably through regulating CASP3 activity (PubMed:16098468). Also essential for hypoxic regulation of neutrophilic inflammation (PubMed:21317538). Plays a crucial role in DNA damage response (DDR) by hydroxylating TELO2, promoting its interaction with ATR which is required for activation of the ATR/CHK1/p53 pathway (PubMed:22797300). Also mediates hydroxylation of ATF4, leading to decreased protein stability of ATF4 (Probable).

Research Area

Image Data



Western blot analysis of PHD3 expression in (1) A549 cell lysate; (2) NIH/3T3 cell lysate.

Note

For research use only.